# 1-Cell Structure And Function

1. Peroxisomes are not found in:

- Animal cells

- Plant cells

- Yeast cells

- Bacterial cells

Correct Answer: Bacterial cells

2. Which of the following enzyme found in peroxisomes is involved in breakdown of H2O2?

- Oxidase

- Catalase

- Peroxidase

- Glycolic acid oxidase

Correct Answer: Catalase

3. Glyoxysomes are absent in which of the following seed type?

- Castor beans

- Peanuts

- Soya beans

- Pea

Correct Answer: Pea

4. Glyoxylate cycle is associated with:

- Lysosomes

- Peroxisomes

- Glyoxysomes

- Ribosomes

Correct Answer: Glyoxysomes

5. Cytoskeleton is present in all of the following except:

- Plant cells

- Animal cells

- Fungal cells

- Bacterial cells

Correct Answer: Bacterial cells

6. A prokaryotic cell divides by:

- Mitosis

- Meiosis

- Binary fission

- Multiple fission

Correct Answer: Binary fission

7. Regarding cytoplasm of bacterial cell, this is not true:

- Its peripheral parts are gel like

- It lacks membranous organelles

- It contains single circular DNA

- It does not show cyclosis

Correct Answer: It contains single circular DNA

8. Which of the following structures are chemically same in bacterial and eukaryotic cells?

- Cell membrane

- Cell wall

- Flagella

- Ribosomes

Correct Answer: Ribosomes

9. In peptidoglycan cell wall of a bacterial cell, polysaccharide chains are bound to short chains of amino acids through:

- Ionic bond

- Covalent bond

- Hydrogen bond

- Peptide bond

Correct Answer: Covalent bond

10. Circular DNA is found in:

- Bacteria only

- All viruses

- Bacteria & chloroplast

- Chloroplast, bacteria & mitochondria

Correct Answer: Chloroplast, bacteria & mitochondria

11. Cellular respiration in prokaryotic cells is associated with:

- Mitochondria

- Cristae

- Cell membrane

- Cell wall

Correct Answer: Cell membrane

12. Mycoplasma is:

- Eukaryotic and unicellular

- Eukaryotic and multicellular

- Prokaryotic and unicellular

- Prokaryotic and multicellular

Correct Answer: Prokaryotic and unicellular

13. \_\_\_\_\_\_\_\_\_\_\_ is the smallest unit that can carry out all activities of life.

- Biological molecule

- Cell

- Organelle

- Organ

Correct Answer: Cell

14. Phagocytosis is the common character of:

- Plant cell

- Animal cell

- Bacterial cell

- All A, B, C

Correct Answer: Animal cell

15. Which one of the following is not found in animal cell?

- Nucleus

- Chloroplast

- Golgi bodies

- Mitochondria

Correct Answer: Chloroplast

16. \_\_\_\_\_\_\_\_\_\_\_\_\_ is the outermost boundary of most of the plant cells.

- Cell membrane

- Capsule

- Cell wall

- Spore coat

Correct Answer: Cell wall

17. All of the following functions are related with cell membrane except:

- Regulation of materials

- Conduction of nerve impulse

- Protection from osmotic lysis

- Transport of substances

Correct Answer: Protection from osmotic lysis

18. Lipid bilayer in cell membrane is made from:

- Acylglycerols

- Phospholipids

- Sterols

- Cholesterol

Correct Answer: Phospholipids

19. Lipid molecules of plasma membrane are arranged in \_\_\_\_\_\_\_\_\_\_\_ manner.

- Alternative

- Parallel

- Antagonistic

- Diagonal

Correct Answer: Parallel

20. Biological membrane includes:

- Only nuclear membrane

- Only mitochondrial membrane

- Only membranes of Golgi complex

- All the intracellular membranes along with plasma membrane

Correct Answer: All the intracellular membranes along with plasma membrane

21. Consider a protein that is synthesized on the rough endoplasmic reticulum. Which of the following location is not a possible final destination for this protein?

- Cytoplasm

- Extracellular space

- Endoplasmic reticulum

- Golgi apparatus

Correct Answer: Cytoplasm

22. Most abundant substance in protoplasm is:

- Proteins

- Fats

- Carbohydrates

- Water

Correct Answer: Water

23. Ribosomes found in a eukaryotic cell are:

- 30S & 50S

- 40S & 60S

- 70S & 80S

- 80S & 100S

Correct Answer: 70S & 80S

24. Mg+2 ions in ribosome control attachment of:

- Smaller subunit with larger subunit

- Amino-acyl-tRNA with smaller subunit

- Smaller subunit with mRNA

- Ribosome with RER

Correct Answer: Smaller subunit with larger subunit

25. Ribosomes in the chloroplasts of eukaryotic cells are:

- The same size and composition as in bacteria

- Larger than in bacteria, but of similar composition

- Smaller than in bacteria & different in composition

- The same size but completely different in composition from the ribosomes in bacteria

Correct Answer: The same size and composition as in bacteria

26. Cisternae are the membranes associated with all of the following except:

- Golgi apparatus

- Lysosomes

- Peroxisomes

- Ribosomes

Correct Answer: Ribosomes

27. In any cell, ribosomes can exist in all of the following forms except:

- Dispersed in cytoplasm

- Attached with cell membrane

- Attached with RER

- Attached with Golgi bodies

Correct Answer: Attached with Golgi bodies

28. The larger subunit of a eukaryotic ribosome sediments at:

- 40S

- 60S

- 70S

- 80S

Correct Answer: 60S

29. It is an example of non-membranous organelle:

- Glyoxisomes

- Peroxisomes

- Lysosomes

- Ribosomes

Correct Answer: Ribosomes

30. Proteins synthesized on ribosomes of RER are:

- Released into cytoplasm

- Pushed into RER

- Transferred into nucleus

- Attached with ribosome

Correct Answer: Pushed into RER

31. The ribosomes are attached to messenger RNA through:

- Leader sequence

- Mg+2

- Smaller subunit

- Larger subunit

Correct Answer: Smaller subunit

32. \_\_\_\_\_\_\_\_\_\_\_\_ is the factory for ribosome synthesis while \_\_\_\_\_\_\_\_\_\_\_ is for protein synthesis, respectively.

- Nucleus, mRNA

- RER, ribosome

- Nucleolus, ribosome

- Mitochondria, SER

Correct Answer: Nucleolus, ribosome

33. Channels of endoplasmic reticulum are often continuous with:

- Nucleus & Golgi apparatus

- Nucleus & Plasma membrane

- Plasma membrane & Golgi apparatus

- Plasma membrane & Mitochondria

Correct Answer: Nucleus & Plasma membrane

34. Endoplasmic reticulum contains a system of flattened membrane-bounded sacs which are named as:

- Cristae

- Elementary particles

- Cisternae

- Suicidal bags

Correct Answer: Cisternae

35. Smooth endoplasmic reticulum is specialized for the synthesis of lipids and steroids. These organelles are found predominantly in:

- Pancreas

- Testes

- Pituitary gland

- Parathyroid gland

Correct Answer: Testes

36. Cytoplasmic streaming movement causes flow of all except:

- Endoplasmic reticulum

- Mitochondria

- Lysosomes

- Glucose and salts

Correct Answer: Endoplasmic reticulum

37. Which of the following cell types would you expect to be abundant with endoplasmic reticulum and Golgi bodies?  
Plasma B-cells (produce antibodies)  
Adipose cells (store fats)  
Islet of Langerhans cells (secrete insulin)  
Red blood cells (transport oxygen)

- I & II only

- III & IV only

- I & III only

- II & III only

Correct Answer: I & III only

38. Lysosomal enzymes play an important role in:

- Oxidation

- Reduction

- Hydrolysis

- Anabolism

Correct Answer: Hydrolysis

39. Lysosomes are present in all of the following type of cells except:

- Phagocytes

- Acinar cells

- Erythrocytes

- Hepatocytes

Correct Answer: Erythrocytes

40. Which of the following type of WBCs depend upon lysosomes for killing foreign agents?

- Neutrophils

- Eosinophils

- B lymphocytes

- T lymphocytes

Correct Answer: Neutrophils

41. Tay-Sach’s disease is due to the deficiency of:

- Hormone

- Enzyme

- Lipids

- Glycogen

Correct Answer: Enzyme

42. It is an example of secondary lysosome:

- Food vacuole

- Phagocytic vacuole

- Digestive vacuole

- Contractile vacuole

Correct Answer: Digestive vacuole

43. In plants, \_\_\_\_\_\_\_\_\_\_ is the major contributor to the turgor that provides support for the individual plant cell.

- Nucleus

- Cytoskeleton

- Vacuole

- Chloroplast

Correct Answer: Vacuole

44. It is incorrect about vacuoles found in animals cells:

- Relatively small in size

- Relatively many in number

- Scattered in cytoplasm

- Central in position

Correct Answer: Central in position

45. Membrane which surrounds the vacuole is called:

- Plasmalemma

- Tonoplast

- Cell wall

- Cisternae

Correct Answer: Tonoplast

46. Which statement is correct?

- Plastids are found in animal cells

- Bacteria are the most abundant eukaryotic cells

- Chromatin is found in the Golgi apparatus

- Plant cells contain mitochondria

Correct Answer: Plant cells contain mitochondria

47. Outer and inner membranes of mitochondria are:

- Structurally and functionally similar

- Structurally and functionally dissimilar

- Structurally similar but functionally different

- Structurally different but functionally similar

Correct Answer: Structurally and functionally dissimilar

48. It is an example of organelle having endosymbiotic origin:

- Cell wall

- Lysosome

- Vacuole

- Mitochondria

Correct Answer: Mitochondria

49. The size and number of mitochondria depends on cell’s:

- Physical activity

- Physiological activity

- Structural activity

- Photosynthetic activity

Correct Answer: Physiological activity

50. Difference between mitochondria and chloroplast is:

- Presence of DNA

- Formation of ATP

- Presence of 70S ribosome

- Appearance of membranes

Correct Answer: Appearance of membranes

51. Pick an incorrect statement about chloroplast:

- Present in all bryophytes

- Present in all algae

- Present in all plants

- Present in all photosynthetic organisms

Correct Answer: Present in all photosynthetic organisms

52. The two types of cellular organelles that are involved in transformation of energy are:

- Mitochondria and chloroplast

- Chromoplast and leucoplast

- Mitochondria and chromoplast

- Chloroplast and leucoplast

Correct Answer: Mitochondria and chloroplast

53. If we separate the cell organelles of a living cell, then which part can be alive?

- Ribosome

- Chloroplast

- Cell wall

- ER

Correct Answer: Chloroplast

54. A mature human red blood cell has no nucleus and a lifespan of 120 days. Based on this information alone, it can be inferred that mature human red blood cells must:

- Be metabolically inactive

- Have ribosomes to compensate

- Not be able to replicate

- Contain hemoglobin

Correct Answer: Not be able to replicate

55. Nuclear pores regulate transport of substances between nucleoplasm and cytoplasm. Substances that enter in nucleus are:

- mRNA & RNA

- Ribosomal subunits

- ATP & enzymes

- DNA & RNA

Correct Answer: ATP & enzymes

56. Which of the following events will not take place inside a nucleus?

- Replication

- Transcription

- Translation

- Mutation

Correct Answer: Translation

57. It is not a property of nuclear membrane:

- Porous in nature

- Permeable for ribosomal subunits

- Double membranous

- Impermeable for water

Correct Answer: Impermeable for water

58. All of the following are not visible during dividing phase in a frog’s skin cell except:

- Chromosomes

- Nucleolus

- Nucleus

- Chromatin

Correct Answer: Chromosomes

59. The diameter of peroxisomes is approximately:

- 0.5 mm

- 0.5nm

- 0.5 μm

- 5 μm

Correct Answer: 0.5 μm

60. In lipid rich seeds, glyoxysomes are the sites for breakdown of fatty acids into:

- Acetate

- Succinate

- Fumarate

- Malate

Correct Answer: Succinate

# 2-Biological Molecules & Enzyme

1. Which function is not performed by proteins?

- Providing structural support to cell

- Catalyzing biochemical reactions

- Transporting materials across cell membrane

- Providing insulation against heat loss

Correct Answer: Providing insulation against heat loss

2. Which property of water enables it to act as temperature stabilizer in living organisms?

- High polarity

- Being non polar

- High specific heat capacity

- High heat of vaporization

Correct Answer: High specific heat capacity

3. Which of the following is true about glucose and fructose?

- Have same structural formula

- Have different molecular formula

- They are building blocks of sucrose

- They are aldo-hexoses

Correct Answer: They are building blocks of sucrose

4. How many carbon atoms are present in the ring of glucose molecule?

- 2

- 3

- 4

- 5

Correct Answer: 5

5. Amylose molecules consists of unbranched chains of hundreds of glucose monomers join together by:

- 1, 2-glycosidic linkage

- 1, 3-glycosidic linkage

- 1, 4-glycosidic linkage

- 1, 6-glycosidic linkage

Correct Answer: 1, 4-glycosidic linkage

6. Ester bond is present in all except

- Two nucleotides

- Glycerol and phosphoric acid

- Glycerol and fatty acid

- Two amino acids

Correct Answer: Two amino acids

7. Name the process that involves the breakdown of large molecules into smaller ones utilizing water molecules:

- Hydrolysis

- Reduction

- Oxidation

- Condensation

Correct Answer: Hydrolysis

8. Most abundant component of the cell is:

- Proteins

- Lipids

- Carbohydrates

- Water

Correct Answer: Water

9. The percentage of water in bacterial cell is about:

- 15%

- 17%

- 50%

- 70%

Correct Answer: 70%

10. Elements common among carbohydrates, proteins, lipids and nucleic acids are:

- C, H, O

- C, H, O, N

- C, H, O, N, S

- C, H, O, P

Correct Answer: C, H, O

11. Value of heat of vaporization of water is \_\_\_\_:

- 374 kcal/g

- 474 kcal/g

- 574 kcal/kg

- 674 kcal/kg

Correct Answer: 574 kcal/kg

12. Water works as temperature stabilizer due to its

- High density

- Hydrogen bonding

- Heat capacity

- Low density

Correct Answer: Heat capacity

13. The brain cells of man contain 85 percent:

- Sugar

- Carbon

- Nitrogen

- Water

Correct Answer: Water

14. All are uses of water by Living organisms except:

- as lubricant & for protection

- as cooling agent & thermo-stabilizer

- metabolism

- source of energy

Correct Answer: source of energy

15. Living organisms use water as thermo-stabilizer, due to its \_\_\_\_\_ property:

- Heat of vaporization

- Heat capacity

- Heat of sublimation

- Heat of ionization

Correct Answer: Heat capacity

16. With hydrogen bonds, water boils at:

- -80 ºC

- 100 ºC

- -100 ºC

- 80 ºC

Correct Answer: 100 ºC

17. Which of thefollowing is true about branching nature and solubility of amylose andamylopectin in hot water?

- AMYLOSE AMYLOPECTIN  
Branched, Soluble Unbranched, Soluble

- AMYLOSE AMYLOPECTIN  
Unbranched, Soluble Branched, Insoluble

- AMYLOSE AMYLOPECTIN  
Unbranched, Insoluble Branched, Soluble

- AMYLOSE AMYLOPECTIN  
Branched, Insoluble Unbranched, Soluble

Correct Answer: AMYLOSE AMYLOPECTIN  
Unbranched, Soluble Branched, Insoluble

18. Formula given below represents:  
>

- α D-glucose

- β D-glucose

- α L-glucose

- β L-glucose

Correct Answer: β D-glucose

19. These are most common monosaccharides:

- Trioses &tetroses

- Tetroses &pentoses

- Pentoses & hexoses

- Hexoses &heptoses

Correct Answer: Pentoses & hexoses

20. It is a nitrogencontaining polysaccharide:

- Starch

- Glycogen

- Cellulose

- Chitin

Correct Answer: Chitin

21. It gives blue colourwith iodine solution:

- Glucose

- Starch

- Glycogen

- Cellulose

Correct Answer: Starch

22. The type of polysaccharides which can be stored respectively in plants and animals:

- Starch and Cellulose

- Starch and Glycogen

- Glycogen andCellulose

- Glycogen and Starch

Correct Answer: Starch and Glycogen

23. An insulin molecule has 51 amino acids arranged in:

- 2 chains with 20& 31 amino acids

- 4 chains with 20& 31 amino acids

- 2 chains with 21 & 30 amino acids

- 4 chains with 21& 30 amino acids

Correct Answer: 2 chains with 21 & 30 amino acids

24. All of the followingare examples of globular proteins except:

- Haemoglobin

- Immunoglobulins

- Tubulin

- Collagen

Correct Answer: Collagen

25. Which one of the following molecules contains amino acids?

- Ascorbic acid

- Cellulose

- Collagen

- Lecithin

Correct Answer: Collagen

26. At which levels of protein structure do hydrophobic interactions occur?

- Primary, secondaryand tertiary

- Primary, secondary, tertiaryand quaternary

- Tertiary and quaternary

- Quaternary only

Correct Answer: Tertiary and quaternary

27. How many peptidelinkages will be present in both alpha chains of hemoglobin molecule?

- 570

- 141

- 282

- 280

Correct Answer: 280

28. Most important components of triglycerides are:

- Glycerols

- Fatty acids

- Ketones

- Isoprenoid

Correct Answer: Fatty acids

29. In oleic acid, double bond is found between carbon numbers:

- 1 and 2

- 6 and 7

- 9 and 10

- 17 and 18

Correct Answer: 9 and 10

30. This is an example of conjugated molecule of lipid:

- Acylglycerol

- Phospholipid

- Glycoprotein

- Glycolipid

Correct Answer: Glycolipid

31. Melting point ofpalmitic acid:

- -8°C

- 12°C

- 63.1°C

- 72°C

Correct Answer: 63.1°C

32. Fatty acids are found in all of the following except:

- Acylglycerols

- Phospholipids

- Waxes

- Terpenoids

Correct Answer: Terpenoids

33. Nitrogenous base in aphospholipid molecule is attached with \_\_\_\_\_\_\_\_\_ through \_\_\_\_\_\_\_\_\_\_ bond:

- Glycerol, Ionic bond

- Glycerol, Covalentbond

- Phosphoric acid, Ionicbond

- Phosphoric acid, Covalent bond

Correct Answer: Phosphoric acid, Covalent bond

34. Length of messenger RNA depends upon:

- Size of chromosome

- Size of gene

- Amount of DNA

- Length of tRNA

Correct Answer: Size of gene

35. In a typical nucleotide, phosphoric acid is attached to pentose sugar atcarbon number:

- 1

- 2

- 3

- 5

Correct Answer: 5

36. Which of the following represent high energy bonds in ATP?

- Ribose – Adenine

- Ribose – Phosphate

- Phosphate – Adenine

- Phosphate – Phosphate

Correct Answer: Phosphate – Phosphate

37. Which of the following does not employ to Erwin Chargaff rule?

- Purines = Pyrimidines

- Adenine = Thymine

- Adenine + Thymine = Guanine + Cytosine

- Adenine + Guanine =Thymine + Cytosine

Correct Answer: Adenine + Thymine = Guanine + Cytosine

38. Which of the following nucleotide is not found in DNA?

- d-AMP

- d-GMP

- d-UMP

- d-CMP

Correct Answer: d-UMP

39. Which of the following conjugated molecule is incorrectly matched?

- Lipo-proteins -------- cell membrane

- Glyco-proteins -------- cell surface antigens/ receptors

- Glyco-lipids -------- cell wall

- Nucleic acids -------- chromosomes

Correct Answer: Glyco-lipids -------- cell wall

40. Which of the following conjugated molecule is a major constituent of cell membrane?

- lipo-proteins

- glyco-proteins

- glyco-lipids

- nucleic acids

Correct Answer: lipo-proteins

41. Chromosomes can be classified as:

- Lipids

- Proteins

- Carbohydrates

- Conjugated molecules

Correct Answer: Conjugated molecules

42. Two different molecules, belonging to two different categories, usually combine together to form \_\_\_\_\_\_\_\_:

- Micro-molecules

- Conjugated molecules

- Amphoteric molecules

- Zwitter ions

Correct Answer: Conjugated molecules

43. The rate of reaction depends directly on theamount of enzyme present at a specific time at:

- Limited substrate concentration

- Unlimited enzyme concentration

- Unlimited substrate concentration

- Limited enzyme concentration

Correct Answer: Unlimited substrate concentration

44. After a certain limiting concentration of substrate, increasing the concentration ofenzyme two times, rate of reaction will:

- Increase four times

- Increase three times

- Increase two times

- Remainconstant

Correct Answer: Remainconstant

45. Which graph shows theeffect of increasing enzyme concentration on product formation when there is anexcess of substrate?

- >

- >

- >

- >

Correct Answer: >

46. They occupy the active sites by forming covalent bonds:

- Irreversible inhibitors

- Reversible inhibitors

- Competitive inhibitors

- Non-competitive inhibitors

Correct Answer: Irreversible inhibitors

47. Allosteric enzymes have \_\_\_\_\_\_\_\_ major sites:

- 1

- 2

- 3

- 4

Correct Answer: 2

48. In Krebs cycle, malonic acid blocks succinic dehydrogenase through:

- Irreversible competitiveinhibition

- Irreversible non-competitive inhibition

- Reversible competitive inhibition

- Reversible non-competitiveinhibition

Correct Answer: Reversible competitive inhibition

49. The effect of which one of the following can be reversed by increasing substrateconcentration:

- Un-competitive inhibitor

- Competitive reversible inhibitor

- Irreversible inhibitor

- Non-competitive reversibleinhibitor

Correct Answer: Competitive reversible inhibitor

50. Any agent whichreduces/ slows down or stops the rate of reaction of enzymes is termed as:

- Inhibitor

- Repressor

- Enhancer

- Activator

Correct Answer: Inhibitor

51. The competitive inhibitors have structuralsimilarity with:

- Active site

- Binding site

- Substrate

- Co-enzyme

Correct Answer: Substrate

52. In an enzyme controlled chain reaction, if concentration of initial substrate isincreased then it will cause:q

- Feedback inhibition

- Precursor activation

- End product inhibition

- Enzyme to enzymeassociation

Correct Answer: Precursor activation

53. Precursor activationdepends upon:

- Final product

- Intermediate substances

- Initial substrate

- All A, B, C

Correct Answer: Initial substrate

54. The enzymes bringing about hydrolysis of esters and peptides are:

- Lyases

- Hydrolases

- Transferases

- Oxidoreductases

Correct Answer: Hydrolases

55. Which enzymes bring about cleavage of specific covalent bonds and removal of group without hydrolysis?

- Lyases

- Ligases

- Hydrolases

- Transferases

Correct Answer: Lyases

56. Amylase is an example of:

- Ligase

- Hydrolase

- Transfers

- Oxidoreductases

Correct Answer: Hydrolase

57. The enzyme concerned with transfer of electrons is:

- Hydrolase

- Transferase

- Transaminase

- Dehydrogenase

Correct Answer: Dehydrogenase

58. The enzymes that catalyze inter-conversion of optical, geometrical or positional isomers are:

- Ligases

- Lyases

- Isomerases

- Hydrolases

Correct Answer: Isomerases

59. Esterases belong to the category of:

- Lyases

- Synthetases

- Hydrolases

- Transferases

Correct Answer: Hydrolases

60. All of the following are examples of homopolysaccharide except:

- Cellulose

- Starch

- Chitin

- Pectin

Correct Answer: Pectin

# 3-Bioenergetics

1. It is by product of photosynthesis:

- CO2

- H2O

- O2

- C6H12O6

Correct Answer: O2

2. Net equation of photosynthesis is exactly opposite to the equation of:

- Lactic acid fermentation

- Alcoholic fermentation

- Aerobic respiration

- Anaerobic respiration

Correct Answer: Aerobic respiration

3. Which of the following two parts structurally resemble with each other?

- Hemoglobin Chlorophyll  
Globin Phytol

- Hemoglobin Chlorophyll  
Haeme Porphyrin

- Hemoglobin Chlorophyll  
Globin Porphyrin

- Hemoglobin Chlorophyll  
Haeme Phytol

Correct Answer: Hemoglobin Chlorophyll  
Haeme Porphyrin

4. Chlorophyll a maximally absorbs:

- Violet

- Blue

- Orange

- Red

Correct Answer: Violet

5. Which of the following colour is absorbed by carotenoids and reflected by chlorophylls?

- Blue

- Green

- Violet

- Red

Correct Answer: Green

6. Main difference between chlorophyll a and b is that instead of methyl group in chlorophyll a, chlorophyll b contains:

- Ethyl group

- Aldehyde group

- Carboxylic group

- Alkyl group

Correct Answer: Aldehyde group

7. Light gathering part of a photosystem is:

- Only chlorophyll a

- Electron transport system

- Antenna complex

- Only Carotenoids

Correct Answer: Antenna complex

8. All life on this planet Earth is powered directly or indirectly by:

- Solar energy

- Heat energy

- Metabolic energy

- Energy of moon

Correct Answer: Solar energy

9. Oxygen released during photosynthesis comes from:

- CO2

- H2O

- C3H6O3

- C6H12O6

Correct Answer: H2O

10. A graph plotted, showing absorption of different wavelengths of light by a pigment is called:

- Photosynthetic spectrum

- Pigment spectrum

- Absorption spectrum

- Action spectrum

Correct Answer: Absorption spectrum

11. Most efficient wavelength to carry out photosynthesis is of:

- Green colour

- Red colour

- Blue colour

- Orange colour

Correct Answer: Red colour

12. Source of oxygen released during photosynthesis is \_\_\_\_\_ not \_\_\_\_\_.

- Water and CO2 respectively

- CO2 and water respectively

- CO2 and glucose respectively

- Glucose and CO2 respectively

Correct Answer: Water and CO2 respectively

13. In water, photosynthetic organisms usually get \_\_\_\_\_\_\_\_\_\_ as their carbon source.

- Dissolved CO2

- Bicarbonates

- Dissolved carbonates

- All of these

Correct Answer: All of these

14. Air contain \_\_\_\_\_\_\_\_% of CO2.

- 0.01 ---- 0.02

- 0.02 ---- 0.03

- 0.03 ---- 0.04

- 0.04 ---- 0.05

Correct Answer: 0.03 ---- 0.04

15. During photosynthesis, holes in P700 are filled by electrons provided by:

- Chlorophyll a

- Chlorophyll b

- Electron transport chain

- Water

Correct Answer: Electron transport chain

16. The main difference between photosystem I and photosystem II lies in their:

- Antenna complex

- Reaction center

- Chlorophyll a

- Chlorophyll b

Correct Answer: Chlorophyll a

17. During photosynthesis, electron transport chain pumps H+ into:

- Stroma

- Thylakoid sac

- Inter-membrane space

- Porphyrin ring

Correct Answer: Thylakoid sac

18. Which of the following electron carrier of light reactions will be at lowest energy level?

- Plastoquinone

- Cytochrome

- Plastocyanin

- Ferridoxin

Correct Answer: Plastocyanin

19. It is the final acceptor of electrons in light dependent phase of photosynthesis:

- Chlorophyll

- NADP+

- Glucose

- Ferredoxin

Correct Answer: NADP+

20. It is a copper containing protein involved in photosynthesis:

- Plastoquinone

- Cytochrome

- Plastocyanin

- Ferredoxin

Correct Answer: Plastocyanin

21. How many photons are required to excite one electron from chlorophyll molecule?

- 1

- 2

- 3

- 4

Correct Answer: 1

22. All of the following mechanisms of ATP formation are associated with chemiosmosis except:

- Cyclic photophosphorylation

- Non-cyclic photophosphorylation

- Substrate level phosphorylation

- Oxidative phosphorylation

Correct Answer: Substrate level phosphorylation

23. First recognizable compound of Calvin cycle is:

- 1,3-BPG

- G3P

- RuBP

- 3-PG

Correct Answer: 3-PG

24. All of the following are required for Calvin cycle except:

- Light energy

- Carbon dioxide

- ATP

- NADPH

Correct Answer: Light energy

25. During photosynthesis \_\_\_\_\_\_\_\_ is reduced to form glucose.

- CO2

- C

- H2O

- O2

Correct Answer: CO2

26. The dark reactions of photosynthesis take place in:

- Cytosol of cytoplasm

- Mitochondrial matrix

- Thylakoid membranes

- Stroma of chloroplast

Correct Answer: Stroma of chloroplast

27. Which is most closely associated with the Calvin cycle?

- ATP production

- Sugar production

- Oxygen production

- Carbon dioxide production

Correct Answer: Sugar production

28. The diagram shows the movement of substances into and out of a chloroplast:>  
What do labels 1 to 4 represent?

- 1 2 3 4  
CO2 ATP H2O Starch

- 1 2 3 4  
CO2 H2O Sugars O2

- 1 2 3 4  
H2O O2 CO2 Sugars

- 1 2 3 4  
Sugars H2O ATP O2

Correct Answer: 1 2 3 4  
H2O O2 CO2 Sugars

29. A product of dark reaction of photosynthesis other than carbohydrate is:

- ATP

- NADPH

- H2O

- O2

Correct Answer: H2O

30. Pyruvate produced during glycolysis proceeds further in presence of oxygen through:

- Lactic acid fermentation

- Aerobic respiration

- Alcoholic fermentation

- All A, B, C

Correct Answer: Aerobic respiration

31. Net production of ATP molecules in a prokaryotic cell when a glucose molecule is completely oxidized is:

- 34 ATP

- 36 ATP

- 38 ATP

- 40 ATP

Correct Answer: 38 ATP

32. Acetaldehyde is formed as an intermediate compound during:

- Aerobic respiration

- Anaerobic respiration

- Lactate fermentation

- Ethanol fermentation

Correct Answer: Ethanol fermentation

33. During aerobic respiration, hydrogen atoms of NADH are transferred to:

- Pyruvate

- Lactate

- Krebs cycle

- Respiratory chain

Correct Answer: Respiratory chain

34. Cell processes pyruvic acid in three major ways. Which way depends on oxygen?

- Alcoholic fermentation

- Lactic acid fermentation

- Aerobic respiration

- All A, B, C

Correct Answer: Aerobic respiration

35. A condition produced due to inability of oxidative metabolism to function rapidly enough, resulting in lactic acid accumulation is called:

- Oxygen debt

- Respiratory distress syndrome

- Carcinoma

- Emphysema

Correct Answer: Oxygen debt

36. The fate of pyruvic acid depends upon:

- Availability of O2

- Energy status of the cell

- Presence of enzymes

- Presence of anti-metabolites

Correct Answer: Availability of O2

37. It involves complete breakdown of glucose molecule:

- Aerobic respiration

- Anaerobic respiration

- Lactate fermentation

- Alcoholic fermentation

Correct Answer: Aerobic respiration

38. A step that is common in both aerobic and anaerobic respiration is:

- Glycolysis

- Fermentation

- Link reaction

- Krebs cycle

Correct Answer: Glycolysis

39. Glycolysis starts with:

- Splitting of glucose molecule

- Phosphorylation of glucose

- Hydrolysis of glucose

- Reduction of glucose

Correct Answer: Phosphorylation of glucose

40. Which stage of cellular respiration will not be affected by absence or presence of oxygen?

- Glycolysis

- Pyruvic acid oxidation

- Krebs cycle

- Oxidative phosphorylation

Correct Answer: Glycolysis

41. It is an energy consuming conversion of glycolysis:

- Fructose 6-phosphate to fructose 1,6-bisphosphate

- Glyceraldehyde 3-phosphate to 1,3-bisphosphoglycerate

- 1,3-bisphosphoglycerate to 3-phosphoglycerate

- Phosphoenol pyruvate to pyruvate

Correct Answer: Fructose 6-phosphate to fructose 1,6-bisphosphate

42. All of the following are required for glycolysis except:

- Enzymes

- NAD+

- ATP

- Oxygen

Correct Answer: Oxygen

43. All of the following are essential for glycolysis except:

- Enzymes

- ATP

- NAD+

- Oxygen

Correct Answer: Oxygen

44. It is the product of preparatory phase of glycolysis:

- ATP

- Pyruvate

- PGAL

- Lactate

Correct Answer: PGAL

45. ATPs are consumed during:

- Glycolysis

- Light dependent phase

- Krebs cycle

- Respiratory chain

Correct Answer: Glycolysis

46. Stage of cellular respiration that occurs in cytosol:

- Glycolysis

- Pyruvic acid oxidation

- Krebs cycle

- Oxidative phosphorylation

Correct Answer: Glycolysis

47. During Krebs cycle, FADH2 is formed during conversion of:

- Iso-citrate into α-ketoglutarate

- α-ketoglutarate into succinate

- Succinate into fumarate

- Fumarate into malate

Correct Answer: Succinate into fumarate

48. All of the following are formed when alpha-ketoglutarate is converted into succinate during Krebs cycle except:

- NADH

- FADH2

- ATP

- CO2

Correct Answer: FADH2

49. How many molecules of NADH are formed when one glucose molecules passes through Krebs cycle?

- 3

- 4

- 6

- 8

Correct Answer: 6

50. All of the following changes are associated with pyruvate during pyruvic acid oxidation except:

- Oxidation

- Dehydrogenation

- Phosphorylation

- Decarboxylation

Correct Answer: Phosphorylation

51. Which of the following finally produced as result of pyruvic acid oxidation before it enters kreb’s cycle?

- Glucose

- Pyruvate

- Acetate

- Acetyl CoA

Correct Answer: Acetyl CoA

52. The chemical formula of pyruvic acid is:

- C3H4O3

- C3H6O3

- C2H5OH

- C4H8O4

Correct Answer: C3H4O3

53. Out of 38 ATP molecules produced per glucose, 32 molecules are formed from NADH+H+ and FADH2 via:

- Glycolysis

- Oxidative decarboxylation

- Krebs’ cycle

- Respiratory chain

Correct Answer: Respiratory chain

54. In respiratory chain, NADH is oxidized by:

- FADH2

- ATP

- Co-enzyme Q

- O2

Correct Answer: Co-enzyme Q

55. Considering following pairs of respiratory chain, first one is reduced and 2nd one is oxidized in all except:

- Coenzyme Q – NADH

- Cytochrome b – Coenzyme Q

- Cytochrome c – Cytochrome b

- Cytochrome c – Cytochrome a

Correct Answer: Cytochrome c – Cytochrome a

56. During cellular respiration, increased level of ATP will inhibit most commonly:

- Glucokinase

- Phosphofructokinase

- Pyruvate decarboxylase

- Succinate dehydrogenase

Correct Answer: Phosphofructokinase

57. Phase of cellular respiration during which NADH and FADH2 are oxidized:

- Glycolysis

- Pyruvic acid oxidation

- Krebs cycle

- Respiratory chain

Correct Answer: Respiratory chain

58. In electron transport chain, the electrons from NADH and FADH2 are passed to:

- Cytochrome b

- Cytochrome a

- Cytochrome a3

- Co-enzyme Q

Correct Answer: Co-enzyme Q

59. The final electron acceptor during oxidative phosphorylation is:

- Oxygen

- Water

- Electron carriers

- Carbon dioxide

Correct Answer: Oxygen

60. How many electrons are removed when one NADH is oxidized through respiratory chain?

- 1

- 2

- 3

- 4

Correct Answer: 2

# 4-Life Processes – Nutrition, Gaseous Exchange

1. Which of the following is a mode of mineral absorption in plants?

- Imbibition

- Active transport

- Osmosis

- Plasmolysis

Correct Answer: Active transport

2. All the insectivorous plants are:

- Heterotrophic

- Autotrophic

- Decomposers

- Parasites

Correct Answer: Autotrophic

3. End of leaf is modified to form a hood in:

- Sarracenia purpurea

- Drosera intermedia

- Dionaea muscipula

- All of these

Correct Answer: Sarracenia purpurea

4. Plants which are insectivorous needs insects to feed on because it need:

- Water

- Nutrients

- Air

- Oxygen

Correct Answer: Nutrients

5. Both nitrogen and sulphur are required by plants for:

- Synthesis of enzymes

- Stomatal movements

- Cell wall synthesis

- Chlorophyll synthesis

Correct Answer: Synthesis of enzymes

6. The food is forced down the esophagus through:

- Swallowing

- Deglutition

- Peristalsis

- Antiperistalsis

Correct Answer: Peristalsis

7. These salivary gland pours their secretions at posterior portion of oral cavity:

- Parotid gland

- Submandibular gland

- Submaxillary gland

- Sublingual gland

Correct Answer: Parotid gland

8. First component of food to be digested in our digestive tract is:

- Carbohydrate

- Lipid

- Protein

- Vitamins

Correct Answer: Carbohydrate

9. Tongue is involved in all of the following except:

- Selection

- Mastication

- Mixing

- Swallowing

Correct Answer: Mastication

10. pH of fresh saliva is about:

- 7.0

- 6.8

- 8.0

- 6.0

Correct Answer: 8.0

11. Peristalsis is shown by:

- Esophagus

- Large Intestine

- Small Intestine

- All of these

Correct Answer: All of these

12. Pyloric sphincter opens and food is transferred from stomach to smallintestine. Stimulus for opening of this sphincter is:

- Bolus

- Chyme

- Swallowing

- Peristalsis

Correct Answer: Peristalsis

13. In the given figure of gastric gland, X represents   
>

- Zymogen cell

- Oxyntic cell

- Mucous cell

- Goblet cell

Correct Answer: Oxyntic cell

14. All of the following are functions of stomach in humans except:

- Temporary food storage

- Digestion of proteins

- Mechanical breakdown of food

- Fermentation by microorganisms

Correct Answer: Fermentation by microorganisms

15. Pepsinogen is activated by:

- Pepsin

- Trypsin

- Chymotrypsin

- Enterokinase

Correct Answer: Pepsin

16. Pepsinogen is activated to pepsin when exposed to:

- Acidic medium

- Activated pepsin

- Both acid & pepsin

- Enterokinase

Correct Answer: Both acid & pepsin

17. Which of the following represents the anatomical location of stomach?

- Right side of abdomen

- Left side of abdomen

- Right side of thorax

- Left side of thorax

Correct Answer: Left side of abdomen

18. Sugars and amino acids are absorbed into the blood capillaries through the microvilli by:

- Diffusion

- Active transport

- Diffusion & active transport

- Osmosis

Correct Answer: Diffusion & active transport

19. Erypsin acts on:

- Disaccharides

- Dipeptides

- Diglycerides

- Dinucleotides

Correct Answer: Dipeptides

20. Organ where maximum types of enzymes act for digestion of food:

- Esophagus

- Stomach

- Small intestine

- Pharynx

Correct Answer: Small intestine

21. Area of alimentary canal from where digested food can be picked up by blood:

- Stomach

- Oral cavity

- Small intestine

- Large intestine

Correct Answer: Small intestine

22. Many humans develop intestinal gas after consuming milk because they lack:

- Lactose

- Lactase

- Maltase

- Renin

Correct Answer: Lactase

23. Which of the following is not related to obesity?

- Diabetes mellitus

- Hypertension

- Stomach disorder

- Botulism

Correct Answer: Botulism

24. Food poisoning can induce:

- Peristalsis

- Constipation

- Antiperistalsis

- Hunger pangs

Correct Answer: Antiperistalsis

25. Stomata helps in:

- Translocation

- Exchange of gases

- Pollination

- Absorption of minerals from soil

Correct Answer: Exchange of gases

26. Which cells functions as multisensory hydualic valves:

- Mesophyll cells

- Sieve tube cells

- Guard cells

- Xylem cells

Correct Answer: Guard cells

27. Cartilaginous rings in respiratory passage are present in:

- Trachea only

- Trachea and initial bronchi only

- Trachea, bronchi and initial bronchioles

- Bronchi and bronchiole only

Correct Answer: Trachea and initial bronchi only

28. Cartilaginous structure around the top of thewindpipe is:

- Trachea

- Larynx

- Glottis

- Epiglottis

Correct Answer: Larynx

29. Which association is not correct?

- Larynx – voice box

- Alveoli – surfactant

- Trachea – wind pipe

- Hair and Mucous-nasal cavities

Correct Answer: Hair and Mucous-nasal cavities

30. It is a muscular passage lined with mucous membrane and channelizes air:

- Nostrils

- Nasal cavities

- Pharynx

- Larynx

Correct Answer: Pharynx

31. Nostrils and nasal cavities are involved in:

- Filtration of air

- Moistening of air

- Warming of air

- All A, B, C

Correct Answer: All A, B, C

32. Voice is produced during:

- Coughing

- Expiration

- Inspiration

- Breathing

Correct Answer: Expiration

33. Which of these is a passive process?

- Respiration at rest

- Expiration during exercise

- Expiration at rest

- Inspiration during exercise

Correct Answer: Expiration at rest

34. Diaphragm is a sheet of:

- Circular smooth muscles

- Longitudinal smooth muscles

- Skeletal muscles

- Cardiac muscles

Correct Answer: Skeletal muscles

35. The floor of the chest is called:

- Pleural space

- Rib cage

- Intercostal space

- Diaphragm

Correct Answer: Diaphragm

36. Volume of chest cavity is increased by:

- Contraction of diaphragm

- Relaxation of intercostals

- Passive contraction of lungs

- Depression of rib cage

Correct Answer: Contraction of diaphragm

37. Breathing is a mechanical process consisting of two phase:

- External & internal respiration

- Cellular & organismic respiration

- Inspiration & expiration

- Oxidation & reduction

Correct Answer: Inspiration & expiration

38. Bicarbonate ions during transport of CO2 can be generated in:

- RBCs

- Basophils

- Neutrophils

- Lymphocytes

Correct Answer: RBCs

39. What happens when pH of blood is increased?

- The delivery of oxygen to tissues is increased

- More O2 binds to Hemoglobin

- Hemoglobin is denatured

- O2 binding remains unaffected

Correct Answer: More O2 binds to Hemoglobin

40. Air that cannot be expelled out of lungs even during exercise is:

- Inspiratory volume

- Tidal volume

- Residual volume

- Forced expiratory volume

Correct Answer: Residual volume

41. If you exhale to your full capacity, how much air would be still available in your lungs?

- 500 ml

- 3.5 Liters

- 1.5 liters

- 5 liters

Correct Answer: 1.5 liters

42. Respiratory distress syndrome (RDS) occurs because of:

- Inability of expansion of lungs

- Premature birth

- Reduced surface tension

- Deficiency of surfactant

Correct Answer: Deficiency of surfactant

43. In an adult human being when the lungs are fully inflated, the total inside capacity of lungs is about:

- 0.5 litre

- 1.5 litre

- 3.5 litre

- 5.0 litre

Correct Answer: 5.0 litre

44. Normally when we are at rest or asleep, the exchange of gases is about:

- 0.5 litre

- 1.5 litre

- 3.5 litre

- 5.0 litre

Correct Answer: 0.5 litre

45. SCUBA divers use gas cylinders when descend in sea. This gas cylinder provides:

- Air at normal pressure

- Air at low pressure

- Air at high pressure

- Air at high temperature

Correct Answer: Air at high pressure

46. It serves as an intermediate compound for the transfer of oxygen from hemoglobin to aerobic metabolic processes of the muscle cells:

- Albumin

- Calcium

- Creatine

- Myoglobin

Correct Answer: Myoglobin

47. It acts as an efficient oxygen carrier in human body:

- Plasma

- Hemoglobin

- Hemocyanin

- Myoglobin

Correct Answer: Hemoglobin

48. Amount of air inhaled and exhaled during exercise is about:

- 0.5 liters

- 5 liters

- 1.5 liters

- 3.5 liters

Correct Answer: 3.5 liters

49. Myoglobin transfers oxygen from:

- Alveoli to RBC

- Haemoglobin to plasma

- Plasma to muscle cell

- Haemoglobin to muscle cell

Correct Answer: Haemoglobin to muscle cell

50. In this condition the alveoli are larger but surface area for oxygenation is less:

- Carcinoma

- Asthma

- Emphysema

- Tuberculosis

Correct Answer: Emphysema

51. Stunted growth and strong chlorosis is due to the deficiency of:

- Carbon

- Phosphorous

- Nitrogen

- Zinc

Correct Answer: Nitrogen

52. Chlorophyll molecules contain \_\_\_\_\_\_\_\_\_ while cytochromes contain\_\_\_\_\_\_\_\_\_\_\_.

- Magnesium, copper

- Magnesium, iron

- Iron, zinc

- Zinc, cobalt

Correct Answer: Magnesium, iron

53. It is a sphincter in human alimentary canal that contains voluntarymuscles:

- Cardiac sphincter

- Pyloric sphincter

- Ileocolic sphincter

- Anal sphincter

Correct Answer: Anal sphincter

54. It is an example of dual sphincter in our alimentary canal:

- Cardiac sphincter

- Ileocolic sphincter

- Pyloric sphincter

- Anal sphincter

Correct Answer: Anal sphincter

55. Elimination of undigested matter from the body is called:

- Excretion

- Egestion

- Digestion

- Assimilation

Correct Answer: Egestion

56. The only part of human digestive tract that is not involved in digestion:

- Oral cavity

- Stomach

- Small intestine

- Large intestine

Correct Answer: Large intestine

57. The only sphincter in human alimentary canal that is controlled bysomatic nervous system:

- Cardiac sphincter

- Pyloric sphincter

- Ileocolic sphincter

- Anal sphincter

Correct Answer: Anal sphincter

58. Appendix is attachedwith:

- Ileum

- Colon

- Caecum

- Rectum

Correct Answer: Caecum

59. Vestigial structures in human digestive system are:

- Molar teeth & Upper esophageal sphincter

- Upper & lower esophageal sphincter

- Caecum & appendix

- Appendix & coccyx

Correct Answer: Caecum & appendix

60. It is the last part of large intestine where feces are temporarilystored:

- Caecum

- Colon

- Rectum

- Anus

Correct Answer: Rectum

# 5-Life Processes – Transport

1. On the basis of mode of nutrition, organisms can be divided into:

- Two groups

- Three groups

- Four groups

- Five groups

Correct Answer: Two groups

2. Excess of nitrogen supply to plant produces:

- Abundant leaves that are dark green

- Lesser number of variegated leaves

- Yellow leaves

- No leaves at all

Correct Answer: Abundant leaves that are dark green

3. The mutualistic association between certain fungi and roots of vascular plants are known as:

- Rhizoids

- Haustoria

- Mycelium

- Mycorrhizae

Correct Answer: Mycorrhizae

4. Carnivorous plants live in soil that are deficient in:

- Water

- Oxygen

- Nitrogen

- Iron

Correct Answer: Nitrogen

5. Pick out the different:

- Dodder

- Sundew

- Venous fly trap

- Pitcher plant

Correct Answer: Dodder

6. In plant mineral nutrition, elements are called macro and micro depending upon their:

- Relative amount required in plants

- Relative presence in plant ash

- Relative importance in plant growth

- Relative availability in soil

Correct Answer: Relative amount required in plants

7. The mode of nutrition in which one organism obtains nutrition from other organisms is known as:

- Symbiosis

- Heterotrophic nutrition

- Autotrophic nutrition

- Saprophytic nutrition

Correct Answer: Heterotrophic nutrition

8. Esophagus is mainlycomposed of:

- Striated muscles

- Stripped muscles

- Non-striated involuntary muscles

- Non-striated voluntary muscles

Correct Answer: Non-striated involuntary muscles

9. Structure in human digestive system involved in mastication:

- Tongue

- Teeth

- Stomach

- Liver

Correct Answer: Teeth

10. Total canines in our oral cavity are:

- 2

- 4

- 6

- 8

Correct Answer: 4

11. Tongue secretes:

- Amylase

- Ptyalin

- Serous fluid

- Protease

Correct Answer: Serous fluid

12. In normal conditionsmastication and peristalsis are under:

- Voluntary control

- Involuntary control

- Voluntary & involuntary control

- Involuntary &voluntary control

Correct Answer: Voluntary & involuntary control

13. Chemical nature of mucus is:

- Glycolipid

- Lipoprotein

- Nucleoprotein

- Glycoprotein

Correct Answer: Glycoprotein

14. Transfer of food from esophagus to stomach and then to intestine is called:

- Motility

- Swallowing

- Peristalsis

- Deglutition

Correct Answer: Peristalsis

15. A function of buccal cavity that is aided by sense of sight, smell and taste is:

- Selection

- Lubrication

- Mastication

- Digestion

Correct Answer: Selection

16. Salivary glands situated behind jaws are:

- Lacrimal

- Submaxillary

- Parotid

- Sublingual

Correct Answer: Submaxillary

17. Epiglottis automatically covers the opening of the larynx during act of:

- Inspiration

- Expiration

- Swallowing

- Hiccups

Correct Answer: Swallowing

18. Trypsinogen is converted into trypsin by the activity of:

- Goblet cells

- Absorptive cells

- Enterokinase

- Peptidase

Correct Answer: Enterokinase

19. Jejunum comprises about \_\_\_\_\_\_\_\_\_\_\_ of small intestine.

- 1/5th

- 2/5th

- 3/5th

- 4/5th

Correct Answer: 2/5th

20. Length of jejunum is about:

- 25 cm

- 1.5 m

- 2.4 m

- 3.6 m

Correct Answer: 2.4 m

21. Gastrin is a hormone secreted by:

- Stomach only

- Small intestine only

- Both stomach & small intestine

- Both small & large intestine

Correct Answer: Both stomach & small intestine

22. Inability to digestlactose in milk leads to:

- Diarrhoea

- Constipation

- Ulcer

- Pyrosis

Correct Answer: Diarrhoea

23. Chymotrypsin is protein digesting enzyme secreted by:

- Stomach

- Duodenum

- Liver

- Pancreas

Correct Answer: Pancreas

24. Fats are stored in:

- Muscle tissues

- Epithelial tissues

- Nervous tissues

- Adipose tissues

Correct Answer: Adipose tissues

25. Obesity may be caused due to all of the following except:

- Overeating fatty food

- Imbalance of growth hormone

- Imbalance of thyroxine

- Diabetes mellitus

Correct Answer: Diabetes mellitus

26. Obesity can be the cause of all of the following except:

- Blood pressure

- Heart disease

- Diabetes type I

- Diabetes type II

Correct Answer: Diabetes type I

27. Obesity is the term employed when a person has abnormal amount of:

- Glucose

- Fat

- Proteins

- Hormones

Correct Answer: Fat

28. Certain cells of our body accumulate drops of fat in their:

- Nucleus

- Vacuole

- Cytoplasm

- SER

Correct Answer: Cytoplasm

29. This term is employed to the loss of appetite:

- Anoxia

- Hypoxia

- Anorexia

- Bulimia

Correct Answer: Anorexia

30. In Photorespiration, glycine is converted into serine n:

- Peroxisome

- Mitochondria

- Lysosome

- Choloroplast

Correct Answer: Mitochondria

31. Photorespiration is a reverse of:

- Glycolysis

- Krebs cycle

- ETC

- Calvin cycle

Correct Answer: Calvin cycle

32. Chest cavity from the sides is bounded by:

- Diaphragm only

- Muscles only

- Ribs only

- Ribs and muscles

Correct Answer: Ribs and muscles

33. During swallowing, glottis is:

- Completely closed

- Partly closed

- Completely open

- Horizontal in position

Correct Answer: Partly closed

34. Structural units of lungs are:

- Bronchioles

- Air sacs

- Alveoli

- Bronchi

Correct Answer: Alveoli

35. Which lung has three lobes?

- Right lung

- Left lung

- Both right and left lungs

- Both have two lobes

Correct Answer: Right lung

36. Type of epithelium present in nasal cavity is:

- Ciliated

- Squamous

- Non-ciliated

- Cuboidal

Correct Answer: Ciliated

37. Large dust particles are trapped by:

- Hair in nostrils

- Mucus in nostrils

- Cilia in nostrils

- Both hair & mucus in nostrils

Correct Answer: Both hair & mucus in nostrils

38. Rate of breathing in an adult human at rest is:

- 10-15/min

- 15-20/min

- 20-25/min

- 25-30/min

Correct Answer: 15-20/min

39. All of the following are true for expirationexcept:

- Diaphragm is relaxed

- Rib cage is lowered

- Lung volume decreases

- Pressure on lungs decreases

Correct Answer: Pressure on lungs decreases

40. Breathing does not involve:

- Active transport of gases

- Contraction of muscles

- Gaseous exchange

- Use of energy

Correct Answer: Active transport of gases

41. Inspiration is dueto:

- Active contraction oflungs

- Active expansion oflungs

- Passive contractionof lungs

- Passive expansion of lungs

Correct Answer: Passive expansion of lungs

42. A change that is related to inspiration in humans is:

- Floor of buccal cavity is raised

- Ribs move inward and downward

- Lungs are inflated

- Diaphragm becomes dome shaped

Correct Answer: Lungs are inflated

43. Inspired air contains 79% nitrogen, percentage of nitrogen in expired airis:

- 19.6%

- 16%

- 0.04%

- 79%

Correct Answer: 79%

44. Which of the following is more in concentration in inspired air as compared to others?

- CO2

- O2

- N2

- CO

Correct Answer: N2

45. When carbon dioxide pressure increases, the capacity of hemoglobin to hold oxygen:

- Increases

- Decreases

- Remain unaffected

- Varies cell to cell

Correct Answer: Decreases

46. All arteries contain 50ml of CO2/100ml of blood, EXCEPT:

- Renal artery

- Hepatic artery

- Bronchial artery

- Pulmonary artery

Correct Answer: Pulmonary artery

47. O2 combines with Hb to form:

- Carboxyhaemoglobin

- Oxyhaemoglobin

- Carbaminohaemoglobin

- Oxymyoglobin

Correct Answer: Oxyhaemoglobin

48. The original colour of haemoglobin is:

- Bright red

- Purple red

- Purple yellow

- Red

Correct Answer: Purple red

49. Oxyhemoglobin will dissociate when:

- pO2 is 115 mmHg

- Temperature is less than 37 Co

- pCO2 is high

- pH of blood increases

Correct Answer: pCO2 is high

50. Number of oxygen molecules transported by one molecule of haemoglobin is:

- One

- Two

- Three

- Four

Correct Answer: Four

51. Which of following have same binding site on hemoglobin?

- Oxygen and carbon dioxide

- Carbon monoxide and carbon dioxide

- Oxygen and carbon monoxide

- Oxygen and Nitrogen

Correct Answer: Oxygen and carbon monoxide

52. Infectious disease of respiratory system which results in night sweats, cough and fever is:

- Asthma

- Emphysema

- Cancer

- Pulmonary tuberculosis

Correct Answer: Pulmonary tuberculosis

53. It is estimated that 90% of lung cancer iscaused by:

- Unhealthy air

- Poor living conditions

- Cigarette smoke

- All air pollutants

Correct Answer: Cigarette smoke

54. One molecule of hemoglobin can bind with\_\_\_\_\_\_\_\_ molecules of oxygen:

- 1

- 2

- 3

- 4

Correct Answer: 4

55. Large intestine is involved in absorption of all of the followingexcept:

- Water

- Salts

- Vitamin K

- Vitamin B12

Correct Answer: Vitamin B12

56. Large intestine starts with:

- Ascending colon

- Descending colon

- Caecum

- Rectum

Correct Answer: Caecum

57. Appendix is a finger like process that arises from blind end of:

- Duodenum

- Caecum

- Colon

- Rectum

Correct Answer: Caecum

58. It is a sac like structure in human alimentary canal:

- Stomach

- Appendix

- Duodenum

- Colon

Correct Answer: Appendix

59. Following is not true about vitamin K:

- Produced by bacteria

- Produced in human large intestine

- Involved in blood clotting

- Water soluble vitamin

Correct Answer: Water soluble vitamin

60. It is a blind sac that projects from the large intestine between ileumand colon:

- Appendix

- Caecum

- Rectum

- Pylorus

Correct Answer: Caecum

# 6-Coordination & Control

1. It is the main coordinating system of human body:

- Respiratory system

- Nervous system

- Hormonal system

- Circulatory system

Correct Answer: Nervous system

2. What is the correct sequence of working of components of nervous coordination?

- Neurons → Effectors → Receptors

- Effectors → Receptors → Neurons

- Receptors → Neurons → Effectors

- Receptors →Effectors → Neurons

Correct Answer: Receptors → Neurons → Effectors

3. Nervous coordination involved specialized cells called \_\_\_\_\_\_\_\_\_\_\_, linked together directly or via the CNS to form network.

- Nephrons

- Kupffer cells

- Neurons

- Neuroglia

Correct Answer: Neurons

4. The mechanisms that is found in animals only:

- Diffusion

- Nervous control

- Respiration

- Hormonal control

Correct Answer: Nervous control

5. For sound (good) reflex action, we require intact:

- Spinal cord

- Cerebellum

- Hypothalamus

- Medulla oblogata

Correct Answer: Spinal cord

6. It is the pathway of passage of impulse during reflex action:

- Nerve

- Involuntary action

- Reflex arc

- Spinal cord

Correct Answer: Reflex arc

7. Synaptic vesicles fuse with pre-synaptic membrane and releaseneurotransmitter molecules into:

- Cell body of pre-synaptic neuron

- Cell body of post-synaptic neuron

- Synaptic cleft

- Synaptic knob

Correct Answer: Synaptic cleft

8. Nerve impulse is transmitted from neuron to muscle fiber through:

- Hormones

- Enzymes

- Neurotransmitters

- Calcium ions

Correct Answer: Neurotransmitters

9. Which of the following cannot get across synapse?

- Single nerve impulse

- Impulse of supra-threshold value

- Multiple impulses in rapid succession

- Multiple impulse from multiple neurons

Correct Answer: Single nerve impulse

10. All of the following are examples of neurotransmitters except:

- Acetylcholine

- Adrenalin

- Dopamine

- Oxytocin

Correct Answer: Oxytocin

11. Communication between two neurons at synapse is made through:

- Cytoplasmic connections

- Microscopic gaps

- Neurotransmitters

- Plasmodesmata

Correct Answer: Neurotransmitters

12. Receptors for neurotransmitters are found on:

- Synaptic cleft

- Synaptic vesicle

- Pre-synaptic membrane

- Post-synaptic membrane

Correct Answer: Post-synaptic membrane

13. It is the main neurotransmitter for synapses that lie outside thecentral nervous system:

- Acetylcholine

- Adrenalin

- Serotonin

- Dopamine

Correct Answer: Acetylcholine

14. Neuromuscular junction is an example of:

- Physical synapse

- Electrical synapse

- Chemical synapse

- Biological synapse

Correct Answer: Chemical synapse

15. Serotonin and dopamine are the neurotransmitters of:

- Peripheral nervous system

- Brain only

- Spinal cord only

- Both brain & spinal cord

Correct Answer: Both brain & spinal cord

16. Neuromuscular junction is a synapse formed between:

- Two consecutive neurons

- Two consecutive cardiac muscle cells

- Dendrite & sarcolemma

- Axon and sarcolemma

Correct Answer: Axon and sarcolemma

17. GDNF is used to:

- Cure epilepsy

- Boost uptake of dopamine

- Decrease level of aluminum in brain

- Regenerate neurons in brain

Correct Answer: Boost uptake of dopamine

18. During attack of epilepsy, patient suffers from:

- Paralysis of limbs

- Convulsions

- Very low blood pressure

- Voluntary tremors

Correct Answer: Convulsions

19. If onset of epilepsy is\_\_\_\_\_\_\_\_\_\_\_\_\_, it suggests organic disease.

- After birth

- Before 30 years of age

- After 50-60 years

- After 30 years of age

Correct Answer: After 30 years of age

20. All of the following may cause/aggravates Alzheimer’s disease except:

- High level of aluminum

- Brain cells degeneration

- Genetic predisposition

- Deficiency of growth hormone

Correct Answer: Deficiency of growth hormone

21. Abrupt transient symptoms of \_\_\_\_\_\_\_\_ nature can be seen in epilepsy:

- Motor

- Sensory

- Psychic

- All A, B, C

Correct Answer: All A, B, C

22. Parkinson’s disease is believed to be caused by cell death in a brain area that produces:

- Acetylcholine

- Serotonin

- Dopamine

- Epinephrine

Correct Answer: Dopamine

23. One which is not a characteristic feature of Parkinson’s disease:

- Tremors

- Decreased motor power

- Loss of sensations

- Rigidity

Correct Answer: Loss of sensations

24. It is the most important test in the study of epilepsy:

- ECG

- EMG

- EEG

- EGG

Correct Answer: EEG

25. Epilepsy is one of the convulsive disorder of nerves. It is characterized by all of the following changes except:

- Changes in consciousness

- Symptoms of autonomic nature

- Loss of mental faculties

- Emotional disturbances

Correct Answer: Loss of mental faculties

26. L-dopa or levodopa is used to get some relief from:

- Epilepsy

- Parkinson’s disease

- Alzheimer’s disease

- Dementia

Correct Answer: Parkinson’s disease

27. Alzheimer’s disease is characterized by decline in:

- Autonomic functions

- Motor functions

- Brain functions

- Muscle power

Correct Answer: Brain functions

28. There is also evidence that high levels of \_\_\_\_\_\_\_\_\_\_\_ may contribute to the onset of Alzheimer’s disease.

- Ca

- Mg

- Mo

- Al

Correct Answer: Al

29. There is genetic predisposition for which of the following disease?

- Parkinson’s disease

- Alzheimer’s disease

- Epilepsy

- Tetanus

Correct Answer: Alzheimer’s disease

30. Parkinson’s disease is characterized by all of the following except:

- Involuntary tremors

- Rigidity

- Diminished motor power

- Mental retardation

Correct Answer: Mental retardation

31. Involuntary tremors, loss of motor power and rigidity are the features of:

- Parkinson’s disease

- Epilepsy

- Alzheimer’s disease

- Addison’s disease

Correct Answer: Parkinson’s disease

32. Release of TRF from hypothalamus is controlled by the levels of \_\_\_\_\_ in blood:

- Iodine

- TSH

- Thyroxine

- Steroid

Correct Answer: Thyroxine

33. Which of the following is an example of neurosecretion?

- Prolactin

- Vasopressin

- Calcitonin

- Aldosterone

Correct Answer: Vasopressin

34. It is believed that oxytocin and antidiuretic hormone are produced in:

- Thalamus

- Anterior pituitary

- Hypothalamus

- Posterior pituitary

Correct Answer: Hypothalamus

35. Inhibition of secretion of melanophore stimulating hormone is controlled by:

- Hypothalamus

- Pineal gland

- Anterior pituitary

- Median pituitary

Correct Answer: Hypothalamus

36. It is an example of neurosecretion:

- TSH

- ADH

- Insulin

- Glucagon

Correct Answer: ADH

37. Which of the following is the part of both nervous system and endocrine system?

- Thalamus

- Hypothalamus

- Anterior pituitary

- Posterior pituitary

Correct Answer: Hypothalamus

38. These two hormones are antagonist to each other:

- T3 & T4

- Calcitonin & parathormone

- Glucagon & cortisol

- Adrenaline & nor-adrenaline

Correct Answer: Calcitonin & parathormone

39. Which of the following organ does not play any role in the regulation of blood-glucose levels?

- Parathyroid

- Adrenal cortex

- Pancreas

- Anterior pituitary

Correct Answer: Parathyroid

40. Muscular and bone weakness in Cushing disease is due to excessive:

- Blood glucose

- Mineral loss

- Protein breakdown

- Medullary hormones

Correct Answer: Protein breakdown

41. Cortisol is the glucocorticoid and brings about an increase in blood glucose level mainly by its production from:

- Liver glycogen

- Muscle glycogen

- Lipid

- Protein

Correct Answer: Protein

42. Hormones secreted from adrenal cortex are:

- Proteins

- Polypeptides

- Amino acid derivatives

- Steroids

Correct Answer: Steroids

43. A hormone that stimulates production of cortisol is:

- Adrenaline

- Nor-adrenaline

- ACTH

- Aldosterone

Correct Answer: ACTH

44. Which process is stimulated by adrenaline in the cells of the liver?

- Breakdown of glycogen, increasing the blood glucose level

- Breakdown of excess amino acids, forming urea

- Breakdown of proteins, releasing amino acids into the blood

- Conversion of excess blood glucose to glycogen

Correct Answer: Breakdown of glycogen, increasing the blood glucose level

45. During Addison’s disease:

- MSH and cortical hormones increases

- MSH and cortical hormones decreases

- MSH increases, cortical hormones decrease

- MSH decreases, cortical hormones increase

Correct Answer: MSH increases, cortical hormones decrease

46. Excess of adrenaline & nor-adrenaline may lead to:

- Addison’s disease

- Cushing disease

- Low blood glucose

- High blood pressure

Correct Answer: High blood pressure

47. Development of certain male characters in female is due to tumor of:

- Adrenal medulla

- Thyroid

- Adrenal cortex

- Testis

Correct Answer: Adrenal cortex

48. Hormones produced by adrenal cortex are \_\_\_\_\_\_\_\_ in nature:

- Steroids

- Amino acid derivatives

- Polypeptides

- Proteins

Correct Answer: Steroids

49. The adrenal cortex is active in:

- Shock

- Stress

- Infection

- All A, B, C

Correct Answer: All A, B, C

50. Cortisol release is controlled by:

- STH

- ACTH

- TSH

- FSH

Correct Answer: ACTH

51. Excess or deficiency of ACTH will affect the functioning of:

- Hypothalamus

- Anterior pituitary

- Adrenal cortex

- Adrenal medulla

Correct Answer: Adrenal cortex

52. Structures that detect change in environment are called:

- Stimuli

- Receptors

- Control center

- Effectors

Correct Answer: Receptors

53. Receptors in ear for detection of sound are examples of

- Chemoreceptors

- Thermoreceptors

- Mechanoreceptors

- Nociceptor

Correct Answer: Mechanoreceptors

54. Stretched receptors present in the carotid and aortic arteries of tetrapods are examples of :

- Chemoreceptors

- Photoreceptors

- Thermoreceptors

- Mechanoreceptors

Correct Answer: Mechanoreceptors

55. Which of the following type of receptors are also called as ‘electromagnetic receptors’?

- Chemoreceptors

- Mechanoreceptorsq

- Nociceptors

- Photoreceptors

Correct Answer: Photoreceptors

56. These receptors are said to be the un-differentiated endings and detect the stimulus of pain:

- Photoreceptors

- Thermoreceptors

- Mechanoreceptors

- Nociceptors

Correct Answer: Nociceptors

57. In skin, the receptors are concerned with at least \_\_\_\_\_\_\_ different senses.

- 3

- 4

- 5

- 6

Correct Answer: 5

58. All of the following are functions of secretin except:

- Controls the exocrine secretion of pancreas

- Stimulates bile production from liver

- Helps in regulation of duodenal pH

- Stimulates the production of gastric juice

Correct Answer: Stimulates the production of gastric juice

59. It is the site of production of secretin:

- Stomach

- Duodenum

- Jejunum

- Ileum

Correct Answer: Duodenum

60. Gastrin in produced under the influence of \_\_\_\_\_\_\_\_\_\_\_in the stomach after it is partially digested.

- Lipid rich food

- Vitamin rich food

- Carbohydrate rich food

- Protein rich food

Correct Answer: Protein rich food

# 7-Reproduction & Support & Movement

1. Twisting around the actin chains, there are two strands of another protein called:

- Myoglobin

- Myosin

- Troponin

- Tropomyosin

Correct Answer: Tropomyosin

2. Interstitial cells are located:

- Between seminiferous tubules

- Inside seminiferous tubules

- In epididymis

- Between Seminal vesicles

Correct Answer: Between seminiferous tubules

3. After sperms production, they are first delivered to:

- Sperm duct

- Seminal vesicles

- Epididymis

- Vas deference

Correct Answer: Epididymis

4. In humans, testes are present outside the body in a sac like structure called:

- Peritoneum

- Cervix

- Scrotum

- Pelvis

Correct Answer: Scrotum

5. These provide liquid medium, protection and nourishment to sperms while they are in the seminiferous tubules:

- Seminal vesicle

- Prostate gland

- Bulbourethral gland

- Sertoli cells

Correct Answer: Sertoli cells

6. Liquid medium, protection and nourishment to sperms while they are in seminiferous tubules is provided by fluid secreted by:

- Germ cells

- Sertoli cells

- Interstitial cells

- Leydig cells

Correct Answer: Sertoli cells

7. Which of the following lie outside the body in humans?

- Ovaries

- Testes

- Kidneys

- Bladder

Correct Answer: Testes

8. Plasma membrane of Sertoli cells contain receptors for:

- Estrogen

- Oxytocin

- FSH

- LH

Correct Answer: FSH

9. It is the site of spermatogenesis in humans:

- Seminiferous tubules

- Epididymis

- Vas deferens

- Seminal vesicles

Correct Answer: Seminiferous tubules

10. Which of the following is not a male sex accessory gland?

- Seminal vesicle

- Prostate

- Epididymis

- Bulbourethral

Correct Answer: Epididymis

11. Prior to emission and ejaculation, spermatozoa are stored in:

- Urethra

- Epididymis

- Seminal vesicles

- Prostate gland

Correct Answer: Epididymis

12. Birth canal is another name used for:

- Oviduct

- Uterus

- Cervix

- Vagina

Correct Answer: Vagina

13. The ovaries are located:

- One on each side of the upper abdomen

- Two on each side of the upper abdomen

- Two on each side of the lower abdomen

- One on each side of the lower abdomen

Correct Answer: One on each side of the lower abdomen

14. Uterine tube is the term used for:

- Vas deferens

- Urethra

- Oviduct

- Uterus

Correct Answer: Oviduct

15. Pick the correct combination of structures for given functions:

- Ovary (Fertilization), Oviduct (Conception), Uterus (Development)

- Oviduct (Fertilization), Uterus (Conception), Uterus (Development)

- Oviduct (Fertilization), Uterus (Conception), Cervix (Development)

- Oviduct (Fertilization), Uterus (Conception), Vagina (Development)

Correct Answer: Oviduct (Fertilization), Uterus (Conception), Uterus (Development)

16. Which one of the following is not the part of female reproductive system?

- Urethra

- Cervix

- Vagina

- Uterus

Correct Answer: Urethra

17. Which of the following event occurs in secretory phase of menstrual cycle?

- FSH secretion begins

- Follicle maturation occurs

- Corpus luteum forms

- Endometrium breaks down

Correct Answer: Corpus luteum forms

18. Ovulation in human female normally takes place:

- At the end of proliferative phase

- At the beginning of proliferative phase

- Just before end of secretory phase

- At the mid of secretory phase

Correct Answer: At the end of proliferative phase

19. Yellow glandular structure formed after the release of egg from follicle is called:

- Corpus callosum

- Graffian follicle

- Corpus luteum

- Follicle atresia

Correct Answer: Corpus luteum

20. Events of the menstrual cycle involve:

- Ovaries only

- Uterus only

- Pituitary only

- Both ovaries & uterus

Correct Answer: Both ovaries & uterus

21. First event which occurs on uterine wall is:

- Ovulation

- Fertilization

- Placentation

- Implantation

Correct Answer: Implantation

22. On an average, menstruation stage lasts for about \_\_\_\_\_\_ days:

- 2

- 4

- 14

- 10

Correct Answer: 4

23. Most birth control pills contain:

- Oestrogen

- FSH

- Progesterone

- All A, B, C

Correct Answer: Progesterone

24. Thickening of endometrium occurs during all phases of cycle except:

- Menstrual phase

- Secretory phase

- Proliferative phase

- Luteal phase

Correct Answer: Menstrual phase

25. “Treponema pallidum” is the causative agent of:

- Gonorrhoea

- Syphilis

- Genital herpes

- AIDS

Correct Answer: Syphilis

26. Syphilis is caused by:

- Coccus

- Bacillus

- Spirochete

- Spirillum

Correct Answer: Spirochete

27. Highly contagious disease that affects mucous membranes of urinogenital tract is:

- Gonorrhea

- AIDS

- Syphilis

- Herpes

Correct Answer: Gonorrhea

28. It is a viral STD in which immune system is collapsed:

- Genital herpes

- AIDS

- Syphilis

- Gonorrhoea

Correct Answer: AIDS

29. Transmission of Neisseria gonorrhea is best described by which one of the following method?

- Oro-fecal route

- Unsafe sex

- Vector borne

- Droplet infection

Correct Answer: Unsafe sex

30. AIDS is caused by:

- Bacteria

- Virus

- Fungi

- Alga

Correct Answer: Virus

31. Which of the following STD can be cured by using antibiotics?

- Genital herpes

- AIDS

- Syphilis

- Influenza

Correct Answer: Syphilis

32. Sexual contact is source of dissemination of all diseases except:

- Herpes Simplex Type I

- Gonorrhea

- AIDS

- Syphilis

Correct Answer: Herpes Simplex Type I

33. In vitro fertilization is a technique that involves transfer of which one the following into the fallopian tube?

- Either zygote or early embryo upto 8 cell stage

- Embryo only upto 8 cell stage

- Embryo of 32 cell stage

- Zygote nly

Correct Answer: Either zygote or early embryo upto 8 cell stage

34. Which technique involves fertilization outside the body of the female?

- Intrauterine fertilization

- In vitro fertilization

- In vivo fertilization

- Ex vivo fertilization

Correct Answer: In vitro fertilization

35. Osteoblasts after conversion form:

- Osteocytes

- Osteoclasts

- Stem cells

- Chondrocytes

Correct Answer: Osteocytes

36. Bone matrix is hardened by:

- Haversian canals

- Canaliculi

- Bone marrow tissue

- Calcium phosphate

Correct Answer: Calcium phosphate

37. All of the following bones are involved in RBCs production in adults except:

- Sternum

- Ribs

- Vertebrae

- Femur

Correct Answer: Femur

38. Part of our body that does not contain living cells:

- Bone

- Cartilage

- Muscle

- Hair

Correct Answer: Hair

39. All of the following are the functions of endoskeleton in humans except:

- Protection

- Support

- Mineral homeostasis

- Temperature homeostasis

Correct Answer: Temperature homeostasis

40. Basic protein which forms ground matrix of connective tissues is:

- Actin

- Fibrous

- Collagen

- Chondrocytes

Correct Answer: Collagen

41. Elastic cartilage forms:

- Annulus fibrosus

- Fibrous capsule

- External pinnae

- Glottis

Correct Answer: External pinnae

42. Blood vessels do not penetrate in:

- Compact bone

- Spongy bone

- Cartilage

- Muscle

Correct Answer: Cartilage

43. In cartilage, collagen is secreted by:

- Osteoblasts

- Osteocytes

- Osteoclasts

- Chondrocytes

Correct Answer: Chondrocytes

44. It is the most abundant type of cartilage in human body:

- Hyaline cartilage

- Fibrocartilage

- Elastic cartilage

- Living cartilage

Correct Answer: Hyaline cartilage

45. The collagen fibers of bones are hardened by deposit of:

- Calcium phosphate

- Calcium nitrate

- Calcium chloride

- Calcium sulphate

Correct Answer: Calcium phosphate

46. Large bone cells that enzymatically break down bone tissue:

- Osteocytes

- Osteoblast

- Osteoclast

- Chondrocytes

Correct Answer: Osteoclast

47. Bone and cartilage are types of:

- Soft connective tissue

- Special type of connective tissue

- Rigid connective tissue

- Rigid and soft connective tissue respectively

Correct Answer: Rigid connective tissue

48. Bone marrow is involved in all except:

- Production & maturation of RBCs

- Production & maturation of all WBCs

- Production of platelets

- Release of RBCs in blood

Correct Answer: Production & maturation of all WBCs

49. Cartilage performs all functions except:

- Attachment of muscles with bones

- Formation of external pinnae of ear

- Covers ends of bones in joints

- Covers glottis during swallowing

Correct Answer: Attachment of muscles with bones

50. Each dark band in skeletal muscle has a lighter strip in its midsection called:

- A band

- I band

- H zone

- Z line

Correct Answer: H zone

51. It is a dense connective tissue that surrounds entire muscle:

- Tendon

- Ligament

- Epimysium

- Perimysium

Correct Answer: Epimysium

52. It acts as store house of oxygen in skeletal muscle fiber:

- Hemoglobin

- Myoglobin

- Creatinine

- ATP

Correct Answer: Myoglobin

53. Generally, each end of the entire skeletal muscle is attached to bone by a bundle of collagen, non-elastic fibers known as:

- Capsule

- Tendon

- Ligament

- Synovium

Correct Answer: Tendon

54. Connective tissue that attaches muscle to bone is:

- Ligament

- Capsule

- Tendon

- Epimysium

Correct Answer: Tendon

55. Troponin can bind to all of the following except:

- Actin

- Tropomyosin

- Myosin

- Calcium

Correct Answer: Myosin

56. A band of a skeletal muscle fiber contains:

- Thick filament only

- Thin filament only

- Both thick & thin filaments

- Neither thick nor thin filament

Correct Answer: Both thick & thin filaments

57. One myofibril has:

- One myofilament

- One muscle bundle

- Many muscle fibers

- Many sarcomere

Correct Answer: Many sarcomere

58. Muscle bundle is enclosed by a membrane called:

- Sarcolemma

- Epimysium

- Perimysium

- Endomysium

Correct Answer: Perimysium

59. Biceps brachii has insertion on:

- Scapula

- Humerus

- Ulna

- Radius

Correct Answer: Radius

60. The thick filament is composed of:

- Actin

- Myosin

- Troponin

- Tropomyosin

Correct Answer: Myosin

# 8-Biodiversity & Prokaryotes

1. First virus which was purified and crystallized was:

- Pox virus

- Tobacco mosaic virus

- Rabies virus

- Bacteriophage

Correct Answer: Tobacco mosaic virus

2. These are non-cellular infectious entities which contain either RNA or DNA:

- Viroids

- Prions

- Viruses

- Pathogens

Correct Answer: Viruses

3. First vaccine was developed by Edward Jenner against:

- Cow pox

- Small pox

- Tuberculosis

- Cholera

Correct Answer: Small pox

4. It is the essential component of all the viruses:

- Nucleocapsid

- Envelope

- Head

- Tail

Correct Answer: Nucleocapsid

5. It is present in all viruses:

- DNA

- RNA

- Capsid

- Envelop

Correct Answer: Capsid

6. Members of which of the following group are all parasites?

- Viruses

- Bacteria

- Fungi

- Protozoa

Correct Answer: Viruses

7. Number of capsomeres in capsid of adenovirus is:

- 152

- 162

- 252

- 262

Correct Answer: 252

8. It gives definite shape to the virion:

- DNA

- RNA

- Capsid

- Envelope

Correct Answer: Capsid

9. Number of capsomeres in capsid of herpes virus is:

- 152

- 162

- 252

- 262

Correct Answer: 162

10. A chemical component that is found in all viruses is:

- RNA

- DNA

- Lipid

- Protein

Correct Answer: Protein

11. In prions, the information for their replication is contained in:

- Carbohydrates

- Proteins

- RNA

- DNA

Correct Answer: Proteins

12. The most common classification for viruses is on base of:

- Host

- Morphology

- Nucleic acid properties

- Envelop

Correct Answer: Nucleic acid properties

13. The first step in the replication of bacteriophage is its:

- Adsorption

- Injection

- Penetration

- Multiplication

Correct Answer: Adsorption

14. Receptor site for attachment of T4 phage is present on:

- Cell wall of E. coli

- CD 4 site of E. coli

- CD 4 site on helper T-cell

- Cell membrane of E. coli

Correct Answer: Cell wall of E. coli

15. The process by which viral DNA is incorporated into bacterial chromosomeas prophage is called:

- Adsorption

- Lysogeny

- Induction

- Virulence

Correct Answer: Lysogeny

16. This is not true about capsid of head of T4 phage:

- It consists of proteins

- It contains genetic information

- It contains lysozyme

- It is pyramidal in shape

Correct Answer: It contains lysozyme

17. The phage which causes lysis of the host cell is known as:

- Temperate phage

- Lysogenic phage

- Virulent phage

- Non-virulent phage

Correct Answer: Virulent phage

18. What are the sequence of steps in which a bacteriophage attacks bacterium and injects its DNA?

- Landing → Tail contraction → Penetration → DNA injection

- Penetration → Landing → Tail contraction → DNA injection

- Tail contraction → Landing → DNA injection → Penetration

- Landing → Penetration → Tail contraction → DNA injection

Correct Answer: Landing → Tail contraction → Penetration → DNA injection

19. Detachment of the prophage from bacterial chromosome and start of lytic cycle is:

- Conjugation

- Transformation

- Induction

- Differentiation

Correct Answer: Induction

20. In lysogenic cycle, the DNA of the bacteriophage:

- Joins the bacterial chromosome

- Joins the bacterial plasmid

- Is immediately degraded when enter

- Attached with the ribosome

Correct Answer: Joins the bacterial chromosome

21. It is the inflammation of liver:

- Jaundice

- Hepatitis

- Cirrhosis

- Hepatomegaly

Correct Answer: Hepatitis

22. Virus that attacks on spinal cord in humans is:

- Pox virus

- Influenza virus

- Herpes virus

- Polio virus

Correct Answer: Polio virus

23. Infusion hepatitis is caused by:

- RNA enveloped virus

- DNA enveloped virus

- RNA non enveloped virus

- DNA non enveloped virus

Correct Answer: RNA enveloped virus

24. Acute attacks of hepatitis B cause:

- Insomnia, chronic liver disease

- Fatigue, loss of appetite and jaundice

- Loss of immune functions

- Loss of immune functions

Correct Answer: Fatigue, loss of appetite and jaundice

25. It is a type of hepatitis caused by DNA virus:

- Hepatitis A

- Hepatitis B

- Hepatitis C

- Hepatitis E

Correct Answer: Hepatitis B

26. Which of the following disease results in paralysis due to viral attack on C.N.S?

- Small pox

- Hepatitis

- AIDS

- Polio

Correct Answer: Polio

27. It is also called as infusion hepatitis:

- Hepatitis A

- Hepatitis B

- Hepatitis C

- Hepatitis D

Correct Answer: Hepatitis C

28. It is an example of retrovirus:

- HIV

- TMV

- HSV-I

- HSV-II

Correct Answer: HIV

29. In case of HIV, its host cell contains a specific receptor for adsorption and penetration. This receptor is:

- CD1

- IL-1

- CD4

- IL-8

Correct Answer: CD4

30. An AIDS patient can suffer from:

- Immune deficiency

- Tumor production

- Opportunistic infections

- All A, B, C

Correct Answer: All A, B, C

31. In HIV, reverse transcriptase converts single stranded RNA into double stranded viral DNA This process is called:

- Translation

- Duplication

- Replication

- Reverse transcription

Correct Answer: Reverse transcription

32. Uncoating of protein coat of HIV occurs at/in:

- Plasma membrane

- Cytoplasm

- Lysosome

- Nucleus

Correct Answer: Cytoplasm

33. Part of HIV labeled at X is:  
>

- Envelope

- Envelope spikes

- Capsid

- Genome

Correct Answer: Envelope spikes

34. Mycoplasma are about \_\_\_\_\_\_\_\_\_in size.

- 100-200 nm

- 2-6 µm

- 400-500 µm

- 80-600 µm

Correct Answer: 100-200 nm

35. It is a thin flexible spiral:

- Coccobacillus

- Vibrio

- Spirillum

- Spirochete

Correct Answer: Spirochete

36. What is true about pleomorphic bacteria?

- All are autotrophs

- Have spherical shape

- Only seen in one shape

- Exist in variety of shapes

Correct Answer: Exist in variety of shapes

37. Bacteria which exist in variety of shapes are:

- Cocci

- Bacilli

- Spirochete

- Pleomorphic

Correct Answer: Pleomorphic

38. Which one is not a rod-shaped bacterium?

- Escherichia coli

- Hyphomicrobium

- Bacillus subtilis

- Pseudomonas

Correct Answer: Hyphomicrobium

39. Bacterium which is helically curved rod is:

- Escherichia coli

- Spirillum

- Bacillus subtilis

- Pseudomonas

Correct Answer: Spirillum

40. Mesosomes are not involved in:

- DNA replication

- Cell division

- Respiration

- Photosynthesis

Correct Answer: Photosynthesis

41. Structures which are found in all the bacterial cells are:

- Cell membrane, Cellwall, Capsule, Slime

- Flagella, Pili,Fimbriae, Cilia

- Cell membrane, Cytoplasm, Ribosome, Chromatin body

- Flagella, Mesosome,Plasmid, Chromatin body

Correct Answer: Cell membrane, Cytoplasm, Ribosome, Chromatin body

42. These are hollow, non-helical, filamentous appendages found in bacteria:

- Cilia

- Flagella

- Pili

- Pseudopod

Correct Answer: Pili

43. Cell envelop does not include:

- Cell wall

- Capsule

- Slime

- Spore

Correct Answer: Spore

44. These are only desiccation resistant structures:

- Capsule

- Slime

- Spore

- Cyst

Correct Answer: Cyst

45. Bacteria which can grow either in presence or absence of oxygen arecalled:

- Aerobic bacteria

- Anaerobic bacteria

- Facultative bacteria

- Microaerophilic bacteria

Correct Answer: Facultative bacteria

46. Even a small amount of oxygen is toxic for:

- Pseudomonas

- Spirochete

- Campylobacter

- E. coli

Correct Answer: Spirochete

47. Exchange of genetic material between two bacteria via formation ofcytoplasmic bridge is called:

- Reproduction

- Transduction

- Conjugation

- Transformation

Correct Answer: Conjugation

48. The interval of time until the completion of next division is known as:

- Generation gap

- Generation time

- Replication time

- Time interval

Correct Answer: Generation time

49. Bacterial growth can be seen in all phases except:

- Lag phase

- Log phase

- Death phase

- Stationary phase

Correct Answer: Lag phase

50. It is a phase of bacterial growth where death rate is equal to rate ofreproduction:

- Lag phase

- Log phase

- Stationary phase

- Decline phase

Correct Answer: Stationary phase

51. Effect that instantly kills microbes is:

- Sterilization

- Microbistatic

- Microbicidal

- Antisepsis

Correct Answer: Microbicidal

52. Gamma rays are commonly used for:

- Disinfection

- Antisepsis

- Sterilization

- Pasteurization

Correct Answer: Sterilization

53. Heat sensitive compounds like antibiotics, seras & hormones can besterilized by means of:

- Moist heat

- Radiations

- Membrane filters

- Antiseptics

Correct Answer: Membrane filters

54. Moist heat iseffective in controlling microbes because it causes:

- Oxidation of DNA

- Liquidation of DNA

- Coagulation ofproteins

- Liquidation of proteins

Correct Answer: Coagulation ofproteins

55. Process which killsbacteria as well as spores is called:

- Immunization

- Disinfection

- Sterilization

- Antisepsis

Correct Answer: Sterilization

56. Photosynthesis in bacteria is different from cyanobacteria and plants inall aspects except:

- Structure ofchlorophyll

- Absence ofchloroplast

- Use of H2Sas reactant

- Release of H2O as product

Correct Answer: Release of H2O as product

57. Cyanobacteria is more tolerant to environmental conditions due to:

- Absence of mitochondria

- Cell membrane

- Cell wall

- Modern cell organization

Correct Answer: Cell wall

58. Which of the following is more ancient than others?

- Algae

- Blue-green algae

- Green algae

- Brown algae

Correct Answer: Blue-green algae

59. Heterocyst are:

- Colorless and thick walled

- Colored and thinwalled

- Green color and thickwalled

- Green color and thinwalled

Correct Answer: Colorless and thick walled

60. Which is basic shape of cyanobacteria except:

- Star like

- Rod like

- Spiral

- Spherical

Correct Answer: Star like

# 9-Diversity Among Animals

1. The animals in grade bilateria and triploblastic are all except:

- Platyhelminthes, nematode

- Annelida, mollusca

- Arthropoda, and chordate

- Cnidaria

Correct Answer: Cnidaria

2. The phylum in which first time nerve net arises:

- Porifera

- Platyhelminthes

- Coelenterate

- Protozoa

Correct Answer: Coelenterate

3. Which group of animals may have their evolutionary relation with choanoflagellates due to structural resemblance?

- Parazoa

- Protozoa

- Metazoa

- Eumetazo

Correct Answer: Parazoa

4. Which of the following is the largest phylum?

- Mollusca

- Arthropods

- Echinodermata

- Annelida

Correct Answer: Arthropods

5. The primitive multicellular animals having cellular level of organization are:

- Ctenophores

- Corals

- Sponges

- Crustacean

Correct Answer: Sponges

6. Radial symmetry is present in:

- Sycon

- Cockroach

- Hydra

- Human

Correct Answer: Hydra

7. Triploblastic animal contains

- Ectoderm

- Endoderm

- Mesoderm

- All A, B, C

Correct Answer: All A, B, C

8. It is not derived from endoderm?

- Liver

- Gastric glands

- Pancreases

- Muscles

Correct Answer: Muscles

9. The first diploblastic animals showing tissue level of organization is

- Sycon

- Taenia

- Gorgonia

- Locust

Correct Answer: Gorgonia

10. A fluid filled cavity which is mesodermal in origin but absent in nematodes is:

- Coelom

- Gastrocoel

- Pseudocoelom

- Spongocoel

Correct Answer: Coelom

11. Liver has its origin from \_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer.

- Endoderm

- Ectoderm

- Mesoderm

- Integumentary

Correct Answer: Endoderm

12. True difference between mesenchyme of sponges and mesenchyme of acoelomates is:

- It is present between ectoderm and endoderm in acoelomates

- It develops from embryonic body wall in acoelomates

- It is cellular and living in acoelomates

- It forms a medium for diffusion of substances in acoelomates

Correct Answer: It is cellular and living in acoelomates

13. It is not a germ layer:

- Ectoderm

- Endoderm

- Mesoderm

- Blastoderm

Correct Answer: Blastoderm

14. Metameric segmentation is found in

- Annelida

- Both A and B

- Arthropoda

- Platyhelminthes

Correct Answer: Annelida

15. All are correct about acoelomates except:

- Sac type digestive system

- Well developed respiratory system

- Parenchyma fill the body space

- Well developed excretory system

Correct Answer: Well developed respiratory system

16. Animals which do not have a body cavity:

- Acoelomata

- Pseudocoelomata

- Coelomata

- Deuterostomes

Correct Answer: Acoelomata

17. In coelomate the layer that surround endoderm is:

- Coelomic epithelium

- Ectoderm

- Visceral mesoderm

- Parietal mesoderm

Correct Answer: Visceral mesoderm

18. Aschelminthes are

- Eucoelomates

- Acoelomate

- Pseudocoelomates

- None of these

Correct Answer: Pseudocoelomates

19. Pseudocoelom is developed from :

- Blastostyle

- Blastocoel

- Blastocyst

- Mesoderm

Correct Answer: Blastocoel

20. At which developmental stage should one be able to first distinguish a diploblastic embryo from a triploblastic embryo?

- Fertilization

- Cleavage

- Gastrulation

- Coelom formation

Correct Answer: Gastrulation

21. The following features belong to which of the following phylum?   
(1). Triploblastic  
(2). Bilateral symmetry  
(3). Eucoelomates Metamerism

- Mollusca

- Platyhelinthes

- Aschelminthes

- Annelida

Correct Answer: Annelida

22. The undifferentiated layer present between the ectoderm and endoderm in coelenterate is:

- Mesophyll

- Archenteron

- Gastral layer

- Mesoglea

Correct Answer: Mesoglea

23. The only well-developed system found in acoelomates:

- Excretory system

- Transport system

- Digestive system

- Respiratory system

Correct Answer: Excretory system

24. Body cavity is the cavity present between body wall and gut wall. In some animals the body cavity is not lined by mesoderm. Such animals are called

- Acoelomate

- Coelomate

- Pseudocoelomate

- Haemocoelomate

Correct Answer: Pseudocoelomate

25. It is not a feature of animals belong to sub-kingdom parazoa:

- Lack tissue organization

- Simplest of all the animals

- Determinate shape

- Asymmetrical

Correct Answer: Determinate shape

26. A cosmopolitan worm is:

- Ancylostomaduodenale

- Enterobiusvermicularis

- Ascarislumbericoides

- Rhabditis

Correct Answer: Enterobiusvermicularis

27. Which group of arthropods lacks antennae?

- Crustacea

- Myriapoda

- Arachnida

- Insecta

Correct Answer: Arachnida

28. One which lives in bile duct of human as an endoparasite:

- Dugesia

- Fasciola

- Taenia

- Schistosoma

Correct Answer: Fasciola

29. Most of arthropods are:

- Oviparous

- Viviparous

- Ovoviviparous

- None of these

Correct Answer: Oviparous

30. Coelenterata is also named as cnidaria because of presence of:

- Gastro vascular cavity

- Cnidocytes

- Polyps and medusae

- Polymorphism

Correct Answer: Cnidocytes

31. All of the following act as vector to transmit disease causing organisms to man except:

- Fleas and lice

- Trypanosoma

- Anopheles

- Common house fly

Correct Answer: Trypanosoma

32. “Tube within tube” type structure is feature of:

- Tapeworm

- Hydra

- Planaria

- Pinworm

Correct Answer: Pinworm

33. Common housefly is involved in spread of all except:

- Hepatitis

- Dysentery

- Malaria

- Cholera

Correct Answer: Malaria

34. All of the following molluscs are economically beneficial for mankind except:

- Clams

- Pearl oyster

- Freshwater mussel

- Teredo

Correct Answer: Teredo

35. Which body system is present in each segment of annelids separately?

- Digestive system

- Nerve cord

- Circulatory system

- Excretory system

Correct Answer: Excretory system

36. Tube like digestive system was first time appeared in:

- Porifera

- Platyhelminthes

- Coelentrata

- Nematoda

Correct Answer: Nematoda

37. Which of the following mammal have aerial adaptation?

- Felis

- Bat

- Canis

- Macropus

Correct Answer: Bat

38. Retilia means:

- Flying mode of locomotion

- Saltation mode of locomotion

- Swim mode of locomotion

- Creeping or crawling mode of locomotion

Correct Answer: Creeping or crawling mode of locomotion

39. Vertebrates have:

- Ventral muscular heart with 3, 2 or 4 chamber

- Kidneys for excretion and osmoregulation

- Paired appendages which may be fins or limbs

- All A, B, C

Correct Answer: All A, B, C

40. Kangaroo is a:

- Eutherian

- Bird

- Prototherian

- Metatherian

Correct Answer: Metatherian

41. Which of the following tract open into a common chamber cloaca in amphibians?

- Alimentary

- Reproductive tract

- Urinary tract

- All A, B, C

Correct Answer: All A, B, C

42. Which of the following characteristics in birds is not helpful for flight phenomenon?

- Absence of bladder

- Development of keel

- Light weight skeleton

- Development of syrinx

Correct Answer: Development of syrinx

43. Animal belonging to phylum chordate shows

- Bilateral symmetry, triploblastic and the coelom

- Organ system level of organization

- Closed circulatory system

- All of these

Correct Answer: All of these

44. Mammals are named so because of:

- Placenta formation

- Viviparous mode

- Muscular diaphragm

- Mammary glands

Correct Answer: Mammary glands

45. Which of the following is not true fish?

- Exocoetus

- Saw fish

- Betta

- Jelly fish

Correct Answer: Jelly fish

46. First class of vertebrate, which are fully adopted for terrestrial life is

- Amphibia

- Aves

- Reptilia

- Mammals

Correct Answer: Reptilia

47. Mammals are mostly

- Viviparous

- Ovoviviparous

- Oviparous

- All A, B, C

Correct Answer: Viviparous

48. Which of the following characteristics in birds is not helpful for flight phenomenon?

- Absence of bladder

- Development of keel

- Light weight skeleton

- Development of syrinx

Correct Answer: Development of syrinx

49. Largest vertebrate animal is:

- Whale

- Shark

- Sting ray

- Elephant

Correct Answer: Whale

50. The name ‘amphibian’ indicates that they can live in:

- Aquatic habitat

- Terrestrial habitat

- Both A and B

- Aerial habitat

Correct Answer: Both A and B

51. The below figure shows which type of symmetry:  
/>

- Bilateral

- Biradial

- Radial

- Asymmetry

Correct Answer: Radial

52. Animals having bilateral symmetry belong to:

- Triploblastic

- Deuterostome

- Eucoelomate

- Monoblastic

Correct Answer: Triploblastic

53. The cylindrical body of a sea anemone can be cut in two equal halves. It represents:

- Diploblastic organization

- Radial symmetry

- Triploblastic organization

- Bilateral symmetry

Correct Answer: Radial symmetry

54. Animals of kingdom Animalia possess all characters except:

- Diploid

- Embryonic development

- Unicellular

- Eukaryotic

Correct Answer: Unicellular

55. Which of the following is unique to animals?

- Cells that have plastids

- The structural carbohydrate

- Nervous conduction

- Heterotrophy

Correct Answer: Nervous conduction

56. Find out the total number of organism given in following figure that belongs to marine habitat  
/>

- 1

- 4

- 3

- 5

Correct Answer: 4

57. An animal found from ocean was observed to have no tissue organization is most likely to be the member of phylum:

- Porifera

- Coelenterate

- Echinodermata

- Hemichordate

Correct Answer: Porifera

58. Bilaterally symmetrical animals are:

- Lesser developed

- Lacking mesoderm

- Placed in one phylum only

- Triploblastic

Correct Answer: Triploblastic

59. Group of organisms which have proper left and right sides of body:

- Cnidaria

- Platyhelminthes

- Sponges

- Chordates

Correct Answer: Platyhelminthes

60. Simplest animals are:

- Amoebae

- Sponges

- Jelly fishes

- Hydra

Correct Answer: Sponges

# 10-Variation & Genetics & Evolution

1. The haploid chromosome number in pea is:

- 8

- 7

- 10

- 14

Correct Answer: 7

2. The organism chosen by G. Mendel to explain the laws of inheritance was:

- Homo sapiens

- Pisum sativum

- Antirrhinum majus

- Drosophila melanogester

Correct Answer: Pisum sativum

3. Which of the following are dominant characters according to Mendel?

- Green colored pod androunded seeds

- Terminal fruit and wrinkled seeds

- Yellow pod color and short stem height

- White flower color and terminal flower position

Correct Answer: Green colored pod androunded seeds

4. Which of the following is considered as a recessive character of Mendel?

- Green pod color

- Round seed shape

- Axial flower position

- Wrinkled seed shape

Correct Answer: Wrinkled seed shape

5. Mendelism is related with:

- Meiosis during sexual reproduction

- Mutation in living organisms

- Heredity in livingorganisms

- Meiosis during asexual reproduction

Correct Answer: Heredity in livingorganisms

6. Seed shape in pea plant is:

- Trait

- Phenotype

- Genotype

- Genome

Correct Answer: Trait

7. Mendel chosen P. sativum because:

- Hermaphrodite flowers

- Short generation time

- Easy to grow under ambient conditions

- All A, B, C

Correct Answer: All A, B, C

8. Albinism is a\_\_\_\_\_\_\_\_\_ trait.

- Autosomal dominant

- Autosomal recessive

- Sex-linked dominant

- Sex-linked recessive

Correct Answer: Autosomal recessive

9. What percentage of round green seeds in F2 progeny ofdihybrid cross is heterozygous for round seed shape?

- 25%

- 33%

- 66%

- 75%

Correct Answer: 66%

10. How many types of gametes are produced by an organism with genotype of‘AaBB’?

- 1

- 2

- 3

- 4

Correct Answer: 2

11. The pedigree shows the occurrence of albinism which is a recessivetrait. If person 4 is homozygous, the carrier for the trait is:

- 1, 4, 5 and 6

- 1, 2 and 3

- 5 and 6

- 1, 2, 5 and 6

Correct Answer: 1, 2, 5 and 6

12. What the percentage of round green seeds in F2 progeny of dihybrid iscross were heterozygous for green seed color?

- 0%

- 25%

- 50%

- 100%

Correct Answer: 0%

13. In dihybrid cross, out of 16 plants obtained, the number of genotypes willbe:

- 4

- 9

- 16

- 12

Correct Answer: 9

14. If a child has O type of blood group and the father has B type, then thegenotype of the father will be:

- i i

- i IB

- IAIB

- IBIB

Correct Answer: i IB

15. It acts as universal recipient:

- AB +ive

- AB –ive

- O -ive

- O +ive

Correct Answer: AB +ive

16. In multiple allele system, one gamete possesses:

- Two alleles

- One allele

- Three alleles

- Many alleles

Correct Answer: One allele

17. Multiple alleles are the alleles that are always:

- More than 1

- More than 2

- More than 3

- More than 4

Correct Answer: More than 2

18. Which is not true about multiple alleles?

- Formed due to gene mutation

- Belong to polymorphic gene

- Number is always two

- Gamete having just one of them

Correct Answer: Number is always two

19. Blood group of a person is O while his children having A. All of thefollowing can be the genotype of mother except:

- Homozygous for gene IA

- Heterozygous for gene IA

- Homozygous for gene i

- Heterozygous for gene i

Correct Answer: Homozygous for gene i

20. Which of the followings gene is not involved in Rh blood group system?

- C

- E

- D

- H

Correct Answer: H

21. Which of these traits zigzags from maternal grand-father through carrierdaughter to a grand-son?

- Autosomal

- X- linked

- Y-linked

- Both ‘X’ and ‘Y’ linked

Correct Answer: X- linked

22. An example of autosomal recessive trait is:

- Haemophilia A

- Haemophilia B

- Blue blindness

- Hypophosphatemia

Correct Answer: Blue blindness

23. Colour blindness results from:

- Inverted retina

- Abnormal cones

- Absence of rods

- Absence of eye lids

Correct Answer: Abnormal cones

24. Hemophilia B is due to absence or abnormality of blood clotting factor:

- VIII

- IX

- X

- XI

Correct Answer: IX

25. Haemophilia is caused by a sex-linked recessive allele. Two parents havea hemophiliac son, a normal son and a hemophiliac daughter. What are the mostlikely genotypes of the parents?

- Mother: XHXh  
Father: XhY

- Mother: XHYh  
Father: XHY

- Mother: XhXh  
Father: XHY

- Mother: XHYH   
Father: XhY

Correct Answer: Mother: XHXh  
Father: XhY

26. It is an example of X-linked dominant trait and occur more in females ascompared to the males:

- Hemophilia

- Color blindness

- Vit. D resistant rickets

- Lesch-Nyhan syndrome

Correct Answer: Vit. D resistant rickets

27. Gene for blood clotting factor XI is located on:

- X chromosome

- Y chromosome

- Autosome

- Both X & Y chromosomes

Correct Answer: Autosome

28. The traits whose genes are located on X-chromosomes are:

- Sex linked traits

- Sex limited traits

- Sex controlled traits

- Sex influenced traits

Correct Answer: Sex linked traits

29. Which one is not related to androgen insensitivity syndrome?

- Female genitalia

- Degenerated testes in abdomen

- Fertility

- Female appearance

Correct Answer: Fertility

30. A female will suffer with hypophosphatemic rickets if she is:

- Heterozygous

- Homozygous recessive

- Hemizygous recessive

- Hemizygous dominant

Correct Answer: Heterozygous

31. Which of the following is true for pattern baldness?

- Heterozygous male is not bald

- Heterozygous female is bald

- It is dominant in male

- It is dominant in female

Correct Answer: It is dominant in male

32. There is 30% recombination frequency between two genes. The distancebetween them in unit map is:

- 15

- 30

- 60

- 80

Correct Answer: 30

33. The recombination frequency is directly proportional to the:

- No. of tetrads formed

- Number of times a cell divides

- Distance between the linkedgene loci

- Total number of genes of an individual

Correct Answer: Distance between the linkedgene loci

34. Who developed a theory of natural selection essentially identical to Darwin's?

- Hardy-Weinberg

- Malthus

- Alfred Wallace

- Lyell

Correct Answer: Alfred Wallace

35. Theory of catastrophism was presented by:

- Lyell

- Malthus

- Cuvier

- Darwin

Correct Answer: Cuvier

36. Product of evolution is:

- Ecosystem

- Biome

- Community

- Species

Correct Answer: Species

37. Earliest life forms appeared in:

- Hot methane solution

- Hot atmosphere

- Oceans

- Glaciers

Correct Answer: Oceans

38. Archaeobacteria can tolerate maximum temperature up to:

- 1100C

- 1300C

- 1200C

- 1400C

Correct Answer: 1200C

39. First organism evolve in:

- Air

- Land

- Oceans

- Ponds

Correct Answer: Oceans

40. Survival in the struggle for existence depends upon:

- Physical environment

- Chemical constituents

- Chemical constituents

- Environmental resources

Correct Answer: Chemical constituents

41. Which of the following describes the process of natural selection?

- Change from simple to more complex organisms

- Differential reproductive success between genotypes

- Increase in the size of a population

- Occurrence of new mutations

Correct Answer: Differential reproductive success between genotypes

42. Which of these represent exact sequence of these events?

- 3,2,4,1

- 3,1,4,2

- 4,2,1,3

- 2,1,3,4

Correct Answer: 3,2,4,1

43. Two main points of Darwin’s theory of evolution are:

- Origin of species, Descent with modification

- Natural selection, adaptation

- Struggle for existence, evolution

- Descent with modification, Natural selection & adaptation

Correct Answer: Descent with modification, Natural selection & adaptation

44. Theory of modern synthesis is a comprehensive theory of evolution which has been developed by reconciliation of:

- Lamarckism & Darwinism

- Hardy & Weinberg work

- Lamarckism & Mendelism

- Mendelism & Darwinism

Correct Answer: Mendelism & Darwinism

45. According to Darwin survival in the struggle for existence is not random but depends on the \_\_\_\_\_\_\_\_\_\_\_ constitution of the surviving individuals.

- Hereditary

- Internal Environment

- External Environment

- Acquired characters

Correct Answer: Hereditary

46. All of the following points are true about natural selection except:

- It is a long-term process

- It varies from time to time

- It operates almost in all parts of biosphere

- It can never amplify heritable variations

Correct Answer: It can never amplify heritable variations

47. Which of the following idea was not a part of Charles Darwin’s theory of evolution by natural selection?

- Organisms produce more offspring than the environment can support

- Variation between individuals arises by gene mutation

- Individuals compete for scarce resources

- Adaptive variation is inherited

Correct Answer: Variation between individuals arises by gene mutation

48. \_\_\_\_\_\_\_\_\_\_\_ first suggested the idea of evolution to Darwin.

- Biogeography

- Paleontology

- Comparative anatomy

- Population genetics

Correct Answer: Biogeography

49. Evolutionary relationship among species are reflected at molecular level in their:

- DNA and protein

- DNA and lipids

- DNA and carbohydrates

- DNA and RNA

Correct Answer: DNA and protein

50. Wings of birds and insects are examples of:

- Divergent evolution

- Line evolution

- Convergent evolution

- Web evolution

Correct Answer: Convergent evolution

51. The tissues of fossils are being replaced or petrified by:

- SiO2 or CaCO3

- CaSiO2

- Graphite or CaCO3

- Resin or ice

Correct Answer: SiO2 or CaCO3

52. Which of the following are not analogous organs?

- Wings of birds and locust

- Wings of birds and pectoral fins of fish

- Wings of bat and butterfly

- Legs of frog and cockroach

Correct Answer: Wings of birds and pectoral fins of fish

53. It describes structures that have common evolutionary origin:

- Homology

- Analogy

- Anatomy

- Oncology

Correct Answer: Homology

54. Gill pouches in vertebrates represent:

- Convergent evolution

- Divergent evolution

- Parallel evolution

- Special creation

Correct Answer: Divergent evolution

55. Gill pouches are embryonic structures of:

- All animals

- All metazoans

- All mammals

- All vertebrates

Correct Answer: All vertebrates

56. How many different types of genetically different gametes will beproduced by a heterozygous plant having the genotype AABbCc?

- 2

- 4

- 6

- 9

Correct Answer: 4

57. Multiple genes controlling one trait is \_\_\_\_\_\_\_\_\_\_\_ but one genecontrolling multiple traits is \_\_\_\_\_\_\_\_\_:

- Polygenic trait, pleiotropy

- Pleiotropy, polygenic trait

- Epistasis, pleiotropy

- Pleiotropy, epistasis

Correct Answer: Polygenic trait, pleiotropy

58. Tongue rolling is due to:

- Single recessive gene

- Single dominant gene

- Homozygous recessive

- Multiple alleles

Correct Answer: Single dominant gene

59. Intelligence is an example of:

- Dominance

- Pleiotropy

- Epistasis

- Polygenic inheritance

Correct Answer: Polygenic inheritance

60. Inheritance of skin colour in man is example of:

- Epistasis

- Sex linkage

- Multiple allele

- Polygenic traits

Correct Answer: Polygenic traits

# 1-Verb,Tenses,conjunction,clause and sentence(CTS)

1. Fill in the Blanks with appropriate Option.Once upon a time there \_\_\_\_\_\_ a king who was very noble and kind.

- had lived

- lived

- lives

- has lived

Correct Answer: lived

2. Fill in the Blanks with appropriate Option.He is getting used to\_\_\_\_\_ up early for his new job.

- walking

- walk

- walked

- walks

Correct Answer: walking

3. Fill in the Blanks with appropriate Option.They\_\_\_\_\_\_ hard since the beginning of the month.

- are working

- were working

- have been working

- have worked

Correct Answer: have been working

4. Fill in the Blanks with appropriate Option.Now she wishes that she \_\_\_\_\_\_\_\_\_ harder.

- has studied

- studies

- had studied

- is studying

Correct Answer: had studied

5. Fill in the Blanks with appropriate Option.Unless the extra money\_\_\_\_, the theater will close.

- is found

- will be found

- finds

- found

Correct Answer: is found

6. Fill in the Blanks with appropriate Option.We regret to\_\_\_\_\_ passengers that the 14.50 train is one hour late.

- informed

- informs

- informing

- inform

Correct Answer: inform

7. Fill in the Blanks with appropriate Option.I can’t bear people \_\_\_around me when I ‘m eating.

- smoke

- smoked

- smoking

- smokes

Correct Answer: smoking

8. Fill in the Blanks with appropriate Option.He proposed that UN \_\_\_\_\_an emergency centre for the environment.

- establish

- establishes

- established

- might establish

Correct Answer: establish

9. Fill in the Blanks with appropriate Option.This is the second time Raheeel \_\_\_\_\_to give me a message.

- has forgotten

- forgets

- forgot

- will forget

Correct Answer: has forgotten

10. Fill in the Blanks with appropriate Option.You had better go \_\_\_\_ you will miss the train.

- unless

- or else

- yet

- until

Correct Answer: or else

11. Fill in the Blanks with appropriate Option.He will not pay \_\_\_\_he is compelled.

- unless

- when

- yet

- so

Correct Answer: unless

12. Fill in the Blanks with appropriate Option.A book is a book\_\_\_\_\_\_\_\_ there is nothing in it.

- , although

- therefore

- because

- so

Correct Answer: , although

13. Fill in the Blanks with appropriate Option.Many things have happened \_\_\_\_\_\_I saw you.

- since

- yet

- for

- while

Correct Answer: since

14. Fill in the Blanks with appropriate Option.He had no qualification, \_\_\_\_\_\_\_ he got the job.

- yet

- because

- for

- both a & b

Correct Answer: yet

15. Fill in the Blanks with appropriate Option.You did not tell me the truth \_\_\_\_I found the money in your room.

- because

- , because

- yet

- both a & b

Correct Answer: both a & b

16. Spot the error.Had I known (A) the weather forecast (B) earlier I would make(C) plans to go out(D).

- Had I known

- the weather forecast

- would make

- to go out

Correct Answer: would make

17. Spot the error.The security system (A) will not permit (B) you to entering (C) without the correct password (D).

- the security system

- will not permit

- to entering

- the correct password

Correct Answer: to entering

18. Spot the error.It's high time(A) that(B) the authorities consider(C) giving rebates(D) to people on long-term incapacity benefit.

- it's high time

- that

- consider

- giving rebates

Correct Answer: consider

19. Spot the error.She wonders(A) why I ever climbed(B) this mountain top to rise(C) my potatoes(D).

- wonders

- climbed

- to rise

- my potatoes

Correct Answer: to rise

20. Spot the error.She gets (A) her son done (B) his homework by promising(C) him ice cream when he's finished(D).

- gets

- done

- promising

- he’s finished

Correct Answer: done

21. Spot the error.The principal ordered(A) that the students using (B)mobile phones during lecture are expelled(C) No error(D).

- ordered

- using

- are expelled

- No error

Correct Answer: are expelled

22. Spot the error.They had to be flexible (A), and adapt (B) different positions to accommodate(C) ever changing circumstances. No error (D)

- to be flexible

- and adapt

- to accommodate

- No error

Correct Answer: and adapt

23. Spot the error.The wind then (A) fell (B) it to the ground(C) and it landed on top of a cabin. (D)

- then

- fell

- to the ground

- on top of a cabin

Correct Answer: fell

24. Choose the correct Sentence.

- The teacher had the students write the answers on the whiteboard.

- The teacher had the students to write the answers on the whiteboard.

- The teacher had the students written the answers on the whiteboard.

- The teacher had got the students written the answers on the whiteboard.

Correct Answer: The teacher had the students write the answers on the whiteboard.

25. Choose the correct Sentence.

- It took them a long time to grow used to getting up in the night.

- It took them a long time to grow used to get up in the night.

- It took them a long time to grow used to got up in the night.

- It took them a long time to grow used to gotten up in the night.

Correct Answer: It took them a long time to grow used to getting up in the night.

26. Choose the correct Sentence.

- She said that it was my last chance to trying my luck.

- She told that it was my last chance to try my luck.

- She said me that it was my last chance to trying my luck.

- She said that it was my last chance to try my luck.

Correct Answer: She said that it was my last chance to try my luck.

27. Choose the correct Sentence.

- It is important that everyone be registered.

- It is important that everyone must be registered.

- It is important that everyone might be registered.

- It is important that everyone are registered.

Correct Answer: It is important that everyone be registered.

28. Identify the kind of Sentence.They were commanded to wait till the signal was given.

- simple

- compound

- complex

- compound complex

Correct Answer: complex

29. Identify the Tense.We are about to complete our training.

- present indefinite

- future indefinite

- present progressive

- Both a & b

Correct Answer: future indefinite

30. Identify the underlined Clause.Every student knew that teacher was unprepared for question.

- noun

- adjective

- independent

- Relative

Correct Answer: noun

# 2-Subject-Verb Agreement(CTS)

1. Fill in the Blanks with correct Option.His knowledge of Indian vernaculars \_\_\_\_\_\_\_\_\_ far beyond the common.

- is

- are

- were

- have been

Correct Answer: is

2. Fill in the Blanks with correct Option.The results of the recognition of this fact \_\_\_\_\_\_\_\_\_\_ seen in the gradual.

- are

- is

- was

- have

Correct Answer: are

3. Fill in the Blanks with correct Option.The luxury and well-decorated house, with its contents, \_\_\_\_insured.

- were

- have been

- is

- has

Correct Answer: is

4. Fill in the Blanks with correct Option.The parental and spiritual guidance, as well as the love of a mother, \_\_\_\_\_\_\_\_\_ wanting.

- was

- were

- are

- have been

Correct Answer: was

5. Fill in the Blanks with correct Option.All possible means of controlling terrorism \_\_\_ tried to check it.

- have been

- was

- is

- has been

Correct Answer: have been

6. Fill in the Blanks with correct Option.One or the other of those fellows \_\_\_\_\_stolen the watch.

- are

- is

- has

- have

Correct Answer: has

7. Fill in the Blanks with correct Option.The strain of all the difficulties and vexations and anxieties \_\_\_more than he could bear.

- was

- were

- are

- have been

Correct Answer: was

8. Fill in the Blanks with correct Option.Ninety rupees \_\_\_\_too much for my friends and me.

- matters

- matter

- do matter

- may mattered

Correct Answer: matters

9. Fill in the Blanks with correct Option.Three parts of the business \_\_\_\_ to be done.

- remains

- remain

- is remain

- do remain

Correct Answer: remains

10. Fill in the Blanks with correct Option.Each of these substances \_\_\_\_in Pakistan.

- are found

- is found

- have found

- were found

Correct Answer: is found

11. Find the Error.The United States is(A) anxious to(B) improve their(C) image in Latin America(D).

- The United States is

- anxious to

- their

- in Latin America

Correct Answer: their

12. Find the Error.A couple of my friends(A) has planned(B) to open(C) a travel agency, but they(D) have failed.

- A couple of my friends

- has planned

- to open

- but they

Correct Answer: has planned

13. Find the Error.One of the things(A) that really makes(B) me angry is (C)people who don’t answer(D) emails.

- One of the things

- that really make

- is

- don’t answer

Correct Answer: that really make

14. Find the Error.The Managing Director (A), together with (B) his heads of different departments(c), have been(D) preparing a new budget.

- The Managing Director

- together with

- different departments

- have been

Correct Answer: have been

15. Find the Error.Consolidated Fruitgrowers have just taken (A) over Universal Foodstores (B) to improve(C) cereal food and other things. (D)

- have just taken

- over Universal Foodstores

- to improve

- other things

Correct Answer: have just taken

16. Find the Error.I was surprised (A) at the number of (B) money collected by worshippers(C) for the benefit of the needy. (D)

- was surprised

- the number of

- collected by worshippers

- the needy

Correct Answer: the number of

17. Find the Error.All the students (A) did not participate (B) in the mock test because(C) they lived plenty of miles(D) from the town.

- All the students

- did not participate

- because

- plenty of miles

Correct Answer: plenty of miles

18. Find the Error.Hardly I closed (A) my eyes when (B) I began to imagine(C) fantastic shapes. No Error (D)

- Hardly I closed

- when

- to imagine

- No Error

Correct Answer: Hardly I closed

19. Find the Error.Neither (A) the midlife career applicant nor (B) the young, inexperienced applicant are (C) finding it easy to begin (D) a career.

- Neither

- nor

- are

- to begin

Correct Answer: are

20. Find the Error.The two-thirds (A) majority of (B) the parliamentarians need(C) to make (D) constitutional changes.

- two thirds

- majority of

- need

- to make

Correct Answer: need

21. Choose the Correct Sentence.

- A lot of social problems are caused by unemployment.

- A lot of social problems is caused by unemployment.

- A lot of social problems was caused by unemployment.

- A lot of social problems have caused by unemployment.

Correct Answer: A lot of social problems are caused by unemployment.

22. Choose the Correct Sentence.

- Half of his friends doesn’t understand a word he says.

- Half of his friends don’t understand a word he says.

- Half of his friends have not understand a word he say.

- Half of his friends has not understand a word he says.

Correct Answer: Half of his friends don’t understand a word he says.

23. Choose the Correct Sentence.

- Only after her death I was able to appreciate her.

- Only after her death I was able to appreciating her.

- Only after her death was I able to appreciate her.

- Only after her death was I able to appreciating her.

Correct Answer: Only after her death was I able to appreciate her.

24. Choose the Correct Sentence.

- The jury selected by the organizers includes members according to their ranks.

- The jury selected by the organizers includes members according to its ranks.

- The jury selected by the organizers include members according to his ranks.

- The jury selected by the organizers include members according to their ranks.

Correct Answer: The jury selected by the organizers includes members according to their ranks.

25. Choose the Correct Sentence.

- The only one of these most intelligent students who graduates have been awarded.

- The only one of these most intelligent students who graduate is awarded.

- The only one of these most intelligent students who graduate are awarded.

- The only one of these most intelligent students who graduates is awarded.

Correct Answer: The only one of these most intelligent students who graduates is awarded.

26. Choose the Correct Sentence.

- Ninety percent of us do not have a clue how to wearing fashion accessories such as scarves.

- Ninety percent of us does not has a clue how to wear fashion accessories such as scarves.

- Ninety percent of us do not have a clue how to wear fashion accessories such as scarves.

- Ninety percent of us does not have a clue how to wear fashion accessories such as scarves.

Correct Answer: Ninety percent of us do not have a clue how to wear fashion accessories such as scarves.

27. Choose the Correct Sentence.

- Neither the doctors nor the nurse like when their patients are in pain.

- Neither the nurse nor the doctors like when his patients are in pain.

- Neither the nurse nor the doctors like when her patients are in pain.

- Neither the nurse nor the doctors like when their patients are in pain.

Correct Answer: Neither the nurse nor the doctors like when their patients are in pain.

28. Choose the Correct Sentence.

- There were a doctor and a crew of nurses in the emergency room with me during my surgery.

- There was a doctor and a crew of nurses in the emergency room with me during my surgery.

- There have a doctor and a crew of nurses in the emergency room with me during my surgery.

- There is a doctor and a crew of nurses in the emergency room with me during my surgery.

Correct Answer: There were a doctor and a crew of nurses in the emergency room with me during my surgery.

29. Choose the Correct Sentence.

- Unfortunately, every persons get gifts that they have to wear.

- Unfortunately, every person gets gifts that they have to wear.

- Unfortunately, every person get gifts that he or she has to wear.

- Unfortunately, every person gets gifts that he or she has to wear.

Correct Answer: Unfortunately, every person gets gifts that he or she has to wear.

30. Choose the Correct Sentence.

- More than 41 inches of snow has fallen on the city this winter.

- More than 41 inches of snow have fallen on the city this winter.

- More than 41 inches of snow were fallen on the city this winter.

- More than 41 inches of snow have been fallen on the city this winter.

Correct Answer: More than 41 inches of snow has fallen on the city this winter.

# 3-Miscellaneous Mistakes(CTS)

1. Spot the Error.The final conclusion (A) was to close (B) the bakery when it started (C) gaining (D) profit.

- final conclusion

- to close

- started

- gaining

Correct Answer: final conclusion

2. Spot the Error.The sun and the other stars (A) we see in the sky they (B) are all too hot for (C) life to exist. (D)

- the other stars

- they

- for

- to exist

Correct Answer: they

3. Spot the Error.Humanitarian disasters (A), of which genocide is the most(B) appalling of them (C), are not pretty (D) things.

- disasters

- most

- of them

- pretty

Correct Answer: of them

4. Spot the Error.All the worshippers(A) were standing in a queue, (B) and they knelt down(C) and prostrated(D) themselves to Allah.

- worshippers

- queue,

- knelt down

- prostrated

Correct Answer: knelt down

5. Spot the Error.Ali knew the reason (A) of his failure was because of (B) his poor (C) handwriting. (D)

- the reason

- because of

- poor

- handwriting

Correct Answer: because of

6. Spot the Error.After reading(A) the draft with close scrutiny, (B) the boss discovered(C) it was full of mistakes. (D)

- After reading

- close scrutiny,

- discovered

- full of mistakes

Correct Answer: close scrutiny,

7. Spot the Error.The results(A) of the study were inconclusive, (B) therefore(C) more research needs to be done (D) on the topic.

- the results

- inconclusive,

- therefore

- to be done

Correct Answer: therefore

8. Spot the Error.This weekend(A) I have to write an essay, (B) do a book report(C) and a lab. (D)

- This weekend

- write an essay,

- do a book report

- a lab

Correct Answer: a lab

9. Spot the Error.Jeremy likes to read (A) historical, (B) speculated (C) and realistic (D) fiction.

- likes to read

- historical,

- speculated

- realistic

Correct Answer: speculated

10. Spot the Error.Modern methods of selecting (A), grading, and to process (B) foods have removed the danger of poisoning (C) from cane foods (D).

- selecting

- to process

- poisoning

- cane foods

Correct Answer: to process

11. Spot the Error.During (A) the inquisition, Jack was asked that(B) if he had (C) had other (D) affairs.

- during

- that

- had

- other

Correct Answer: that

12. Spot the Error.Perhaps(A) your family would be comfortable sitting more(B) in chairs(C) than on the kitchen table. (D)

- Perhaps

- more

- in chairs

- on the kitchen table

Correct Answer: more

13. Fill in the blanks.Do you have any \_\_\_\_\_\_\_\_\_?

- cash money

- cash

- cash money with you

- cash with you

Correct Answer: cash

14. Fill in the blanks.She opened the envelope, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- which contained a confidential document.

- which contained a confidential document inside.

- which contained a confidential document inside it.

- which contained and had a confidential document.

Correct Answer: which contained a confidential document.

15. Fill in the blanks.Because she showed a talent for cooking from a young age, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- Rebecca, who had a closet full of children’s cookbooks.

- Rebecca who had a closet full of children’s cookbooks.

- Rebecca, had a closet full of children’s cookbooks.

- Rebecca had a closet full of children’s cookbooks.

Correct Answer: Rebecca had a closet full of children’s cookbooks.

16. Fill in the blanks.\_\_\_\_\_\_\_\_\_\_\_\_, I wore my mackintosh.

- Being a wet day

- It being a wet day

- It was a wet day

- The day was wet

Correct Answer: It being a wet day

17. Fill in the blanks.Nasir is dishonest \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- -he steals hubcaps for a living.

- he steals hubcaps for a living.

- ,he steals hubcaps for a living.

- ;he steals hubcaps for a living.

Correct Answer: ;he steals hubcaps for a living.

18. Fill in the blanks.Having obtained information, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

- he was arrested for complicity in the plot

- the police arrested him for complicity in the plot

- they arrested him for complicity in the plot

- being arrested for complicity in the plot

Correct Answer: the police arrested him for complicity in the plot

19. Choose the correct sentence.

- Julia and Louise both like to eat pizza, they both love pepperoni.

- Julia and Louise both like to eat pizza. She loves pepperoni.

- Julia and Louise both like to eat pizza they both love pepperoni.

- Julia and Louise both like to eat pizza. They both love pepperoni.

Correct Answer: Julia and Louise both like to eat pizza. They both love pepperoni.

20. Choose the correct sentence.

- I love to write papers; I would write one every day if I had the time.

- I love to write papers I would write one every day if I had the time.

- I love to write papers, I would write one every day if I had the time.

- I love to write papers, for I would write one every day if I had the time.

Correct Answer: I love to write papers; I would write one every day if I had the time.

21. Choose the correct sentence.

- Participants could leave the study at any time they needed to indicate their preference.

- Participants could leave the study at any time, they needed to indicate their preference.

- Participants could leave the study at any time. They needed to indicate their preference.

- Participants could leave the study at any time, moreover, they needed to indicate their preference.

Correct Answer: Participants could leave the study at any time. They needed to indicate their preference.

22. Choose the correct sentence.

- The manager announced a new job position; to work with the technical support staff.

- The manager announced a new job position; the new employee will work with the technical support staff.

- The manager announced a new job position, the new employee will work with the technical support staff.

- The manager announced a new job position the new employee will work with the technical support staff.

Correct Answer: The manager announced a new job position; the new employee will work with the technical support staff.

23. Choose the correct sentence.

- Being condemned to death, he was put on the scaffold for execution.

- Being condemned to death, the scaffold was erected for his execution.

- Being condemned to death, the scaffold was executed for him.

- Being condemned to death, his execution was erected on the scaffold.

Correct Answer: Being condemned to death, he was put on the scaffold for execution.

24. Choose the correct sentence.

- Resting in cool shelter, the hours were beguiled with desultory talk.

- Resting in cool shelter, we beguiled the hours with desultory talk.

- Resting in cool shelter, desultory talk was beguiled with the hours.

- We were resting in cool shelter; the hours were beguiled with desultory talk.

Correct Answer: Resting in cool shelter, we beguiled the hours with desultory talk.

25. Choose the correct sentence.

- Standing on the top of the hill, his eye roams over the beautiful landscape.

- Standing on the top of the hill, the beautiful landscape roams over the eye.

- Standing on the top of the hill, the eye roams over the beautiful landscape.

- Standing on the top of the hill, he roams eye over the beautiful landscape.

Correct Answer: Standing on the top of the hill, he roams eye over the beautiful landscape.

26. Choose the correct sentence.

- For sale, piano, the property of a musician, with carved legs.

- The property of a musician, with carved legs, for sale is piano.

- A piano with carved legs, the property of a musician, is for sale.

- A piano, the property of a musician, with carved legs is for sale.

Correct Answer: A piano with carved legs, the property of a musician, is for sale.

27. Choose the correct sentence.

- You must buy either a motorcycle or a computer.

- Either you must buy a motorcycle or a computer.

- Either you must buy a motorcycle nor a computer.

- You must either buy a motorcycle and a computer.

Correct Answer: You must buy either a motorcycle or a computer.

28. Choose the correct sentence.

- My favourite Pakistani food is Mutton Karahi. It is very tasty.

- My favourite Pakistani food is Mutton Karahi, it is very tasty.

- My favourite Pakistani food is Mutton Karahi it is very tasty.

- My favourite Pakistani food is Mutton Karahi. Because it is very tasty.

Correct Answer: My favourite Pakistani food is Mutton Karahi. It is very tasty.

29. Choose the correct sentence.

- Not that he was angry and proud, but as ambitious as most other young men at such an age.

- Not that he was angry and proud, but he was as ambitious as most other young men at such an age.

- Not that he was angry and proud; but he was as ambitious as most other young men at such an age.

- Not that he was angry and proud because he was as ambitious as most other young men at such an age.

Correct Answer: Not that he was angry and proud, but he was as ambitious as most other young men at such an age.

30. Choose the correct sentence.

- Given the possibility of a young scholar, these remarks may remain intangible and vague.

- Given the possibility of a young scholar, these remarks may remain intangible but vague.

- Given the possibility of a young scholar, these remarks may remain intangible or vague.

- Given the possibility of a young scholar, these remarks may remain intangible nor vague.

Correct Answer: Given the possibility of a young scholar, these remarks may remain intangible and vague.

# 4-Cloze Sentence(CTS)

1. In the following passage there are blanks each of which has been numbered. These numbers are printed below the passage and against each four words are suggested, one of which fills the blanks appropriately. Find out the appropriate word in each case.Around the world, forests are being \_\_\_\_\_\_ (1) at a rate of about thirteen million hectares a year and deforestation accounts for an estimated 17% – 20% of all global emissions. In addition, forests and other terrestrial carbon sinks play a \_\_\_\_\_ (2) role in preventing runaway climate change, soaking up a full 2.6 Gt of atmospheric carbon every year. The destruction of forests, therefore, not only emits carbon-a staggering 1.6 Gt a year, which severely \_\_\_\_ (3) forests capacity to absorb emissions from other sources-but also drastically \_\_\_\_ (4) the amount of forested land available to act as a carbon sink in the future.

- ended

- destroyed

- extinct

- killed

Correct Answer: destroyed

2. In the following passage there are blanks each of which has been numbered. These numbers are printed below the passage and against each four words are suggested, one of which fills the blanks appropriately. Find out the appropriate word in each case.Around the world, forests are being \_\_\_\_\_\_ (1) at a rate of about thirteen million hectares a year and deforestation accounts for an estimated 17% – 20% of all global emissions. In addition, forests and other terrestrial carbon sinks play a \_\_\_\_\_ (2) role in preventing runaway climate change, soaking up a full 2.6 Gt of atmospheric carbon every year. The destruction of forests, therefore, not only emits carbon-a staggering 1.6 Gt a year, which severely \_\_\_\_ (3) forests capacity to absorb emissions from other sources-but also drastically \_\_\_\_ (4) the amount of forested land available to act as a carbon sink in the future.

- tough

- important

- vital

- biggest

Correct Answer: vital

3. In the following passage there are blanks each of which has been numbered. These numbers are printed below the passage and against each four words are suggested, one of which fills the blanks appropriately. Find out the appropriate word in each case.Around the world, forests are being \_\_\_\_\_\_ (1) at a rate of about thirteen million hectares a year and deforestation accounts for an estimated 17% – 20% of all global emissions. In addition, forests and other terrestrial carbon sinks play a \_\_\_\_\_ (2) role in preventing runaway climate change, soaking up a full 2.6 Gt of atmospheric carbon every year. The destruction of forests, therefore, not only emits carbon-a staggering 1.6 Gt a year, which severely \_\_\_\_ (3) forests capacity to absorb emissions from other sources-but also drastically \_\_\_\_ (4) the amount of forested land available to act as a carbon sink in the future.

- affects

- diminishes

- increases

- impairs

Correct Answer: impairs

4. In the following passage there are blanks each of which has been numbered. These numbers are printed below the passage and against each four words are suggested, one of which fills the blanks appropriately. Find out the appropriate word in each case.Around the world, forests are being \_\_\_\_\_\_ (1) at a rate of about thirteen million hectares a year and deforestation accounts for an estimated 17% – 20% of all global emissions. In addition, forests and other terrestrial carbon sinks play a \_\_\_\_\_ (2) role in preventing runaway climate change, soaking up a full 2.6 Gt of atmospheric carbon every year. The destruction of forests, therefore, not only emits carbon-a staggering 1.6 Gt a year, which severely \_\_\_\_ (3) forests capacity to absorb emissions from other sources-but also drastically \_\_\_\_ (4) the amount of forested land available to act as a carbon sink in the future.

- plagues

- develops

- reduces

- shortens

Correct Answer: reduces

5. Fill in the blanks with the suitable option. Mary became \_\_\_\_\_\_ at typing because she practiced every day for six months.

- proficient

- reflective

- dormant

- redundant

Correct Answer: proficient

6. Fill in the blanks with the suitable option. Shakespeare, a(n) \_\_\_\_\_\_ writer, entertained audiences by writing many tragic and comic plays.

- numeric

- obstinate

- dutiful

- prolific

Correct Answer: prolific

7. Fill in the blanks with the suitable option. After making \_\_\_\_\_\_ remarks to the President, the reporter was not invited to return to the White House pressroom.

- hospitable

- itinerant

- irreverent

- chivalrous

Correct Answer: irreverent

8. Fill in the blanks with the suitable option. Wedding ceremonies often include the exchange of \_\_\_\_\_\_ rings to symbolize the couple’s promises to each other.

- hirsute

- votive

- plaintive

- deciduous

Correct Answer: votive

9. Fill in the blanks with the suitable option. His suit of armor made the knight \_\_\_\_\_\_ to his enemy’s attack, and he was able to escape safely to his castle.

- vulnerable

- imprudent

- invulnerable

- static

Correct Answer: invulnerable

10. Fill in the blanks with the suitable option. She reached the \_\_\_\_\_ of her career with her fourth novel, which won the Pulitzer Prize.

- harbinger

- zenith

- metamorphosis

- dictum

Correct Answer: zenith

11. Fill in the blanks with the suitable option. As the \_\_\_\_\_\_ in Romeo and Juliet, Romeo is a hero able to capture the audience’s sympathy by continually professing his love for Juliet.

- protagonist

- enigma

- fascia

- activist

Correct Answer: protagonist

12. Fill in the blanks with the suitable option. I have always admired Smith’s \_\_\_\_\_\_; I’ve never seen him rattled by anything.

- composure

- convergence

- nostalgia

- reluctance

Correct Answer: composure

13. Fill in the blanks with the suitable option. My ancestor who lost his life in the Revolutionary War was a \_\_\_\_\_\_ for American independence.

- knave

- reactionary

- martyr

- nonconformist

Correct Answer: martyr

14. Fill in the blanks with the suitable option. The police officer \_\_\_\_\_\_ the crowd to step back from the fire so that no one would get hurt.

- undulated

- enjoined

- stagnated

- permeated

Correct Answer: enjoined

15. Fill in the blanks with the suitable option. The defendant claimed that he was innocent and that his confession was \_\_\_\_\_\_.

- coerced

- flagrant

- terse

- benign

Correct Answer: coerced

16. Fill in the blanks with the suitable option. Although I’d asked a simple “yes” or “no” question, Irfan’s reply was \_\_\_\_\_\_, and I didn’t know how to interpret it.

- prodigal

- irate

- equivocal

- voracious

Correct Answer: equivocal

17. Fill in the blanks with the suitable option. The college professor was known on campus as a \_\_\_\_\_\_ character—bland but harmless and noble in his ideals.

- staid

- stagnant

- auspicious

- sterile

Correct Answer: staid

18. Fill in the blanks with the suitable option. Because he was so \_\_\_\_\_\_, the athlete was able to complete the obstacle course in record time.

- speculative

- nimble

- demure

- volatile

Correct Answer: nimble

19. Fill in the blanks with the suitable option. Nina called the humane society when she saw her neighbor \_\_\_\_\_\_ his dog.

- mandate

- forebode

- maltreat

- stipulate

Correct Answer: maltreat

20. Fill in the blanks with the suitable option. Whenever Tom and I would argue he would \_\_\_\_\_\_ with his hands and body to accentuate his point.

- interject

- infuse

- gesticulate

- conjure

Correct Answer: gesticulate

21. Fill in the blanks with the suitable option. It is not \_\_\_\_ who are to blame.

- we

- us

- ours

- our’s

Correct Answer: we

22. Fill in the blanks with the suitable option. Of all men he is\_\_\_\_\_.

- the stronger

- the strong

- the strongest

- the most strongest

Correct Answer: the strongest

23. Fill in the blanks with the suitable option. The famous juggler and conjurer \_\_\_\_\_\_\_\_\_ too unwell to perform.

- was

- were

- are

- have been

Correct Answer: was

24. Fill in the blanks with the suitable option. One cannot be too careful about what \_\_\_says.

- one

- he

- you

- they

Correct Answer: one

25. Fill in the blanks with the suitable option. I bought a \_\_\_\_\_\_\_\_\_\_\_\_\_\_frame from the market.

- beautiful, wooden, picture

- wooden, beautiful, picture

- wooden beautiful picture

- beautiful wooden picture

Correct Answer: beautiful wooden picture

26. Fill in the blanks with the suitable option. That poor dog looks \_\_\_ it never gets fed.

- as

- like

- as if

- though

Correct Answer: as if

27. Fill in the blanks with the suitable option. Could you confirm that \_\_\_\_writing?

- in

- on

- at

- upon

Correct Answer: in

28. Fill in the blanks with the suitable option. We all left quickly \_\_\_\_\_\_of the meeting.

- in the end

- on the end

- at the end

- about the end

Correct Answer: at the end

29. Fill in the blanks with the suitable option. I am really fed up\_\_\_ this constant rain.

- with

- at

- on

- about

Correct Answer: with

30. Fill in the blanks with the suitable option. Can you look up the website if I \_\_\_\_\_\_you the address?

- give

- gave

- will give

- had given

Correct Answer: give

# 5-Modifiers and Determiners(CTS)

1. Find the Error. All of children (A) were under (B) the control of dietician because(C) they ignored their(D) diet.

- All of children

- under

- because

- their

Correct Answer: All of children

2. Find the Error. They have drunk (A) the whole milk (B) while enjoying(C) music in the party(D).

- drunk

- the whole milk

- enjoying

- their

Correct Answer: the whole milk

3. Find the Error. Which (A) newspaper would you like (B)? It doesn’t matter(C). Every one (D).

- Which

- like

- doesn’t matter

- Every one

Correct Answer: Every one

4. Find the Error. The most children(A) like ice cream when(B) they visit some of picnic(C) places in childhood.(D)

- The most children

- when

- some of picnic

- in childhood

Correct Answer: The most children

5. Find the Error. I’ve finished this book (A), now(B) I’ll read the others ones(C) I borrowed from the library(D).

- this book

- now

- the others ones

- from the library

Correct Answer: the others ones

6. Find the Error. It was a small (A) but more comfortable (B) and sunny room that (C) Ellen let to (D) Mr. Smith.

- a small

- more comfortable

- that

- let to

Correct Answer: more comfortable

7. Find the Error. He was one of the most (A) successful pianists of his era (B), and certainly(C) the most high paid. (D)

- the most

- his era

- certainly

- high paid

Correct Answer: high paid

8. Find the Error. If you want (A) to work in (B) my metal shop on a rocket(C), you’re welcomed. (D)

- want

- in

- on the rocket

- welcomed

Correct Answer: welcomed

9. Find the Error. When (A) we arrived at the bus station (B), it turned out that the latest bus(C) had already(D) left.

- when

- at the station

- the latest bus

- already

Correct Answer: the latest bus

10. Find the Error. Many people (A) argue that a large defense budget (B) is necessary in order to make the United States stronger(C) than any country(D) in the world.

- many people

- a large defense budget

- stronger

- any country

Correct Answer: any country

11. Choose the correct Sentence.

- I know Farady’s got a few pretty good-sized Cultivated pearls.

- I know Farady’s got a fewer pretty well-sized Cultivated pearls.

- I know Farady’s got few pretty well-sized Cultivated pearls.

- I know Farady’s got a few pretty good-sized Cultivate pearls.

Correct Answer: I know Farady’s got a few pretty good-sized Cultivated pearls.

12. Choose the correct Sentence.

- Thoreau’s writing is not as easy to read as Hemingway’s.

- Thoreau’s writing is not as easy to read.

- Thoreau’s writing is not as easy to read as Hemingway.

- Thoreau’s writing is not as easy to read like Hemingway.

Correct Answer: Thoreau’s writing is not as easy to read as Hemingway’s.

13. Choose the correct Sentence.

- The work was hard at the beginning, but she early got used to it.

- The work was hard at the beginning, but she soon got used to it.

- The work was hardly at the beginning, but she soon got used to it.

- The work was hardly at the beginning, but she early got use to it.

Correct Answer: The work was hard at the beginning, but she soon got used to it.

14. Choose the correct Sentence.

- It was not so many his appearance I liked as his personality.

- It was not so many his appearance I liked but his personality.

- It was not so much his appearance I liked as his personality.

- It was not like much his appearance I liked that his personality.

Correct Answer: It was not so much his appearance I liked as his personality.

15. Choose the correct Sentence.

- Whenever Mr. Steward came to meet Norma, she smiled friendly.

- Whenever Mr. Steward came to meet Norma, she smiled in a friendly manner.

- Whenever Mr. Steward came to meet Norma, she smiled friendly manner.

- Whenever Mr. Steward came to meet Norma, she smiled in a friendship manner.

Correct Answer: Whenever Mr. Steward came to meet Norma, she smiled in a friendly manner.

16. Choose the correct Sentence.

- There isn’t enough information in this report; I need more details.

- There isn’t information enough in this report; I need more details.

- There isn’t enough information in this report; I need more detailed.

- There isn’t information enough in this report; I need more detail.

Correct Answer: There isn’t enough information in this report; I need more details.

17. Choose the correct Sentence.

- She is growing the stronger and the stronger every day.

- She is growing strong and strong every day.

- She is growing more stronger and more stronger every day.

- She is growing stronger and stronger every day.

Correct Answer: She is growing stronger and stronger every day.

18. Choose the correct Sentence.

- I have watched a lot of interesting movies lately.

- I have watched a lot of interesting movies late.

- I have watched a lot of interesting movies latest.

- I have watched a lot of interesting movies in recent.

Correct Answer: I have watched a lot of interesting movies lately.

19. Choose the correct Sentence.

- They built a small, white, concrete cottage and ate good breakfasts there.

- They built a white, small, concrete cottage and ate good breakfasts there.

- They built a white concrete small cottage and ate good breakfasts there.

- They built a small white concrete cottage and ate good breakfasts there.

Correct Answer: They built a small white concrete cottage and ate good breakfasts there.

20. Choose the correct Sentence.

- My new computer is much better than my old one.

- My new computer is very better than my old one.

- My new computer is much better than me old one.

- My new computer is too better than my old one’s.

Correct Answer: My new computer is much better than my old one.

21. Choose the correct Sentence.

- The visitors were taking away with them as finer an impression as they had left behind.

- The visitors were taking away with them as fine an impression as they had left behind.

- The visitors were taking away with them as finest an impression as they had left behind.

- The visitors were taking away with them so finest an impression as they had left behind.

Correct Answer: The visitors were taking away with them as fine an impression as they had left behind.

22. Choose the correct Sentence.

- His argumentative examples were not particular good.

- His argumentative examples were not particularly well.

- His argumentative examples were not particular well.

- His argumentative examples were not particularly good.

Correct Answer: His argumentative examples were not particularly good.

23. Choose the correct Sentence.

- The new President was welcomed in the evening at the airport cordially.

- The new President was welcomed at the airport cordially in the evening.

- The new President was cordially welcomed in the evening at the airport.

- The new President was welcomed cordially at the airport in the evening.

Correct Answer: The new President was welcomed cordially at the airport in the evening.

24. Choose the correct Sentence.

- Naomi scored more points than she did in the last game.

- Naomi scored more points in this basketball game.

- Naomi scored many points than she did in the last game.

- Naomi scored much more points than in this basketball game.

Correct Answer: Naomi scored more points than she did in the last game.

25. Choose the correct Sentence.

- Jan helped Dirk with his project more than Brandy did on Saturday night.

- Jan helped Dirk with his project more than Brandy on Saturday night.

- Jan helped Dirk with his project more than on Saturday night.

- Jan helped Dirk with their project more than on Saturday night Brandy did.

Correct Answer: Jan helped Dirk with his project more than Brandy did on Saturday night.

26. Fill in the Blanks with Appropriate Option.I have \_\_\_\_\_\_\_\_\_\_\_worries than you.

- fewer

- a few

- the few

- few

Correct Answer: fewer

27. Fill in the Blanks with Appropriate Option.Islam Abad is \_\_\_\_\_\_\_from Multan than Lahore.

- further

- farther

- far

- farthest

Correct Answer: farther

28. Fill in the Blanks with Appropriate Option.I am \_\_\_sure that he is involved in this.

- deadly

- deadliest

- dead

- dealier

Correct Answer: dead

29. Fill in the Blanks with Appropriate Option.I \_\_\_\_\_assumed that she wouldn’t come.

- rightly

- right

- in rightly manner

- in a right manner

Correct Answer: rightly

30. Fill in the Blanks with Appropriate Option.She likes music, and \_\_\_\_\_\_.

- so does I

- I do so

- as I do

- so do I

Correct Answer: so do I

# 6-Noun, Pronoun+Article(CTS)

1. Find the Errors.While strolling (A) on the pavement (B), I saw (C) that Angie’s stupid boyfriend (D) yesterday.

- strolling

- on the pavement

- saw

- angie’s stupid friend

Correct Answer: angie’s stupid friend

2. Find the Errors.The (A) Jack’s car (B) was purchased (C) by Johan’s savings (D).

- The

- Jack’s car

- purchased

- savings

Correct Answer: The

3. Find the Errors.The company’s profits (A) rose (B) by 11% (C) in the fourth quarters (D) of the year.

- company’s profits

- rose

- by 11%

- the fourth quarters

Correct Answer: the fourth quarters

4. Find the Errors.We have only (A) got five can of juice (B) left (C). That isn’t enough (D).

- only

- five can of juice

- left

- that isn’t enough

Correct Answer: five can of juice

5. Find the Errors.I don’t know (A) the answer, but (B) I am going (C) to make guess (D).

- don’t know

- ,but

- am going

- to make guess

Correct Answer: to make guess

6. Find the Errors.It was a great treat (A) to go theater (B) when (C) I was a child (D).

- a great treat

- theater

- when

- a child

Correct Answer: theater

7. Find the Errors.Can you supply (A) three thousand a hundred (B) steel posts (C) for the newly constructed roads (D)?

- Can you supply

- three thousand a hundred

- steel posts

- constructed roads

Correct Answer: three thousand a hundred

8. Find the Errors.Experts say this could rise (A) to six millions barrels (B) a day (C) within five years (D) with the right investment and control.

- rise

- six millions barrels

- a day

- five years

Correct Answer: six millions barrels

9. Find the Errors.His marriage to (A) Elizabeth, one of the maids of honours (B), led to a period (C) of imprisonment in the summer (D)of 2000.

- marriage to

- maid-of-honours

- a priod

- the summer

Correct Answer: maid-of-honours

10. Find the Errors.The comma thing does make (A) me aware how much I use punctuations (B) in general and commas (C) specifically for intonation in my writing (D).

- does make

- punctuations

- commas

- my writing

Correct Answer: punctuations

11. Find the Errors.Those (A) green apples look nice (B), but (C) these brown (D) taste better.

- Those

- nice

- but

- these brown

Correct Answer: these brown

12. Find the Errors.The cousin with whom (A) I spent my holidays (B) he (C) taught me to drive a bike (D).

- with whom

- my holidays

- he

- drive a bike

Correct Answer: he

13. Find the Errors.The police have (A) arrested the woman (B) in that (C) house the incident occurred (D).

- have

- the woman

- in that

- occurred

Correct Answer: in that

14. Find the Errors.He had (A) a mistaken (B) image of him (C) as an important executive (D).

- had

- a mistaken

- him

- an important executive

Correct Answer: him

15. Find the Errors.Eat breakfast – even if (A) it's only a cheese (B) on a cracker with your morning coffee (C) to avoid daytime fatigue (D).

- even if

- a cheese

- morning coffee

- daytime fatigue

Correct Answer: a cheese

16. Choose the correct option.

- I am sincerely your.

- I am sincerely yours.

- I am sincerely your’s.

- I am yours sincerely friend.

Correct Answer: I am sincerely yours.

17. Choose the correct option.

- The gold is a very precious metal.

- A Gold is a very precious metal.

- The gold of her ring is a very precious metal.

- The gold of hers ring is a very precious metal.

Correct Answer: The gold of her ring is a very precious metal.

18. Choose the correct option.

- Neither of two players was chosen for the Test tours of the West Indies and England.

- Neither of players was chosen for the Test tours of West Indies and England.

- Neither of two players was chosen for the Test tours of West Indies and England.

- Neither of players were chosen for the Test tours of the West Indies and England.

Correct Answer: Neither of two players was chosen for the Test tours of the West Indies and England.

19. Choose the correct option.

- Many candidates applied ourselves to improving the technique.

- Many a candidate applied himself to improving the technique.

- Many a candidates applied himself to improving the technique.

- Many of candidate applied themselves to improving the technique.

Correct Answer: Many a candidate applied himself to improving the technique.

20. Choose the correct option.

- Someone have been calling him all the night.

- Someone has been calling him all the night.

- Someone were calling him all the night.

- Someone are calling him all the night.

Correct Answer: Someone has been calling him all the night.

21. Choose the correct option.

- it's no use savings money for a rainy day.

- its no use saving money for a rainy day.

- its’ no use saving money for rainy day.

- It's no use saving money for a rainy day.

Correct Answer: It's no use saving money for a rainy day.

22. Choose the correct option.

- You work is better than I.

- Your work is better than mine work.

- Your work is better than mine’s.

- Your work is better than mine.

Correct Answer: Your work is better than mine.

23. Choose the correct option.

- Either of these men is blind.

- Any of these men are blind.

- Neither of these men is blind.

- None of these men is not blind.

Correct Answer: Any of these men are blind.

24. Choose the correct option.

- There is no place in the compartment.

- There is no place of room in the compartment.

- There is no room in the compartment.

- There is no room of place in the compartment.

Correct Answer: There is no room in the compartment.

25. Choose the correct option.

- Ten miles, not long distance.

- Ten miles were not a long distance.

- Ten miles is not a long distance.

- Ten miles may not be long distance.

Correct Answer: Ten miles is not a long distance.

26. Fill in the Blanks.Hitch-hiking was the mode of travel that Robert Christopher decided to adopt in \_\_\_\_\_ Sahara.

- a

- an

- the

- no article

Correct Answer: the

27. Fill in the Blanks.Peter is beating a rhythm on \_\_\_\_\_\_ drums.

- a

- an

- the

- no article

Correct Answer: the

28. Fill in the Blanks.His father is \_\_\_ SP in the Punjab Police.

- a

- an

- the

- no article

Correct Answer: an

29. Fill in the Blanks.That is \_\_\_\_\_ funny sort of \_\_\_\_\_ car.

- a------a

- a----the

- the------the

- a-----no article

Correct Answer: a-----no article

30. Fill in the Blanks.I have \_\_\_\_\_\_\_urgent business at home.

- a

- an

- a few

- some

Correct Answer: some

# 7-Preposition(CTS)

1. Choose the Correct Option. Pakistan is a noble, gorgeous land, teeming —– natural wealth.

- to

- off

- of

- with

Correct Answer: with

2. Choose the Correct Option. The noise from downstairs prevented me ——- sleeping.

- from

- for

- of

- to

Correct Answer: from

3. Choose the Correct Option. I am already acquainted —– the latest developments of the situation.

- to

- from

- of

- with

Correct Answer: with

4. Choose the Correct Option. Khalifa Abdulhameed was somewhat susceptible —— flattery.

- to

- from

- for

- at

Correct Answer: to

5. Choose the Correct Option. A man who always connives —– the faults of his children is their worst enemy.

- to

- at

- of

- with

Correct Answer: at

6. Choose the Correct Option. They live in a small one bedroom flat —– the third floor.

- at

- on

- in

- up

Correct Answer: on

7. Choose the Correct Option. Luke is very pleased —– his exam results.

- by

- for

- at

- with

Correct Answer: with

8. Choose the Correct Option. I've been married —–my husband for 10 years.

- by

- with

- for

- to

Correct Answer: to

9. Choose the Correct Option. What is your town famous—–?

- no preposition

- for

- with

- to

Correct Answer: for

10. Choose the Correct Option. I'm very excited —– buying a new computer.

- about

- on

- to

- with

Correct Answer: about

11. Choose the Correct Option. English cheese is very different —–French cheese.

- than

- from

- for

- with

Correct Answer: from

12. Choose the Correct Option. What do a whale and a dolphin have —–common?

- for

- to

- in

- at

Correct Answer: in

13. Choose the Correct Option. She often goes to school —–foot.

- by

- on

- at

- at

Correct Answer: on

14. Choose the Correct Option. The little girl broke the toy —–purpose because she was so angry.

- with

- to

- for

- on

Correct Answer: on

15. Choose the Correct Option. It's so noisy that I can't concentrate —–my homework.

- of

- on

- at

- for

Correct Answer: on

16. Choose the Correct Option. When we arrived —–the cinema, the film had already started.

- no preposition

- in

- at

- on

Correct Answer: at

17. Choose the Correct Option. John worries —–his exam results all the time.

- at

- on

- for

- about

Correct Answer: about

18. Choose the Correct Option. Who does that house belong—–?

- up

- to

- with

- on

Correct Answer: to

19. Choose the Correct Option. I want to go to the beach tomorrow but it depends —–the weather.

- at

- for

- on

- in

Correct Answer: on

20. Choose the Correct Option. There was a loud noise which woke us up —–midnight.

- at

- for

- into

- on

Correct Answer: at

21. Choose the Correct Option. What are you doing —–the weekend?

- for

- at

- in

- on

Correct Answer: on

22. Choose the Correct Option. She studies —– every day.

- at

- on

- for

- no preposition

Correct Answer: no preposition

23. Choose the Correct Option. John is going to buy the presents —– today.

- at

- of

- no preposition

- on

Correct Answer: no preposition

24. Choose the Correct Option. The party is —– next Saturday.

- on

- no preposition

- at

- for

Correct Answer: no preposition

25. Choose the Correct Option. Mobile phones became popular —–the nineties.

- on

- for

- of

- in

Correct Answer: in

26. Choose the Correct Option. My friend lives —–the street from me.

- in

- on

- across

- towards

Correct Answer: across

27. Choose the Correct Option. The flowers are close —–the produce section.

- on

- of

- to

- up

Correct Answer: to

28. Choose the Correct Option. The man started walking —–the exit.

- at

- for

- in

- toward

Correct Answer: toward

29. Choose the Correct Option. The library is next —–the post office.

- at

- for

- by

- to

Correct Answer: to

30. Choose the Correct Option. The bullet had gone ——his head, but he survived.

- to

- through

- across

- between

Correct Answer: through

# 8-Narration & Voice(CTS)

1. Change the Narration.“Would you pass my suitcase, please”, he said.

- He ordered you to pass his suit case.

- He requested me to pass his suit case.

- He requested me pass his suit case.

- He requested you to pass his suit case.

Correct Answer: He requested me to pass his suit case.

2. Change the Narration.The teacher says, “Don’t go there.”

- The teacher ordered to go there.

- The teacher ordered not to go there.

- The teacher orders not to go there.

- The teacher ordered to not go there.

Correct Answer: The teacher ordered not to go there.

3. Change the Narration.“How much do the tickets cost?” asked Meg.

- How much do the tickets cost Meg asked.

- Meg inquired the cost of tickets.

- Meg asked how much the tickets cost.

- Meg asked that how much do the tickets costs.

Correct Answer: Meg asked how much the tickets cost.

4. Change the Narration.He asked, “Are they writing the paper?”

- He asked whether they were writing the paper?

- He asked if they were writing the paper.

- He asked that if they were writing the paper.

- He asked if they were writing the paper?

Correct Answer: He asked if they were writing the paper.

5. Change the Narration.Maria said, “I was dialing your number, and you called.”

- Maria said that she was dialing my number and I called.

- Maria told that she had dialed my number and she had called.

- Maria said that she had been dialing my number and I had called.

- Maria told that Maria has been dialing my number and I had called.

Correct Answer: Maria said that she had been dialing my number and I had called.

6. Change the Narration.He said that he could swim under water for two hours.

- He said, “I can swim under water for two hours.”

- He said. “I can swim under water for two hours.”

- He said, “I can swim under water for two hours”.

- He said“, I can swim under water for two hours.”

Correct Answer: He said, “I can swim under water for two hours.”

7. Change the Narration.Harry asks if he might smoke.

- Harry told, “May I smoke”?

- Harry said, “may I smoke?”

- Harry said, “May I smoke.”

- Harry said, “May I smoke?”

Correct Answer: Harry said, “May I smoke?”

8. Change the Narration.They said, “How beautiful she looks!”

- They exclaimed with wonder that she looked very beautiful.

- They exclaimed with sorrow that she looks very beautiful.

- They exclaimed with wonder, that she looked very beautiful.

- They exclaimed with wonder that she looked very beautiful!

Correct Answer: They exclaimed with wonder that she looked very beautiful.

9. Change the Narration.She said, “When I was enjoying youth, I watched movies”.

- She said that when she enjoyed youth she watched movies.

- She said when she was enjoying youth, she watched movies.

- She said that when I had enjoyed I had watched movies.

- She inquired that when they were enjoying and watching movies.

Correct Answer: She said when she was enjoying youth, she watched movies.

10. Change the Narration.It's time we began planning our holidays,' he said.

- He said that it is time they began planning their holidays.

- He said that it was time they had begun planning their holidays.

- He said it is time they begin planning their holidays.

- He said that it was time they began planning their holidays.

Correct Answer: He said that it was time they began planning their holidays.

11. Change the Narration.He said to me, “Let’s go home together.

- He urged me to going home together.

- He suggested me that we should go home together.

- He proposed to me to go home together.

- He suggested me to let’s go home with him.

Correct Answer: He suggested me that we should go home together.

12. Change the Narration.The poet says, “The butterflies can fly, but humans cannot.”

- The poet says that the butterflies could fly, but humans could not.

- The poet says that the butterflies can fly, but humans cannot.

- The poet says that the butterflies could fly, but humans cannot.

- The poet said that the butterflies can fly, but humans cannot.

Correct Answer: The poet says that the butterflies can fly, but humans cannot.

13. Change the Narration.Juliet said, “They had better stay a home.”

- Juliet told that they had better stay at home.

- Juliet said that they had better stayed at home.

- Juliet said that they had better stay at home.

- Juliet said that they had better to stay at home.

Correct Answer: Juliet said that they had better stay at home.

14. Change the Narration.You say, “You cannot defeat us.”

- You tell that we could not defeat you.

- You tell that you cannot defeat us.

- You say that we cannot defeat you.

- You said that you could not defeat us.

Correct Answer: You say that we cannot defeat you.

15. Change the Narration.They say to me, “We are ready to help you.”

- They tell me that they are ready to help us.

- They said that we are ready to help us.

- They told that they are ready to help you.

- They say that I am ready to help them.

Correct Answer: They tell me that they are ready to help us.

16. Change the Voice.You can play with these kittens quite safely.

- These kittens can played with quite safely.

- These kittens can play with you quite safely.

- These kittens can be played with you quite safely.

- These kittens can be played with quite safely.

Correct Answer: These kittens can be played with quite safely.

17. Change the Voice.A child could not have done this mischief.

- This mischief could not be done by a child.

- This mischief could not been done by a child.

- This mischief could not have been done by a child.

- This mischief a child could not have been done.

Correct Answer: This mischief could not have been done by a child.

18. Change the Voice.James Watt discovered the energy of steam.

- The energy of steam has been discovered James Watt.

- The energy of steam was discovered by James Watt.

- James Watt was discovered by the energy of steam.

- James Watt had discovered energy by the steam.

Correct Answer: The energy of steam was discovered by James Watt.

19. Change the Voice.She makes cakes every Sunday.

- Every Sunday cakes made by her.

- Cakes make her every Sunday.

- Cakes are made by her every Sunday.

- Cakes were made by her every Sunday.

Correct Answer: Cakes are made by her every Sunday.

20. Change the Voice.She spoke to the official on duty.

- The official on duty was spoken to by her.

- The official was spoken to by her on duty.

- She was spoken to by the official on duty.

- She was the official to be spoken to on duty.

Correct Answer: The official on duty was spoken to by her.

21. Change the Voice.The doctor advised the patient not to eat rice.

- The patient was advised by the doctor not to eat rice.

- The patient was advised by the doctor that he should not eat rice.

- The patient was being advised by the doctor that he should not rice by the doctor.

- The patient has been advised not to eat rice by the doctor.

Correct Answer: The patient was advised by the doctor not to eat rice.

22. Change the Voice.I cannot accept your offer.

- Your offer cannot be accepted by me.

- I cannot be accepted by your offer.

- The offer cannot be accepted by me.

- Your offer cannot be accepted.

Correct Answer: Your offer cannot be accepted by me.

23. Change the Voice.You should open the wine about three hours before you use it.

- Wine should be opened about three hours before use.

- Wine should be opened by you three hours before use.

- Wine should be opened about three hours before you use it.

- Wine should be opened about three hours before it is used.

Correct Answer: Wine should be opened about three hours before it is used.

24. Change the Voice.They will inform the police.

- The police will be informed by them.

- The police will inform them.

- The police are informed by them.

- Informed will be the police by them.

Correct Answer: The police will be informed by them.

25. Change the Voice.Do not beat the dog.

- Let the dog be not beaten.

- Let the dog be beaten not.

- Not let the dog be beaten.

- Let the dog not be beaten.

Correct Answer: Let the dog not be beaten.

26. Change the Voice.Harry ate six shrimp at dinner.

- At dinner, six shrimp were eaten by Harry.

- At dinner, six shrimp had been eaten by Harry.

- At dinner, six shrimp have eaten by Harry.

- At dinner, six shrimp had eaten by Harry.

Correct Answer: At dinner, six shrimp were eaten by Harry.

27. Change the Voice.I think that someone built the house in 1814.

- I think that the house was built in 1814 by him.

- I think that the house was built in 1814.

- I think that the house built in 1814.

- I think that the house had been built in 1814.

Correct Answer: I think that the house was built in 1814.

28. Change the Voice.We are going to watch a movie tonight.

- A movie is going to be watched by us tonight.

- A movie has been gone to be watched by us tonight.

- A movie is being watched tonight by us.

- A movie tonight is being watched by us.

Correct Answer: A movie is going to be watched by us tonight.

29. Change the Voice.I ran the obstacle course in record time.

- The obstacle course was run by me in record time.

- The obstacle course had run by me in record time.

- The obstacle course was being run by me in record time.

- The obstacle course had been run by me in record time.

Correct Answer: The obstacle course was run by me in record time.

30. Change the Voice.The entire stretch of highway was paved by the crew.

- The crew has paved the entire stretch of highway.

- The crew paved the entire stretch of highway.

- The crew paves the entire stretch of highway.

- The crew had paved the entire stretch of highway.

Correct Answer: The crew paved the entire stretch of highway.

# 9-Vocabulary (1-208)(CTS)

1. Choose the correct SYNONYM:ASTOUNDED

- Nonchalant

- Unruffled

- Unnerved

- Unperturbed

Correct Answer: Unnerved

2. Choose the correct SYNONYM:CREDENTIAL

- Disqualification

- Qualification

- Crucial

- Credibility

Correct Answer: Qualification

3. Choose the correct SYNONYM:DRUMMED

- Reverberated

- Hushed

- Dashed

- Bashed

Correct Answer: Reverberated

4. Choose the correct SYNONYM:DISPENSING

- Preserving

- Allocating

- Retaining

- Withdrawing

Correct Answer: Allocating

5. Choose the correct SYNONYM:GLARED

- Unexciting

- Appalling

- Gleamed

- Attached

Correct Answer: Gleamed

6. Choose the correct SYNONYM:GLISTENING

- Sticky

- Twilit

- Moist

- Gleaming

Correct Answer: Gleaming

7. Choose the correct SYNONYM:IRRITABLE

- contentious

- pretentious

- forbearing

- intriguing

Correct Answer: contentious

8. Choose the correct SYNONYM:LIMP

- droopy

- stiff

- strut

- stride

Correct Answer: droopy

9. Choose the correct SYNONYM:MUSTERED

- Convulsed

- Congregated

- Severed

- Disbanded

Correct Answer: Congregated

10. Choose the correct SYNONYM:NEMESIS

- Amateur

- Menace

- Consolation

- Felicity

Correct Answer: Menace

11. Choose the correct SYNONYM:PLACIDLY

- Splendidly

- Tumultuously

- Meekly

- Complacently

Correct Answer: Complacently

12. Choose the correct SYNONYM:PROMPTLY

- Dilatorily

- Expeditiously

- Tardily

- Delinquently

Correct Answer: Expeditiously

13. Choose the correct SYNONYM:SWATHE

- Sheathe

- Seethe

- Strip

- Disrobe

Correct Answer: Sheathe

14. Choose the correct SYNONYM:SOLEMNLY

- merrily

- stately

- hilariously

- frivolously

Correct Answer: stately

15. Choose the correct SYNONYM:YEARNING

- listlessness

- aversion

- loathing

- craving

Correct Answer: craving

16. Choose the correct ANTONYM.BECKONED

- Summoned

- Tempted

- Adored

- Obstructed

Correct Answer: Obstructed

17. Choose the correct SYNONYM:DELICATELY

- Deftly

- Meticulously

- Daintily

- Sordidly

Correct Answer: Sordidly

18. Choose the correct ANTONYM.FRICTION

- Antagonism

- Equilibrium

- Resentment

- Organization

Correct Answer: Equilibrium

19. Choose the correct ANTONYM.QUARREL

- Ferocity

- Indictment

- Ceasefire

- Altercation

Correct Answer: Ceasefire

20. Choose the correct ANTONYM.RARELY

- Occasionally

- Sporadically

- Invariably

- Rudimentary

Correct Answer: Invariably

21. Choose the correct SPELLING.

- tumultuous

- tumultous

- tumaltuous

- tumeltuous

Correct Answer: tumultuous

22. Choose the correct SPELLING.

- succulent

- succulint

- succolent

- suculent

Correct Answer: succulent

23. Choose the correct SPELLING.

- parapharnelia

- paraphurnalia

- paraphernalia

- peraphernalia

Correct Answer: paraphernalia

24. Choose the correct SPELLING.

- negligance

- nagligenc

- nagligance

- negligence

Correct Answer: negligence

25. Choose the correct SPELLING.

- insinuated

- insainuated

- insinoated

- insinaeted

Correct Answer: insinuated

26. Choose the correct WORD with respect to the given context.This is an action film that is very well-crafted and \_\_\_\_\_\_\_executed.

- casually

- incidently

- suddenly

- flawlessly

Correct Answer: flawlessly

27. Choose the correct WORD with respect to the given context.Holding her painful back, she sat down \_\_\_\_\_\_\_\_on the bench.

- carelessly

- beautifully

- gingerly

- austerely

Correct Answer: gingerly

28. Choose the correct WORD with respect to the given context.They were still engrossed in their game, cards scattered \_\_\_\_\_across their table.

- delicately

- haphazardly

- happily

- adroitly

Correct Answer: haphazardly

29. Choose the correct WORD with respect to the given context.They were exhausted but\_\_\_\_; however, their victory proved to be short-lived.

- jubilant

- kindred

- irritable

- haggard

Correct Answer: jubilant

30. Choose the correct WORD with respect to the given context.Since the only way to get to the island was by boat, the travellers\_\_\_\_there in a small vessel.

- sauntered

- fluttered

- shuffled

- sailed

Correct Answer: sailed

# 10-Reading Comprehension(CTS)

1. DIRECTION: Read the following each passage and answer the questions given below (1) Use of electronic mail (e-mail) has been widespread for more than a decade. E-mail simplifies the flow of ideas, connects people from distant offices, eliminates the need for meetings, and often boosts productivity. However, e-mail should be carefully managed to avoid unclear and inappropriate communication. E-mail messages should be concise and limited to one topic. When complex issues need to be addressed, phone calls are still best.Which of the following would be the most appropriate title for the passage?

- Appropriate Use of E-Mail

- E-Mail’s Popularity

- E-Mail: The Ideal Form of Communication

- Classical Communication was Better Than E-Mail

Correct Answer: Appropriate Use of E-Mail

2. DIRECTION: Read the following each passage and answer the questions given below (1) Use of electronic mail (e-mail) has been widespread for more than a decade. E-mail simplifies the flow of ideas, connects people from distant offices, eliminates the need for meetings, and often boosts productivity. However, e-mail should be carefully managed to avoid unclear and inappropriate communication. E-mail messages should be concise and limited to one topic. When complex issues need to be addressed, phone calls are still best.What is the best synonym of the word ‘Boost ‘in the line 3 of the passage.

- Depress

- Elevate

- Condense

- Alleviate

Correct Answer: Elevate

3. DIRECTION: Read the following each passage and answer the questions given below (1) Use of electronic mail (e-mail) has been widespread for more than a decade. E-mail simplifies the flow of ideas, connects people from distant offices, eliminates the need for meetings, and often boosts productivity. However, e-mail should be carefully managed to avoid unclear and inappropriate communication. E-mail messages should be concise and limited to one topic. When complex issues need to be addressed, phone calls are still best.Why should phone calls be appreciated?

- When e-mails are managed carelessly.

- to boost up productivity.

- to simplify the flow of ideas

- when complex issues are to be addressed

Correct Answer: when complex issues are to be addressed

4. DIRECTION: Read the following each passage and answer the questions given below (1) Use of electronic mail (e-mail) has been widespread for more than a decade. E-mail simplifies the flow of ideas, connects people from distant offices, eliminates the need for meetings, and often boosts productivity. However, e-mail should be carefully managed to avoid unclear and inappropriate communication. E-mail messages should be concise and limited to one topic. When complex issues need to be addressed, phone calls are still best.What is the constraint of Electronic Mail?

- Elimination of need

- Simplification of ideas

- Connection among people

- Limitation of the topic

Correct Answer: Limitation of the topic

5. DIRECTION: Read the following each passage and answer the questions given below (2) Arid regions in the southwestern United States have become increasingly inviting playgrounds for the growing number of recreation seekers who own vehicles such as motorcycles or powered trail bikes and indulge in hill-climbing contests or in carving new trails in the desert. But recent scientific studies show that these off-road vehicles can cause damage to desert landscapes that has long-range effects on the area’s water-conserving characteristics and on the entire ecology, both plant and animal. Research by scientists in the western Mojave Desert in California revealed that the compaction of the sandy arid soil resulting from the passage of just one motorcycle markedly reduced the infiltration ability of the soil and created a stream of rain runoff water that eroded the hillside surface. In addition, the researchers discovered that the soil compaction caused by the off-road vehicles often killed native plant species and resulted in the invasion of different plant species within a few years.According to the passage, what is being damaged?

- Motorcycles

- The desert landscape

- Roads through the desert

- New plant species

Correct Answer: The desert landscape

6. DIRECTION: Read the following each passage and answer the questions given below (2) Arid regions in the southwestern United States have become increasingly inviting playgrounds for the growing number of recreation seekers who own vehicles such as motorcycles or powered trail bikes and indulge in hill-climbing contests or in carving new trails in the desert. But recent scientific studies show that these off-road vehicles can cause damage to desert landscapes that has long-range effects on the area’s water-conserving characteristics and on the entire ecology, both plant and animal. Research by scientists in the western Mojave Desert in California revealed that the compaction of the sandy arid soil resulting from the passage of just one motorcycle markedly reduced the infiltration ability of the soil and created a stream of rain runoff water that eroded the hillside surface. In addition, the researchers discovered that the soil compaction caused by the off-road vehicles often killed native plant species and resulted in the invasion of different plant species within a few years.According to the passage, the damage to plants is \_\_\_\_\_\_\_\_\_\_.

- unnoticeable

- superficial

- long-lasting

- irreparable

Correct Answer: irreparable

7. DIRECTION: Read the following each passage and answer the questions given below (2) Arid regions in the southwestern United States have become increasingly inviting playgrounds for the growing number of recreation seekers who own vehicles such as motorcycles or powered trail bikes and indulge in hill-climbing contests or in carving new trails in the desert. But recent scientific studies show that these off-road vehicles can cause damage to desert landscapes that has long-range effects on the area’s water-conserving characteristics and on the entire ecology, both plant and animal. Research by scientists in the western Mojave Desert in California revealed that the compaction of the sandy arid soil resulting from the passage of just one motorcycle markedly reduced the infiltration ability of the soil and created a stream of rain runoff water that eroded the hillside surface. In addition, the researchers discovered that the soil compaction caused by the off-road vehicles often killed native plant species and resulted in the invasion of different plant species within a few years.According to the passage, what happens when the soil is compacted?

- Little water seeps through

- Better roads are made

- Water is conserved

- Deserts are expanded

Correct Answer: Water is conserved

8. DIRECTION: Read the following each passage and answer the questions given below (2) Arid regions in the southwestern United States have become increasingly inviting playgrounds for the growing number of recreation seekers who own vehicles such as motorcycles or powered trail bikes and indulge in hill-climbing contests or in carving new trails in the desert. But recent scientific studies show that these off-road vehicles can cause damage to desert landscapes that has long-range effects on the area’s water-conserving characteristics and on the entire ecology, both plant and animal. Research by scientists in the western Mojave Desert in California revealed that the compaction of the sandy arid soil resulting from the passage of just one motorcycle markedly reduced the infiltration ability of the soil and created a stream of rain runoff water that eroded the hillside surface. In addition, the researchers discovered that the soil compaction caused by the off-road vehicles often killed native plant species and resulted in the invasion of different plant species within a few years.In line 3, the words “Who” refer to which of the following?

- Regions

- The United States

- seekers

- Playgrounds

Correct Answer: seekers

9. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.What is the main topic of the passage?

- The purpose of ancient implements

- The significance of prehistoric cave paintings

- The development of right - handedness and left - handedness

- The similarities between the Stone Age and Bronze Age

Correct Answer: The development of right - handedness and left - handedness

10. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.Which of the following helped lead to conclusions about whether Stone Age people preferred one hand to the other?

- Petrified forms of vegetation

- Patterns of stone chipping

- Fossilized waste material

- Fossilized footprints

Correct Answer: Patterns of stone chipping

11. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.In line 8, the word “further” is closest in meaning to which of the following?

- advanced

- additional

- artistic

- factual

Correct Answer: additional

12. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.According to the passage, a person who is right – handed is more likely to draw people and animals that are facing.

- upward

- downward

- toward the right

- toward the left

Correct Answer: toward the left

13. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.In line 13, the words “the picture” refer to which of the following?

- Faces of animals and people

- People's view from inside a cave

- People's tendency to work with either hand

- The kinds of paint used on cave walls

Correct Answer: People's tendency to work with either hand

14. DIRECTION: Read the following each passage and answer the questions given below(3) Anthropologists have pieced together the little they know about the history of left – handedness and right – handedness from indirect evidence. Though early men and women did not leave written records, they did leave tools, bones, and pictures. Stone Age hand axes and hatchets were made from stones that were carefully chipped away to form sharp cutting edges. In some the pattern of chipping shows that these tools and weapons were made by right handed people designed to fit comfortably into a right hand. Other Stone Age implements were made by or for left-handers Prehistoric pictures painted on the walls of caves provide further clues to the handedness of ancient people. A right – hander finds it easier to draw faces of people and animals facing toward the left whereas a left – hander finds it easier to draw faces facing toward the right. Both kinds of faces have been found in ancient painting. On the whole the evidence seems to indicate that prehistoric people were either ambidextrous or about equally likely to be left – or right – handed. But, in the Bronze Age, the picture changed. The tools and weapons found from that period are mostly made for right – handed use. The predominance of right – handedness among humans today had apparently already been established.The author implies that which of the following developments occurred around the time of the Bronze Age.

- The establishment of written records

- A change in the styles of cave painting

- An increase in human skill in the handling of tools

- The prevalence of right-handedness

Correct Answer: The prevalence of right-handedness

15. DIRECTION: Read the following each passage and answer the questions given below (4) He has given to many young musicians by direct influence, and to others through his disciples, a renewed sense of all that music is and has been, and it is hardly overbold to foresee that this is going to play its role, perhaps a mighty one, in the musical development of the United States…. What is essential now is to recognize the need our world has for the qualities that Schoenberg possesses, and how admirably he supplies our need.The tone of the passage is:

- Optimistic

- Deferential

- Fawning

- Buoyant

Correct Answer: Deferential

# 1-Fundamental Concept Of Chemistry

1. Which statement is correct for combustion analysis of organic compound

- CO2 is absorbed in KOH and it is physical change

- H2O is absorbed in KOH and it is chemical change

- H2O is absorbed in Mg(ClO4)2 and it is chemical change

- CO2 is absorbed in KOH and it is chemical change

Correct Answer: CO2 is absorbed in KOH and it is chemical change

2. Number of moles in 120 g of Carbon

- Is double that of 80g He

- Is half that of 80 g He

- Is equal to that of 80g He

- Is thrice to that of 80g He

Correct Answer: Is half that of 80 g He

3. 0.25 mole of P4 molecules contains \_\_\_\_\_\_\_\_\_ atoms

- 1.76 × 1023

- 6.02 × 1023

- 6.02 × 1019

- 8.08 × 1023

Correct Answer: 6.02 × 1023

4. 4 moles of H2 react with 1 mole of O2, the H2O produced will be \_\_\_\_\_\_ moles

- 4

- 1

- 2

- 0.5

Correct Answer: 2

5. 3.01 × 1023 atoms of an element weighs 11.5 g. The atomic mass of the element is

- 10

- 2.3

- 23

- 35.5

Correct Answer: 23

6. The number of molecules in 4g of methane is

- 4.5 × 1023

- 6.0 × 1023

- 1.5 × 1023

- 1.5 × 1024

Correct Answer: 1.5 × 1023

7. Which of the following is NOT correct for 22g g of N2O?

- It corresponds to half mole of N2O

- It correspondto 3.01×1023 molecules of N2O

- It occupies 2.24 dm3 at S.T.P

- It corresponds to same mole in 14g of CO

Correct Answer: It occupies 2.24 dm3 at S.T.P

8. An atom has a net charge of –2 it has 18 electrons and 16 neutrons. Its mass number is

- 38

- 36

- 32

- 34

Correct Answer: 32

9. Atomic mass unit is the reciprocal of

- Molar volume

- Mass of electron

- Avogadro’s number

- Mass of proton

Correct Answer: Avogadro’s number

10. Which of the following contains more protons than electrons

- Cations

- Neutral atom

- Anions

- Molecular anion

Correct Answer: Cations

11. Which one of the following has maximum number of isotopes

- Na

- Cd

- S

- Ni

Correct Answer: Cd

12. Which of the following process is exothermic

- Formation of uni-positive ion

- Formation of uni-negative ion

- Formation of di-positive ion

- Formation of di-negative ion

Correct Answer: Formation of uni-negative ion

13. Which pair of elements have same number of isotopes

- B, Cl

- C, I

- Na, Ca

- Ni, Cd

Correct Answer: B, Cl

14. Iso–electronic pair among following is

- class="k-editor-image-auto">

- class="k-editor-image-auto">

- class="k-editor-image-auto">

- class="k-editor-image-auto">

Correct Answer: class="k-editor-image-auto">

15. Which of the following elements has maximum number of isotopes

- Ca

- Pd

- Cd

- Sn

Correct Answer: Sn

16. At present total number of non-radioactive isotopes occur in nature

- 280

- 220

- 300

- 240

Correct Answer: 240

17. 20 amu of neon is

- Relative atomic mass

- Relative molecular mass

- Relative formula mass

- Relative isotopic mass

Correct Answer: Relative isotopic mass

18. The isotopes >form nearly \_\_\_\_\_\_\_\_\_\_ of earth crust

- 20%

- 30%

- 40%

- 50%

Correct Answer: 50%

19. Boron has two stable isotopes, 10B (19%) and 11B (81%) Find the average atomic mass of Boron

- >

- >

- >

- >

Correct Answer: >

20. The atomicity of sucrose molecule is

- 24

- 18

- 32

- 45

Correct Answer: 45

21. Which statement is correct about H3PO4 and H2SO4?

- Different number of Electrons

- Different number of Neutron + Protons

- Same number of protons

- Different molecular mass

Correct Answer: Same number of protons

22. 1 mole of different gases have different

- Volumes at STP

- Molar masses

- Number of molecules

- None of these

Correct Answer: Molar masses

23. 720g of glucose contains how many moles of glucose

- 2

- 4

- 6

- 8

Correct Answer: 4

24. The total number of O-atoms in 18g of glucose are

- 6.02×1022

- 6.02×1023

- 3.6×1023

- 3.6×1022

Correct Answer: 3.6×1023

25. 2.8g of N2 molecule contains number of chemical bonds

- 6.02 × 1022

- 1.204 × 1023

- 1.8 × 1023

- 1.8 × 1022

Correct Answer: 1.8 × 1023

26. Which one of the following contains least number of molecules?

- 16.0g of CH4

- 16.0g O2

- 16.0g SO2

- 16.0g H2O

Correct Answer: 16.0g SO2

27. One mole of which of the following will have maximum number of electrons

- Na

- H2O

- NH3

- CH4

Correct Answer: Na

28. Which one has maximum number of atoms

- 1g Mg

- 1g Fe

- 1g Al

- All have same atoms

Correct Answer: 1g Mg

29. 1 mole of CH3OH and C2H5OH have equal number

- C-Atoms

- H-atoms

- O-Atoms

- Electrons

Correct Answer: O-Atoms

30. One mole of Hydrogen and oxygen have same at STP

- Gram molecular weight

- Protons in the molecules

- molar volume

- Electrons in the valence shell

Correct Answer: molar volume

31. Avogadro’s number of particles of hydrogen gas weighs

- 1.008 amu

- 1.008 g

- 2.016 amu

- 2.016 g

Correct Answer: 2.016 g

32. The volume occupied by 1.6g of O2 at STP is

- 2.24dm3

- 22.4dm3

- 1.12dm3

- 112cm3

Correct Answer: 1.12dm3

33. Avogadro’s number is the number of molecules present in

- 11.2 dm3 at STP

- 22400 cm3 at STP

- 1000 cm3 at STP

- 1 cm3 at STP

Correct Answer: 22400 cm3 at STP

34. 2.24 dm3 of CO2 gas at S.T.P has mass

- 28g

- 2.8g

- 44g

- 4.4g

Correct Answer: 4.4g

35. Hydrogen and oxygen have same at STP

- Gram molecular weight

- Protons in the molecules

- Gram molecular volume

- Electrons in the valence shell

Correct Answer: Gram molecular volume

36. If a piece of copper weighs 0.635g how many atoms does it contain (Cu = 63.5 amu)

- 6.023 × 1021

- 6.02 × 1022

- 6.023 × 1023

- 6.02 × 1024

Correct Answer: 6.023 × 1021

37. What volume is occupied by a mixture of 0.5g H2, 16g O2 and 7.0g N2

- 2.24 dm3

- 22.4 dm3

- 0.224 dm3

- 11.2 dm3

Correct Answer: 22.4 dm3

38. Eight grams of methane occupies volume at STP

- 22.4 dm3

- 2.24 dm3

- 1.12 dm3

- 11.2 dm3

Correct Answer: 11.2 dm3

39. The total number of atoms in 10 g of calcium carbonate is (NA = 6.02 × 1023)

- `3.01 × 1024

- 6.02 × 1024

- 6.02 × 1023

- 3.01 × 1023

Correct Answer: 3.01 × 1023

40. 180g of glucose contain number of hydrogen atoms

- 3.6 × 1023

- 6.0 × 1023

- 7.2 × 1023

- 7.2 × 1024

Correct Answer: 7.2 × 1024

41. Which is correct statement

- Rectified spirit is 100% ethanol

- Molar volume of an ideal gas is 24 dm3 at STP

- Rf value for red ink has units of cm-1

- Quantitative analysis involves four steps

Correct Answer: Quantitative analysis involves four steps

42. For which of the following compounds, the term empirical formula cannot be applied

- NaCl

- H2O

- CCl4

- It can be applied to all mentioned above

Correct Answer: It can be applied to all mentioned above

43. An unknown compound has empirical formula CH3O. Its molar mass is 62g/mole. The compound may be

- CH2(OH)CH(OH)CH2(OH)

- CH3COCH3

- CH2(OH)CH2(OH)

- C2H5OH

Correct Answer: CH2(OH)CH2(OH)

44. An acid with molecular mass 104 contain 34.6%C, 3.85% H and rest is O the molecular formula of acid is

- C3H4O4

- C2H2O4

- C2H2O

- C2HO2

Correct Answer: C3H4O4

45. A compound with empirical formula CHO2 and molecular mass 90g / mole. The molecular formula of the compound is

- C6H12O6

- (COOH)2

- C12H22O11

- HCOOH

Correct Answer: (COOH)2

46. The simplest formula of a compound containing 50% of element X (At.wt = 10) and 50% of element Y (At. wt = 20) is

- XY

- XY2

- X2Y

- X2Y3

Correct Answer: X2Y

47. CH2O is the empirical formula of

- C12H22O11

- CH3COOH

- CH2(OH)CH2(OH)

- CH3CHO

Correct Answer: CH3COOH

48. There are different steps in determining the empirical formula  
Step I. Calculating the number of gram atom   
Step II. Determining the atomic ratio  
Step III. Determining the percentage composition  
What is the correct sequence of the above steps?

- I, II, III

- III, II, I

- II, I, III

- III, I, II

Correct Answer: III, I, II

49. A pair of compounds that has same empirical formula

- Acetic acid and glucose

- Acetic acid and formic acid

- Formic acid and sucrose

- Ethane and Ethyne

Correct Answer: Acetic acid and glucose

50. Elemental analysis is performed to determine

- Molar mass of the compound

- Structural formula of a compound

- Empirical formula of a compound

- Mass of halogen present in a compound

Correct Answer: Empirical formula of a compound

51. 21g of CaO is obtained by roasting 50g CaCO3. What is the percentage yield of CaO?

- 25%

- 50%

- 60%

- 75%

Correct Answer: 75%

52. How many moles of potassium chlorate should be decomposed completely to obtain 67.2 dm3 of oxygen at STP? 2KClO32KCl + 3O2

- 1

- 2

- 3

- 4

Correct Answer: 2

53. If a sample of ammonium phosphate, (NH4)3PO4 contains 6 moles of hydrogen atoms. Then number of moles of oxygen atoms in the sample is

- 1

- 2

- 4

- 6

Correct Answer: 2

54. Total ions in 5 formula units of NaClO3 is equal to the number of

- 10 electrons in neon

- 8 protons in an oxygen atom

- 23 nucleons in sodium atom

- 2 isotopes of chlorine

Correct Answer: 10 electrons in neon

55. The law of conservation of mass and the law of definite proportions are obeyed while doing calculation of

- Limiting reactant

- Theoretical yield

- Stoichiometry

- All of these

Correct Answer: All of these

56. 0.5 mole of H2O is formed when 1 g H2 reacts with \_\_\_\_ g of O2

- 8

- 32

- 4

- 16

Correct Answer: 8

57. A sample of CaCO3 has Ca = 40% C = 12% and O = 48%. If the law of constant proportions is true, then the mass of Ca in 5g of CaCO3 will be

- 2.00 g

- 0.20 g

- 0.02 g

- 20.00g

Correct Answer: 2.00 g

58. In the reaction 4NH3(g) + 5O2(g) 4NO(g) + 6H2O when one mole of ammonia and 1-mole of O2 are made to react to completion, then

- 1.0 mol of H2O is produced

- All the ammonia will be consumed

- 1.0 mol of NO will be produced

- All the oxygen will be consumed

Correct Answer: All the oxygen will be consumed

59. Which one will produce largest number of negatively charged ions in case of 100% dissociation of 1 mole

- FeCl3

- Na2SO4

- NaOH

- ZnCl2

Correct Answer: FeCl3

60. Which statement is absolutely correct about the balanced chemical equation i.e it contains equal

- Volume of reactants and products

- Number of atoms of reactants and products

- Number of moles of reactants and products

- Number of molecules of reactants and products

Correct Answer: Number of atoms of reactants and products

# 2-Atomic Structure

1. Which atom has as many s–electrons as p–electrons

- H

- Na

- Mg

- Ca

Correct Answer: Mg

2. An electron occupies the available degenerate orbitals before pairing in any one orbital according to

- (n + l) Rule

- Pauli’s exclusion principle

- Hund’s rule

- Heisenberg’s principle

Correct Answer: Hund’s rule

3. The ground state electronic configuration of the element which is iso-electronic with H2O

- 1s2, 2s2, 2p6, 3s2, 3p4

- 1s2, 2s2, 2p6, 3s1

- 1s2, 2s2, 2p6

- 1s2, 2s2, 2p6, 3s2

Correct Answer: 1s2, 2s2, 2p6

4. Which of the following set of quantum number values is NOT possible

- n = 3, l = 2, m = –2, s = ½

- n = 3, l= 2, m = –3, s = ½

- n= 4, l= 0, m = 0 , s = ½

- n = 5, l= 3, , m = 0, s = ½

Correct Answer: n = 3, l= 2, m = –3, s = ½

5. Atomic orbitals having same energy are called

- Degenerate orbitals

- Sigma and pi molecular orbitals

- Bonding molecular orbitals

- Half-filled orbitals with different n values

Correct Answer: Degenerate orbitals

6. The maximum number of electrons having s = +1/2 in 4d subshell are

- 10

- 14

- 5

- 7

Correct Answer: 5

7. n2 is generally used to determine the maximum

- Number of electrons in a shell

- Number of electrons in an orbital

- Number of orbitals in a sub-shell

- Number of orbitals in a shell

Correct Answer: Number of orbitals in a shell

8. Which pair of elements containing same number of electrons in the outermost shell

- Cl and Br

- Na and Cl

- Ca and Cr

- N and O

Correct Answer: Cl and Br

9. For which one of the following sets of four quantum numbers an electron will have the highest energy

- n l m s  
3 2 1 ½

- n l m s  
4 2 –1 ½

- n l m s  
4 1 0 –½

- n l m s  
5 0 0 –½

Correct Answer: n l m s  
4 2 –1 ½

10. The orbital diagram in which Hund’s rule is obeyed

- />

- />

- />

- />

Correct Answer: />

11. Which of the following contains more protons than electrons

- Cations

- Neutral atom

- Anions

- Molecular anion

Correct Answer: Cations

12. Number of neutrons in equation=”  
Zn  
30  
66  
” editorid=”QuestionBody” /> will be

- 30

- 38

- 36

- 40

Correct Answer: 36

13. Which orbital is biggest in size and have maximum energy

- 2px

- 4px

- 3px

- 5px

Correct Answer: 5px

14. The fourth electron of Be atom will have the four set of quantum numbers as

- 1, 0, 0, ½

- 2, 1, 0, +½

- 2, 0, 0, – ½

- 1, 1, 1, + ½

Correct Answer: 2, 0, 0, – ½

15. Which shape is associated with subshell designated by n = 2, = 1

- Spherical

- Dumb–bell

- Double dumb-bell

- Complicated

Correct Answer: Dumb–bell

16. An atom has a net charge of –2 it has 18 electrons and 16 neutrons. Its mass number is

- 38

- 36

- 32

- 34

Correct Answer: 32

17. From discharge tube experiments, it is concluded that

- Mass of proton is in fraction

- Nucleus contains positive charge

- Matter contains electrons

- Positive rays are always lighter than cathode rays

Correct Answer: Matter contains electrons

18. The exact voltage required in gas discharge tube does not depend upon

- Length of the gas discharge tube

- pressure of gas inside the tube

- Nature of the gas

- All of these

Correct Answer: Nature of the gas

19. The nature of cathode rays in discharge tube

- Depends upon the nature of the gas used in discharge tube

- Depends upon the nature of the cathode used in discharge tube

- Is independent of the nature of the gas used in discharge tube

- Depends upon the nature of anode in the discharge tube

Correct Answer: Is independent of the nature of the gas used in discharge tube

20. Positive rays give flash on

- AgNO3 plate

- AgCl plate

- ZnO

- ZnS

Correct Answer: ZnS

21. Total number of fundamental particles in one atom of >is

- 6

- 8

- 14

- 20

Correct Answer: 6

22. The nucleus of an atom is made up of 8 protons and 8 nutrons. which atoms it is

- C

- N

- O

- F

Correct Answer: O

23. Which order of mass is correct in ascending order

- e– > p° > n

- e– < n < p+

- e– < p+ <n

- n > p+ > e–

Correct Answer: e– < p+ <n

24. Which of the following are not able to ionize the gas

- α-rays

- β-rays

- γ-rays

- Neutrons

Correct Answer: Neutrons

25. A fast moving neutron can eject from nitrogen

- equation="  
γ  
-  
" editorid="OptionA">rays

- equation="  
α  
-  
" editorid="OptionB">rays

- equation="  
β  
-  
" editorid="OptionC">rays

- Electrons

Correct Answer: equation="  
α  
-  
" editorid="OptionB">rays

26. The wave number of the light emitted by a certain source is 2 × 106 m-1. The wavelength of this light will be

- 500nm

- 500m

- 200nm

- 5 × 107m

Correct Answer: 500nm

27. Which of the following relationship is incorrect

- >

- >

- >

- >

Correct Answer: >

28. All of the following were theorized by Bohr in the description of atom except

- Angular momentum of electron is multiple of h/2π

- Electrons circulate in discrete circular orbit

- Electron continuously radiate energy in the form of radiation in a given orbit

- Distance between successive orbits are increasing

Correct Answer: Electron continuously radiate energy in the form of radiation in a given orbit

29. The number of degenerate orbitals in p–subshell is

- 2

- 3

- 5

- 7

Correct Answer: 3

30. Quantum Number values for 5p orbital is

- n = 5 l = 0

- n = 5 l = 1

- n = 5 l = 2

- n = 5 l = 3

Correct Answer: n = 5 l = 1

31. Which of following statement is correct about azimuthal quantum number. It tells

- Size of orbital

- Shape of orbital

- Orientation of orbital in space

- Nuclear stability

Correct Answer: Shape of orbital

32. The total number of orbitals containing electrons, if atomic number of the element is 19

- 9

- 6

- 10

- 16

Correct Answer: 10

33. An orbital which is spherically symmetrical is

- p-orbital

- d-orbital

- f-orbital

- s-orbital

Correct Answer: s-orbital

34. A sub shell having n = 6, and l = 3 is designated as

- 5s

- 6p

- 6f

- 6d

Correct Answer: 6f

35. According to quantum mechanics, the size of electronic shell is told by the quantum number

- Spin quantum number

- Magnetic quantum number

- Azimuthal quantum number

- Principal quantum number

Correct Answer: Principal quantum number

36. Which one of the following sub-shells does not exist

- 2p

- 2d

- 3p

- 4d

Correct Answer: 2d

37. The number of unpaired electrons in p-sub shell of sulphur atom is

- 4

- 6

- 2

- 3

Correct Answer: 2

38. which quantum number is used to represent the subshells.

- Principal Quantum number

- Azimuthal quantum number

- Magnetic quantum number

- Spin quantum number

Correct Answer: Azimuthal quantum number

39. The shape of p-orbital is

- Spherical

- Spherical symmetrical

- Dumb-bell shape

- Circular

Correct Answer: Dumb-bell shape

40. How many electrons can fit into the sub-shell for which n = 3, l = 1?

- 8

- 18

- 6

- 32

Correct Answer: 6

41. Existence of pair of lines in spectrum of sodium is explained by

- Principal quantum number

- Azimuthal quantum number

- Magnetic quantum number

- Spin quantum number

Correct Answer: Spin quantum number

42. The last electron in the Na and K can be distinguished by

- Principal quantum number

- Azimuthal quantum number

- Magnetic quantum number

- Spin quantum number

Correct Answer: Principal quantum number

43. According to Bohr’s atomic theory, the angular momentum (mvr) of an electron is equal to

- equation="  
nh  
2  
π  
" editorid="OptionA" />

- equation="  
nh  
π  
" editorid="OptionB" />

- equation="  
3  
nh  
2  
π  
" editorid="OptionC" />

- equation="  
2  
nh  
π  
" editorid="OptionD" />

Correct Answer: equation="  
nh  
2  
π  
" editorid="OptionA" />

44. The maximum probability of finding an electron in a hydrogen atom according to Schrodinger is

- 0.053nm

- 0.043nm

- 0.073nm

- 0.057nm

Correct Answer: 0.053nm

45. If the value of n = 4 what is probable value of ℓ

- 0,1

- 0,1,2

- 0,1,2,3

- 0, 1, 2, 3, 4

Correct Answer: 0,1,2,3

46. Which set of quantum numbers is not possible

- n = 5, l = 3, s = + 1/2

- n = 3, l = 3, s = +1/2

- n = 4, l = 2, s = +1/2

- n = 6, l = 0, s = +1/2

Correct Answer: n = 3, l = 3, s = +1/2

47. n + l value for 4f will be \_\_\_\_\_\_\_\_\_ and 5p will be \_\_\_\_\_\_\_

- 7, 5

- 5, 7

- 7, 6

- 9, 6

Correct Answer: 7, 6

48. Which atomic orbital has highest energy

- 4d

- 4f

- 5s

- 5p

Correct Answer: 4f

49. The atomic number of an element is sixteen. It belongs to period and group number of the periodic table respectively.

- 3, 7

- 6, 3

- 3, 6

- 7, 3

Correct Answer: 3, 6

50. The electronic configuration of metal ion M+2 is 2, 8, 14 and its atomic mass is 56. The number of neutrons in its nucleus is

- 30

- 32

- 34

- 42

Correct Answer: 30

51. An electron occupies the available orbital before pairing in any one sub-shell according to

- (n + l) Rule

- Pauli’s exclusion principle

- Hund’s rule

- Heisenberg’s principle

Correct Answer: Hund’s rule

52. Which of the following has minimum number of unpaired d-electrons

- Fe3+

- Co3+

- Co2+

- Mn2+

Correct Answer: Co2+

53. The number of orbitals in M – shell are

- 1

- 4

- 16

- 9

Correct Answer: 9

54. How many electrons can fit into the sub-shell for which n = 3, l = 1?

- 8

- 18

- 6

- 32

Correct Answer: 6

55. When 4f orbital is complete the entering electron goes into

- 6s

- 5p

- 5d

- 4d

Correct Answer: 5d

56. Which of the following contains unpaired electrons?

- Ca+2

- Ni+2

- K+1`

- Zn+2

Correct Answer: Ni+2

57. How many total unpaired electrons are present in an atom with Z = 24

- Two

- Five

- Six

- Eight

Correct Answer: Six

58. The electronic configuration of an element with atomic number 29 is

- 1s2,2s2,2p6,3s2,3p6,3d9,4s2

- 1s2,2s2,2p6,3s2,3p6,3d10,4s1

- 1s2,2s2,2p6,3s2,3p6,3d8,4s2

- 1s2,2s2,2p6,3s2,3p6,3d10,4s2

Correct Answer: 1s2,2s2,2p6,3s2,3p6,3d10,4s1

59. Thickness of Gold foil kept.

- 0.04cm

- 0.004cm

- 0.0004cm

- 0.00004cm

Correct Answer: 0.00004cm

60. Rutherford bombarded \_\_\_\_\_\_\_\_\_\_particles in discovery of nucleus.

- Gamma-rays

- Alpha rays

- Beta-rays

- X-rays

Correct Answer: Alpha rays

# 3-Gases, Liquids & Solids

1. Correct relationship that can be used to calculate Crms

- equation="  
3  
PM  
T  
" editorid="OptionA" />

- equation="  
R  
T  
M  
" editorid="OptionB" />

- equation="  
3  
R  
T  
M  
" editorid="OptionC" />

- equation="  
3  
T  
P  
M  
" editorid="OptionD" />

Correct Answer: equation="  
3  
R  
T  
M  
" editorid="OptionC" />

2. Helium molecule is two times heavier than a hydrogen molecule. At 25°C the average kinetic energy of helium molecule is

- Twice that of hydrogen

- Four times that of hydrogen

- Same as that of hydrogen

- Half that of hydrogen

Correct Answer: Same as that of hydrogen

3. At higher temperature, density of gases falls due to

- Increase of intermolecular forces

- Expansion of gases

- Increase of polarizability of gases

- Decrease of polarity of gases

Correct Answer: Expansion of gases

4. Gases deviate from ideal behaviour at high pressure. Which of the following is correct for non-ideality?

- At high pressure, the collision between the gas molecules become enormous

- At high pressure the volume of the gas molecules becomes negligible

- At high pressure the gas molecules move only in one direction

- At given pressure the intermolecular interaction become significant

Correct Answer: At given pressure the intermolecular interaction become significant

5. At constant temperature when the pressure of gas is increased to three times then its volume becomes

- 2V/3

- 3V

- V/3

- 5V

Correct Answer: V/3

6. At 100°C a gas has 1 atm pressure and 10dm3 volume, its volume at STP would be

- 10dm3

- More than 10dm3

- Less than 10 dm3

- Can’t be predicted

Correct Answer: Less than 10 dm3

7. By Charles’s law, there will be a change in the volume of a given mass of gas by 1/273 of its original volume at 0°C, if the temperature of gas is changed by

- 10°C

- 1°C

- 100°C

- 2°C

Correct Answer: 1°C

8. At what temperature would the volume of a given mass of a gas will be twice its volume at 0°C at constant pressure

- 373°C

- 100°C

- 273°C

- –273°C

Correct Answer: 273°C

9. Vapour pressure is NOT affected by

- Surface area

- Intermolecular forces

- Temperature

- Nature of liquid

Correct Answer: Surface area

10. Hydrogen bonding occurs in compounds containing

- Lone pair of electrons and partial positive hydrogen

- Oxygen and hydrogen atoms

- Carbonyl group and hydrogen atom

- Partial positive hydrogen and top element of any group in the periodic table

Correct Answer: Lone pair of electrons and partial positive hydrogen

11. Hydrogen bonding is NOT responsible for high boiling point of

- HI

- CH3OH

- NH3

- H2O

Correct Answer: HI

12. \_\_\_\_\_\_\_\_\_\_\_\_ shows the lowest vapour pressure at 20°C

- Isopentane

- Chloroform

- Ethanol

- Glycerol

Correct Answer: Glycerol

13. A solid which is present in a test tube is volatile, non-conductor in solid state, soluble in polar solvent. The type of the solid will be

- Ionic

- Covalent

- Molecular

- Metallic

Correct Answer: Molecular

14. A solid Z melts slightly above 273 K and is a poor conductor of heat and electricity It may be

- Ionic solid

- Covalent solid

- Molecular solid

- Metallic solid

Correct Answer: Molecular solid

15. Ionic solids do not conduct the electrical current because

- Ions don’t have translatory motion

- Free electrons are less

- The coordination number of ion is very high

- Strong covalent bonds are present in their structure

Correct Answer: Ions don’t have translatory motion

16. The number of ions pair per unit cell of NaCl

- 2

- 4

- 6

- 8

Correct Answer: 4

17. Which of the following laws can be explained only on the basis of Kelvin Scale

- Boyle’s law

- Charle’s law

- Avogadro’s law

- Dalton’s law

Correct Answer: Charle’s law

18. The units of ‘R’ depends upon

- Moles

- Temperature

- Pressure and volume

- All of these

Correct Answer: Pressure and volume

19. Gases are soluble in water at

- Low temperature and high pressure

- High temperature and high pressure

- Low temperature and low pressure

- High temperature and low pressure

Correct Answer: Low temperature and high pressure

20. The SI unit of pressure is Nm-2. 10-3 atm is equal to

- 1.01325 Nm-2

- 1.01325 Pa

- 101.325 KPa

- 0.101325 KPa

Correct Answer: 0.101325 KPa

21. When the value of general gas constant ‘R’ is given as 8.314, the relevant units will be

- Cal , mol-1 degree-1

- dm3 . atm mol-1. k-1

- J. mol-1. K-1

- Ergs.mol-1.degree-1

Correct Answer: J. mol-1. K-1

22. If the temperature of a gas is increased four times then its average K.E.

- Increases 2 times

- increases 4 times

- decreases 2 times

- decreases 4 times

Correct Answer: increases 4 times

23. In gases, Temperature is the measure of

- Average translational kinetic energy

- Rotational kinetic energy

- vibration kinetic energy

- all of the above

Correct Answer: Average translational kinetic energy

24. The molecules of which gas has highest average kinetic energy at 250C

- CO2

- O2

- CH4

- All have same

Correct Answer: All have same

25. Which one of the following is true for absolute zero?

- Gases changes into liquid

- molecular motion of gases cease

- It is attainable

- -273.16 K

Correct Answer: molecular motion of gases cease

26. The rate of vapourization of gasoline is faster than water due to

- Hydrogen bonding

- Weak London forces

- Dipole-dipole interaction

- Debye forces

Correct Answer: Weak London forces

27. Which liquid will boil at lower temperature

- Benzene

- Ethanol

- Acetic acid

- Acetone

Correct Answer: Acetone

28. The inter-molecular attractive forces vary in the order

- Water < alcohol < ether

- Alcohol < water < ether

- Ether < alcohol < water

- Ether < water < Alcohol

Correct Answer: Ether < alcohol < water

29. Which one of the following arrangements represents the correct order of increasing interactions?

- Hydrogen bonding, London forces, Dipole – Dipole

- London force, Hydrogen bonding, Dipole – Dipole

- London forces, Dipole – Dipole, Hydrogen bonding

- Dipole – Dipole, London forces, Hydrogen bonding

Correct Answer: London forces, Dipole – Dipole, Hydrogen bonding

30. The polarizabilities of elements mostly increase down the group due to the

- Increase in the atomic number

- Increase in the number of shell

- Increase in the number of protons

- The behaviour of element remains the same

Correct Answer: Increase in the number of shell

31. London dispersion forces are the only forces present among the

- Molecules of water in liquid state

- Atom of helium in gaseous state at high temperature

- Molecules of solid iodine

- Molecules of hydrogen chloride gas

Correct Answer: Molecules of solid iodine

32. Which one of the following substances will have hydrogen bonding as one of its intermolecular forces among itself

- >

- >

- CH3 – O – CH3

- >

Correct Answer: >

33. London forces are more significant in

- Polar molecules

- Metals

- Ionic solids

- Non polar molecules

Correct Answer: Non polar molecules

34. When a liquid is evaporated

- Temperature of liquid increases

- Temperature of liquid decreases

- Liquid molecules becomes more energetic

- Both “A” and “C”

Correct Answer: Temperature of liquid decreases

35. Steam causes more severe burn than the boiling water because it possesses

- Latent heat of fusion

- Latent heat of vaporization

- Latent heat of sublimation

- Latent heat of solution

Correct Answer: Latent heat of vaporization

36. Vapour pressure of water at 100°C is

- 55 mmHg

- 760 mmHg

- 355 mmHg

- 1489 mmHg

Correct Answer: 760 mmHg

37. A substance with maximum vapour pressure at 25oC

- Diethyl ether

- Chloroform

- Methyl alcohol

- Water

Correct Answer: Diethyl ether

38. The strongest H-bond is

- >

- >

- >

- >

Correct Answer: >

39. Water has maximum density at

- 0°C

- – 4°C

- 100°C

- 4°C

Correct Answer: 4°C

40. The H2O cannot make H-bonding with

- HF

- CH4

- NH3

- CH3CH2OH

Correct Answer: CH4

41. Which of the following compound has higher boiling point

- H2O

- H2Se

- H2S

- CH4

Correct Answer: H2O

42. The average possible number of H–bonds an NH3 molecule can form is

- 1

- 3

- 2

- 4

Correct Answer: 1

43. The most important characteristic of a solid through which it is identified as crystalline solid

- Geometrical arrangement of particles

- Sharp melting point

- Definite shape

- Definite volume

Correct Answer: Sharp melting point

44. NaCl and CsF have same geometry because

- Their cations belong to 1A group

- Their anions belong to VIIA group

- Both are soluble in water

- They have similar radii ratio

Correct Answer: They have similar radii ratio

45. Diamond and graphite are

- Isomorphous

- Polymorphous

- Allotropes

- Both “B” and “C”

Correct Answer: Allotropes

46. K2SO4 and K2CrO4 are isomorphic substances they have similar properties except one

- Atomic ratio

- Crystalline shape

- Chemical properties

- Geometry of anion

Correct Answer: Chemical properties

47. Crystalline structure of diamond is

- Body centered cubic

- Face centered cubic

- Hexagonal close packing

- Cubic close packing

Correct Answer: Face centered cubic

48. Which one of the following may not be related to ionic compounds

- Transition temperature

- Isomorphison

- Polymorphism

- Isomerism

Correct Answer: Isomerism

49. In structure of NaCl, the number of formula units per unit cell is

- 3

- 4

- 5

- 6

Correct Answer: 4

50. Ionic solids are characterized by which one of the following properties

- Moderate vapour pressure

- High vapour pressure

- Good conductivity in solid state

- Solubility in polar solvents

Correct Answer: Solubility in polar solvents

51. Which of the following is an example of molecular solid

- Aluminium nitride

- Glucose

- Sodium sulphate

- Graphite

Correct Answer: Glucose

52. Ionic solids are mostly of high density due to

- Chemical bonding

- Structure

- Close packing of ions

- None of these

Correct Answer: Close packing of ions

53. Temperature is the measure of average K.E. At a temperature of -273.13oC, K.E will become

- Low

- High

- Very low

- Drop to zero

Correct Answer: Drop to zero

54. For a given mass with initial volume ‘V’, if pressure is reduced to one half and absolute temperature is increased two times. The volume will become

- 2V2

- 2V

- 4V

- 6V

Correct Answer: 4V

55. The equation Vt = Vo >is based on

- Celsius scale

- Fahrenheit scale

- Kelvin scale

- Absolute scale

Correct Answer: Celsius scale

56. The original volume of a gas at 0°C is 273cm3 at constant pressure. Its volume at 273°C becomes

- Zero cm3

- 546 cm3

- 446 cm3

- 346 cm3

Correct Answer: 546 cm3

57. The molar volume of CO2 gas is maximum at

- 273 k and 1 atm

- 127oC and 1 atm

- 0oC and 2 atm

- 273oC and 2 atm

Correct Answer: 127oC and 1 atm

58. If volume of O2 is 11.2dm3 at STP, then the number of moles would be

- 2.0 moles

- 0.5 moles

- 1.0 moles

- 0.25 moles

Correct Answer: 0.5 moles

59. The statement “equal volumes of gases measured at same temperature and pressure contain same number of molecules” is known as

- Boyle’s law

- Avogadro’s law

- Charle’s law

- Graham’s law

Correct Answer: Avogadro’s law

60. One dm3 of each of H2. He, N2 and O2 in separate vessels at STP, have number of molecules in each.

- 6.02×1023

- 6.02×1022

- 2.68 × 1022

- 3.01×1023

Correct Answer: 2.68 × 1022

# 4-Chemical Equilibrium & Reaction Kinetics

1. Which is the correct relationship

- KP =KC(P) equation="  
∆  
" editorid="OptionA" />n

- KC=KP(RT) equation="  
∆  
" editorid="OptionB" />n

- KP=KC(RT)n

- KP=KC(RT) equation="  
∆  
" editorid="OptionD" />n

Correct Answer: KP=KC(RT) equation="  
∆  
" editorid="OptionD" />n

2. What is the direction of a reversible reaction when one of the products of reaction is removed from it?

- Forward

- Stops

- Backward

- All are correct

Correct Answer: Forward

3. A buffer solution contains 0.22 M sodium acetate (CH3COONa) and 2.2 M acetic acid (CH3COOH), pKa = 4.74. What is the pH of this buffer solution

- 4.74

- 3.74

- 5.74

- 9.26

Correct Answer: 3.74

4. The molar solubility of PbBr2 is 2.0 x 10-5 M at a certain temperature. Calculate Ksp for PbBr2

- 3.2×10-15

- 4.1×10-14

- 6.4×10-7

- 3.2×10-14

Correct Answer: 3.2×10-14

5. Dilatometric method is used for rate determination when

- Reactions involving ions

- Reaction involving small volume change

- Reactions involving change of optical activity

- None of above

Correct Answer: Reaction involving small volume change

6. The fast rate of a particular chemical reaction might be attributed to

- Low activation energy

- Low temperature

- Absence of a catalyst

- Less concentration of the reactants

Correct Answer: Low activation energy

7. For equation=”  
2  
A  
+  
B  
→  
Product  
” editorid=”QuestionBody” />  
If equation=”  
A  
=  
2  
.  
0  
M  
,  
B  
=  
2  
.  
0  
M  
” editorid=”QuestionBody” /> rate of reaction is 16 moldm–3 s–1 then rate constant would be

- 8

- 2

- 64

- 4

Correct Answer: 2

8. The sum of the exponents of the concentration terms of the reactants involved in the rate expression is the

- Rate of the reaction

- Molecularity of the reaction

- Order of reaction

- Mechanism of the reaction

Correct Answer: Order of reaction

9. A reaction is as >> Which statement is true for the following reaction

- Kc is independent of T

- Kc increases as T decreases

- Kc decreases as T decreases

- Kc varies with the addition of NO

Correct Answer: Kc decreases as T decreases

10. For the system >the expression for equilibrium constant Kc is

- [2X] × [3Y] / [Z]

- [2X]3 × [3Y] / [Z]

- [Z]/ [X]2[Y]3

- [Z] / [2X] × [3Y]

Correct Answer: [Z]/ [X]2[Y]3

11. For the following equilibrium which is true >

- Kc = [S]s [T]t / [L]I [M]m

- >

- >

- All of these

Correct Answer: All of these

12. The concentrations of the reactants and products at equilibrium are

- Equal

- maximum

- minimum

- constant

Correct Answer: constant

13. Following is the condition of reversible reaction that is not affected by pressure (where ∆n = number of moles of product–number of moles of reactants)

- ∆n = 0

- ∆n = -1

- ∆n = 1

- ∆n = 2

Correct Answer: ∆n = 0

14. For which of the following reactions Kc is greater than KP

- >

- >

- >

- >

Correct Answer: >

15. Which is the correct relationship

- KP =KC (P) equation="  
∆  
" editorid="OptionA">n

- KC = KP (RT) equation="  
∆  
" editorid="OptionB">n

- KP = KC (RT) equation="  
∆  
" editorid="OptionC">n

- KP = KC (RT) equation="  
∆  
" editorid="OptionD">n

Correct Answer: KP = KC (RT) equation="  
∆  
" editorid="OptionD">n

16. For the reaction > one starts with 6 moles A and 7 moles B per dm3. When equilibrium is attained, 4.5 moles of C is formed, what is the value of Kc for the reaction

- 3

- 1.8

- 5.4

- 3.78

Correct Answer: 5.4

17. Kc value for decomposition of HF is 10–13 at 2000°C it means that

- Reactants are more stable

- Products are more stable

- Reactants are unstable

- Reactants and products are equally stable

Correct Answer: Reactants are more stable

18. If the value of Kc is very small for a reaction then the reaction is

- Incomplete

- partially complete

- almost complete

- no effect

Correct Answer: partially complete

19. If ratio of concentration of products and that of reactants is less than Kc then reaction will move

- Forward

- backward

- unchanged

- at equilibrium

Correct Answer: Forward

20. Kc value indicates that the chemical reaction reaches farthest to the completion

- 10-3

- 1015

- 103

- 1010

Correct Answer: 1015

21. Increasing the concentration of reactants or decreasing the concentration of the products moves reaction to\_\_\_\_\_\_\_ direction.

- Forward

- backward

- no effect

- none of these

Correct Answer: Forward

22. In——-case increase in temperature and decrease in pressure favours the forward reaction

- >

- >

- >

- >

Correct Answer: >

23. The equilibrium of gaseous reversible reaction that proceeds with decrease in number of moles will shift to right when

- Pressure increases

- Volume increases

- Pressure decreases

- Both b and c

Correct Answer: Pressure increases

24. In an exothermic reversible reaction \_\_\_\_\_ temperature will shift the equilibrium towards the forward direction.

- Low

- high

- moderate

- none of these

Correct Answer: Low

25. The optimum temperature and pressure for the synthesis of ammonia are

- 4000C/200 atm

- 4500C/300 atm

- 4000C/200-300 atm

- 400-5000C/1 atm

Correct Answer: 4000C/200-300 atm

26. The catalyst used for the synthesis of SO3 is

- Pieces of Iron

- MgO,Al2O3,SiO2

- V2O5

- both a & b

Correct Answer: V2O5

27. The catalyst used for the synthesis of ammonia is

- Pieces of Iron

- MgO,Al2O3,SiO2

- V2O5

- both a & b

Correct Answer: both a & b

28. The optimum temperature and pressure for the synthesis of SO3 are

- 4000C/200 atm

- 4500C/300 atm

- 4000C/200-300 atm

- 400-5000C/1 atm

Correct Answer: 400-5000C/1 atm

29. If in AgCl solution , some salt of NaCl is added , AgCl will be precipitated due to :

- Solubility

- Un saturation effect

- Electrolyte

- Common ion effect

Correct Answer: Common ion effect

30. The addition of H2SO4 will not suppress the ionization of

- Acetic acid

- Benzoic acid

- Hydrogen sulphide

- Hydrogen chloride

Correct Answer: Hydrogen chloride

31. A pair of substances that exhibits common ion effect in aqueous solution and help to identify II-group basic radicals

- NH4 Cl + NH4OH

- H2S + HCl

- NaCl + HCl

- KClO3 + KCl

Correct Answer: H2S + HCl

32. NaCl purified from its’ saturated solution by passing

- CO2 gas

- O2 gas

- NH3 gas

- HCl gas

Correct Answer: HCl gas

33. A buffer solution has equal volume 0.5M NH4OH and 0.5 M NH4Cl. The pKb of base is 4.74. pH of the solution is

- 10.26

- 9.26

- 4.74

- 7.26

Correct Answer: 9.26

34. In buffer solution containing a weak acid and its salt. The ratio of concentration of salt to acid is increased ten folds, then pH of solution will

- Increase by one unit

- Increase ten folds

- Decrease by one unit

- Decrease ten folds

Correct Answer: Increase by one unit

35. Addition of NH4OH and NH4Cl in water gives

- Standard solution

- Basic buffer solution

- Acidic buffer solution

- Conjugate solution

Correct Answer: Basic buffer solution

36. pH of buffer in which concentrations of salt and base are 0.1M and 0.01M respectively (pKb = 4.0)

- 3.0

- 2.0

- 9.0

- 11.0

Correct Answer: 9.0

37. If Ksp is equal to product of concentration of ions at particular temperature, then solution is

- Saturated

- Supersaturated

- Unsaturated

- Concentrated

Correct Answer: Saturated

38. Solubility of which salt in H2O increases with temperature

- LiCl

- Li2CO3

- KI

- Na2CO3

Correct Answer: KI

39. On the bases of given values Ksp, which sparingly soluble salt is least soluble in water

- Ksp = 2× 10–2

- Ksp = 2×10–6

- Ksp = 2×10–4

- Ksp = 2×10–3

Correct Answer: Ksp = 2×10–6

40. The solubility product of PbSO4 is 4 x 10-6 mol2. dm-6. The maximum concentration of Pb+2 ions is

- 1.41 x 10-5 mol.dm-3

- 2 x 10-3 mol. dm-3

- 2 x 10-5 mole. dm-3

- 4 x 10-3 mol. dm-3

Correct Answer: 2 x 10-3 mol. dm-3

41. The units of second order rate constant are usually expressed as

- mole–1 dm–3 s–1

- mol–1 dm3 s–1

- mole dm3 . s–1

- mol dm–3 s–1

Correct Answer: mol–1 dm3 s–1

42. All are slow processes except

- Fermentation of sugar

- Reaction of AgNO3 with NaCl

- Weathering of rocks

- Rusting of iron

Correct Answer: Reaction of AgNO3 with NaCl

43. Which of the following reaction is the fastest?

- Rusting of iron

- Burning of sulphur

- Reaction of CH4 and Cl2

- Precipitation of BaSO4 by mixing two solution

Correct Answer: Precipitation of BaSO4 by mixing two solution

44. The rate of reaction can be increased in general by all of the following factors except

- By increasing the temperature

- Using a suitable catalyst

- By increasing activation energy

- By increasing concentration of reactants

Correct Answer: By increasing activation energy

45. If during reaction, there is rotation in plane polarized light, then its rate can be determined by

- Spectrometry method

- Electrical conductivity method

- Optical rotation method

- Dilatometric method

Correct Answer: Optical rotation method

46. The mechanism below has been proposed for the reaction of CHCl3 with Cl2  
>

- Rate = [CHCl3][Cl]2

- Rate = [CHCl3][Cl2]1/2

- Rate = [CCl3][Cl]

- Rate = [Cl2]

Correct Answer: Rate = [CHCl3][Cl2]1/2

47. One of the following is not a physical method for determination of rate of reaction

- Spectrometry

- Refractrometry

- Electrical Conductivity

- Titrimetry

Correct Answer: Titrimetry

48. which technique is used to determined the absorption of radiations.

- spectrometry

- dilatometric method f

- refractometric method

- optical rotation method

Correct Answer: spectrometry

49. Generally by increasing temperature rate of chemical reaction increase. it is due to

- Greater velocity of molecules

- Greater number of collision

- Greater number of molecule having activation energy

- None of the above

Correct Answer: Greater number of molecule having activation energy

50. The incorrect order indicated against the rate of reaction

- Rate Order   
d[C] / dt = k[A] 1

- Rate Order  
d[C] / dt = k[A][B] 2

- Rate Order  
–d[A] / dt = k[A][B]° 2

- Rate Order  
 –d[A] / dt = k [A] 1

Correct Answer: Rate Order  
–d[A] / dt = k[A][B]° 2

51. Rate of chemical equation increase rapidly even for small increase in temperature because of rapid increase in the

- Collision theory

- Activation energy

- Average kinetic energy of molecules

- Fraction of molecules with energy more than activation energy

Correct Answer: Fraction of molecules with energy more than activation energy

52. The rate of reaction can be increased in general by all of the following factors except

- By increasing the temperature

- Using a suitable catalyst

- By increasing activation energy

- By increasing concentration of reaction

Correct Answer: By increasing activation energy

53. The number of atoms or molecules whose concentration determines the rate of a chemical reaction is called the

- Molecularity of the reaction

- Order of the reaction

- Specific activity of the reaction

- Rate constant of the reaction

Correct Answer: Order of the reaction

54. The order of reaction may be determined by

- Differential

- Half-life method

- Graphical method

- All of these

Correct Answer: All of these

55. Which of the followings is pseudo first order reaction

- Acid catalyzed hydrolysis of an ester

- Hydrolysis of tertiary butyl bromide

- Chloroform to Carbon tetrachloride

- Both (a) and (b)

Correct Answer: Both (a) and (b)

56. In the hydrolysis of an organic chloride in the presence of large excess of water  
R3C-Cl + H2O → R3C-OH + HCl, order of reaction is

- Second order

- First order

- Third order

- Pseudo First order

Correct Answer: Pseudo First order

57. The value of activation energy of chemical reaction is primarily determined by

- Nature of reacting species

- Temperature

- Number of collisions per unit time

- Concentration of species

Correct Answer: Number of collisions per unit time

58. Energy of activation for backward reaction is less than forward reaction for\_\_\_\_\_\_\_\_\_\_ reaction

- Endothermic

- Exothermic

- Moderate

- Fast

Correct Answer: Endothermic

59. Incorrect statement about activation energy is

- It depends upon bond energy

- It is characteristic value for each reaction

- For exothermic reaction, (Ea)f < (Ea)r

- It depends upon heat of reaction

Correct Answer: It depends upon heat of reaction

60. On increasing the temperature, the rate of reaction increases mainly because

- The activation energy of the reaction increases

- Concentration of the reacting molecules increases

- Collision frequency increases

- None of these

Correct Answer: Collision frequency increases

# 5-Thermochemistry & Electrochemistry

1. The expression equation=”  
∆  
” editorid=”QuestionBody”>E = q + w is

- First law of the thermodynamics

- Second law of the thermodynamics

- Third law of the thermodynamics

- Hess’s Law

Correct Answer: First law of the thermodynamics

2. equation=”  
∆  
” editorid=”QuestionBody”>H = equation=”  
∆  
” editorid=”QuestionBody”>E for which of the following reaction

- >

- >

- >

- >

Correct Answer: >

3. The heat of neutralization is maximum for

- NH4OH+CH3COOH

- Ca(OH)2 HCl

- NaOH+H3PO4

- NaOH + HCl

Correct Answer: NaOH + HCl

4. Change in enthalpy of DH of a gaseous system can be calculated by following relationship

- >

- >

- >

- >

Correct Answer: >

5. Which of the following processes has always ∆H = -ve

- Formation of compound

- Combustion

- Dissolution of ionic compound

- Dilution of a solution

Correct Answer: Combustion

6. The heat of neutralization is minimum for

- NH4OH + CH3COOH

- KOH + HNO3

- NaOH + H2SO4

- NaOH + HCl

Correct Answer: NH4OH + CH3COOH

7. Which equation shows lattice energy for ionic compound

- >

- >

- >

- >

Correct Answer: >

8. The enthalpy of formation of an ionic compound is -392 Kj / mol. Total energy changes ( equation=”  
∆  
” editorid=”QuestionBody”>Hx) involved in the formation of gaseous ions form normal physical state is 280 kJ / mole. The enthalpy of lattice ( equation=”  
∆  
” editorid=”QuestionBody”>Hlatt.) is

- –112 KJ / mol

- -672 KJ / mol

- –267 KJ / mol

- +224KJ / mol

Correct Answer: -672 KJ / mol

9. Greater the lattice energy of an ionic compound, \_\_\_\_\_ will be the ionic bond or intermolecular forces.

- Stronger

- weaker

- no relation

- none of these

Correct Answer: Stronger

10. Lattice energies are helpful in discussing the ————————– of ionic compounds.

- Structure

- Bonding

- Properties

- All of these

Correct Answer: All of these

11. Hess’s law can be applied to determine

- ΔHf

- ΔHlatt

- ΔHcomb

- All of the above

Correct Answer: All of the above

12. Hess’s law is applicable for the determination of enthalpy of

- Reaction

- Formation

- Lattice

- All of these

Correct Answer: All of these

13. ∆H = ∆E for which of the following reaction

- >

- >

- >

- >

Correct Answer: >

14. The net heat change in a chemical reaction is same whether it is brought about in two or more different ways in one or several steps. It is known as

- Henry’s law

- Joule’s principle

- Hess’s law

- law of conservation of energy

Correct Answer: Hess’s law

15. Among the following molecules, in which doesbromine show the lowest oxidation number

- HBrO3

- HBr

- KBrO4

- Br2

Correct Answer: HBr

16. The oxidation no. of hydrogen in NaH is

- +1

- -1

- 0

- all of these

Correct Answer: -1

17. In which of the following compound oxygen show -1 oxidation state.

- Na2O2

- KO2

- K2O

- H2O

Correct Answer: Na2O2

18. The oxidation number of oxygen atom in OF2 and H2O2

- –2, –1

- +2, –1

- –1, +2

- +2, +1

Correct Answer: +2, –1

19. To balance oxygen in ion electron method in acidic solution, we add

- ion

- ion

- H2O

- O2

Correct Answer: H2O

20. Consider the following reaction   
2Cr2O72-(aq) + 16H+(aq) + 3C2H5OH(aq) → 4Cr3+(aq) + 11H2O(l) + 3CH3COOH(aq)  
Which atom undergoes decrease in oxidation number

- Carbon

- Oxygen

- Hydrogen

- Chromium

Correct Answer: Chromium

21. In which conversion oxidation number of Mn is not changed

- MnO4-2 → MnO4–1

- MnO2 → MnCl2

- KMnO4 → MnSO4

- None of these

Correct Answer: None of these

22. To balance oxygen in ion electron method in acidic medium, we add

- H+ ion

- OH- ion

- H2O

- O2

Correct Answer: H2O

23. In fuel cell, N2H4 reacts N2H4 + O2 → N2 + 2H2O. The number of electrons lost by each nitrogen atom will be

- 3

- 4

- 2

- 6

Correct Answer: 2

24. In a reaction, the oxidation number of Cr decreases by 3. This indicates that Cr is

- Reduced

- Oxidized

- Neutralized

- A reducing agent

Correct Answer: Reduced

25. HBr is formed when bromine reacts with molecular hydrogen at high temperature.  
 H2 + Br2 → 2HBr , the reaction is an example of

- Disproportionation

- Reduction

- Oxidation

- Redox

Correct Answer: Redox

26. Which is true about the reaction Mg + Cℓ2 → MgCℓ2

- Mg is reduced

- Mg is oxidized

- Cℓ2 is oxidized

- Cl2 is reducing agent

Correct Answer: Mg is oxidized

27. The electrolytic products of which of the following are same as for the electrolysis of water.

- Aqueous NaCl

- Aqueous CuSO4

- Aqueous ZnSO4

- Aqueous KCl

Correct Answer: Aqueous ZnSO4

28. Which of the following has a non-spontaneous oxidation-reduction reaction?

- Electrolytic cell

- Galvanic cell

- Voltaic cell

- Both b & c

Correct Answer: Electrolytic cell

29. The products of electrolysis of dilute aqueous sodium nitrate are

- Na and O2

- H2 and NO2

- H2 and O2

- Na and NO2

Correct Answer: H2 and O2

30. The direction of flow of electrons through external circuit in electrolytic cell is from

- Anode to cathode

- Cathode to anode

- Do not flow in external circuit

- Vary from cell to cell

Correct Answer: Anode to cathode

31. The standard electrode potential is measured by

- Electrometer

- Voltmeter

- Galvanometer

- Polarimeter

Correct Answer: Voltmeter

32. Electrode potential of Zn is

- Oxidation

- Reduction

- Oxidation-reduction

- Depends on the nature of the coupled electrode

Correct Answer: Depends on the nature of the coupled electrode

33. Temperature for the measurement of standard electrode potential is

- 298K

- 300K

- 30°C

- 310K

Correct Answer: 298K

34. Which of the following factors accounts for degree of dissociation of an electrolyte

- Nature of electrolyte

- Temperature

- Concentration

- All of these

Correct Answer: All of these

35. If a strip of Cu metal is placed in a solution of FeSO4 then

- Cu will be precipitated out

- Fe is precipitated out

- Cu and Fe both dissolve

- No reaction takes place

Correct Answer: No reaction takes place

36. Which one of the following is not an inert electrode

- Pt

- Pd

- Both (a) and (b)

- Cu

Correct Answer: Cu

37. Metal that deposits at cathode when aqueous solution of its salt is electrolysed

- Na

- Cu

- Zn

- Sn

Correct Answer: Cu

38. Metals are strong \_\_\_\_\_agents and the non-metals are strong\_\_\_\_\_ agents.

- Oxidizing/reducing

- Reducing/oxidizing

- Oxidizing/oxidizing

- Reducing/reducing

Correct Answer: Reducing/oxidizing

39. The sum of all kinds of energies of atoms, ions or molecules of a system is known as

- Kinetic energy

- Potential energy

- Internal energy

- Lattice energy

Correct Answer: Internal energy

40. Which of the following process is an exothermic?

- Sublimation of ice

- Freezing of liquid water

- Boiling of liquid water

- Melting of ice to liquid water

Correct Answer: Freezing of liquid water

41. Enthalpy of neutralization of all the strong acids and strong bases has the same value because

- Neutralization leads to the formation of salt and water

- Strong acid and bases are ionic substances

- Acids always give rise H+ ions and bases always furnish OH– ions

- The net chemical change involve the combination of H+ and OH– ions to form water

Correct Answer: The net chemical change involve the combination of H+ and OH– ions to form water

42. Based on the following reactions, the heat of formation of CO will be  
C(graphite) + O2 equation=”  
→  
 ” editorid=”QuestionBody” /> CO2(g), equation=”  
∆  
” editorid=”QuestionBody” />H = –393.7 kJ/mole and CO(g)+1/2O2(g) equation=”  
→  
 ” editorid=”QuestionBody” />CO2(g), equation=”  
∆  
” editorid=”QuestionBody” />H = –283 kJ/mole

- 110.7 kJ/mol

- 676 kJ/mol

- –110.7 kJ/mol

- –676 kJ/mol

Correct Answer: –110.7 kJ/mol

43. The species which by definition has ZERO standard molar enthalpy of formation at 298 K is

- NaCl(s)

- H2O(g)

- Cl2(g)

- All of these

Correct Answer: Cl2(g)

44. The lattice energy of formation of NaCl is -788kJ/mol when , the value of equation=”  
∆  
” editorid=”QuestionBody” />Hf is

- +788 kJ/mol

- –412 kJ/mol

- +12 kJ/mol

- -35 kJ/mol

Correct Answer: –412 kJ/mol

45. Reduction potential of silver is greater than that of zinc. Consider that small quantity of zinc powder is added to a solution containing silver ions as shown in the figure. X represents.  
/>

- Impurities in solution

- Precipitated solution

- Solid zinc

- Solid silver

Correct Answer: Solid silver

46. From the ground state electronic configuration of the elements are given below, Pick up the one with highest value of 2nd ionization energy

- 1s2, 2s2, 2p6, 3s2

- Is2, 2s2, 2p6

- 1s2, 2s2, 2p6, 3s1

- 1s2, 2s2, 2p5

Correct Answer: 1s2, 2s2, 2p6, 3s1

47. All of the following have trigonal pyramidal molecular geometry except

- NH3

- PH3

- NF3

- SO3

Correct Answer: SO3

48. When sulphite ion is converted into sulphate ion, the bond angle between the bond pair and bond pair of electrons becomes equal to \_\_\_\_\_\_\_approximately

- 109.5

- 120

- 107.5

- 104.5

Correct Answer: 109.5

49. The Anodic reaction in electrolysis of dil. H2SO4 with Pt electrode is

- Oxidation

- Both oxidation and reduction

- Reduction

- Neutralization

Correct Answer: Oxidation

50. A standard hydrogen electrode has zero electrode potential because

- Hydrogen is easier to oxidize

- Hydrogen atom has only one electron

- This electrode potential is assumed to be zero

- Hydrogen is the lightest element.

Correct Answer: This electrode potential is assumed to be zero

51. \_\_\_\_\_\_\_\_\_\_ is not a state function

- Enthalpy

- Internal energy

- Gibb’s free energy

- Heat

Correct Answer: Heat

52. In thermodynamic, which one of the following is not a state function?

- Entropy

- Internal energy

- Free energy

- Work

Correct Answer: Work

53. Which of the following sets constitutes of all the state functions of system.

- Temperature, Pressure, Work

- Enthalpy, Work, Pressure

- Enthalpy, Entropy, Internal Energy

- Heat, Enthalpy, Volume

Correct Answer: Enthalpy, Entropy, Internal Energy

54. A balloon filled with oxygen is placed in a freezer. Identify system

- Balloon

- Oxygen

- Freezer

- All of these

Correct Answer: Oxygen

55. When water is added to quicklime, the reaction is

- Explosive

- Exothermic

- Endothermic

- Photochemical

Correct Answer: Explosive

56. Which of the following process may be exothermic

- 1st I.P

- 2nd I.P

- 1st E.A

- 2nd E.A

Correct Answer: 1st E.A

57. If an endothermic reaction is allowed to take place very rapidly in air the temperature of the surrounding air

- Remain constant

- Increases

- Decreases

- Remains unchanged

Correct Answer: Decreases

58. The sum of all the energies of atoms, molecules or ions within a system is called

- Enthalpy

- K.E of the system

- Internal energy

- Free energy

Correct Answer: Internal energy

59. According to first law of thermodynamics energy from system to surrounding can be transferred in the form of

- Heat and work

- Kinetic energy and pressure

- Heat and force

- Displacement and heat

Correct Answer: Heat and work

60. There are how many conventional ways to change the internal energy of system

- 4

- 3

- 2

- 1

Correct Answer: 2

# 6-Chemical Bonding

1. Increase in atomic size down the group is due to

- Decrease in number of shells

- Increase in shielding effect

- Inert pair effect

- Increase in nuclear charge

Correct Answer: Increase in shielding effect

2. Which statement is true about Na and Na+

- Size of Na is greater than Na+

- Size of Na is smaller than Na+

- Both have equal size

- Both have same properties

Correct Answer: Size of Na is greater than Na+

3. In a period, the atomic radii

- In a period, the atomic radiiIncreases

- Decreases

- Remain same

- First decreases, then increases

Correct Answer: Decreases

4. In general, ionization energy increases along the period. The group which show maximum ionization energy

- IIA

- VIIA

- VA

- VIIIA

Correct Answer: VIIIA

5. The valence shell is

- The highest energy level occupied by electrons

- The set of orbitals used to make triple bonds

- The orbitals belonging to the entire molecule

- The lowest energy level occupied by electrons

Correct Answer: The highest energy level occupied by electrons

6. An element with highest first ionization energy

- Nitrogen

- Boron

- Oxygen

- Beryllium

Correct Answer: Nitrogen

7. Which of the following statements is incorrect

- Among halogens chlorine has maximum electron affinity

- Along the period M.P and B.P increases upto IVA group

- Among Be, B,C and N, the Be element has minimum ionization energy value

- Cs is the most electropositive and F is the most electronegative element

Correct Answer: Among Be, B,C and N, the Be element has minimum ionization energy value

8. Which factor does not effect ionization energy across the period

- Number of shell

- Nuclear Charge

- Nature of orbital

- QBoth A & C

Correct Answer: Number of shell

9. Which group of periodic table shown generallyabnormal trends of ionization energy.

- IIA and VA

- IIIA and IVA

- IIIA and VIA

- VIIIA

Correct Answer: IIIA and VIA

10. Which of following does not affect I.E in group

- Shielding Effect

- Effective Nuclear charge

- Size of atom

- Nature of orbital

Correct Answer: Nature of orbital

11. Correct order of Electron affinity is

- Flourine > chlorine > bromine > iodine

- Chlorine > bromine > flourine > iodine

- Iodine > bromine > chlorine > flourine

- Bromine > flourine > chlorine > iodine

Correct Answer: Chlorine > bromine > flourine > iodine

12. Elements with \_\_\_\_\_ first ionization energies and \_\_\_\_\_\_\_ electron affinities generally form cations

- Low, large negative

- High, positive or slightly negative

- Low, positive or slightly negative

- High, large negative

Correct Answer: Low, positive or slightly negative

13. Which factor does not effect I.E. across the period

- Number of shells

- Shielding effect

- Nature of orbitals

- Both (a) and (b)

Correct Answer: Both (a) and (b)

14. The correct order of ionization energy is

- F > Cl > Br > I

- Cl > Br> F > I

- Br > F > Cl > I

- I > Br > Cl > F

Correct Answer: F > Cl > Br > I

15. First electron affinity is maximum for

- Fluorine

- Iodine

- Chlorine

- Bromine

Correct Answer: Chlorine

16. Bonding in phosphonium ion is \_\_\_\_\_\_\_\_\_ percent covalent

- 25

- 33

- 50

- 75

Correct Answer: 75

17. Correct statement when coordinate covalent bond is formed between NH3 and BF3

- Ammonia is Lewis acid

- Fluorine accepts lone pair due its high electronegativity

- Ammonia donates its lone pair to 2p orbital of Boron

- Coordinate covalent bond is also called non polar bond

Correct Answer: Ammonia donates its lone pair to 2p orbital of Boron

18. Which of the following is not considered as an intermolecular force

- Covalent bond

- Hydrogen bonding

- Dipole- dipole inter action

- Ion – dipole interaction

Correct Answer: Covalent bond

19. Dative bond is present in the molecule

- NH4+

- BF3

- NH3

- HF

Correct Answer: NH4+

20. CsF bond is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ % ionic

- 72

- 82

- 92

- 100

Correct Answer: 92

21. In which of the following can donate an electron pair to the central atom?

- BF3

- H3O+

- AlCl3

- None

Correct Answer: None

22. A compound which is most ionic in nature

- KCl

- KF

- MgCl2

- RbF

Correct Answer: RbF

23. The compound which have three types of bonds is

- NH3

- H2O

- NH4Cl

- NaCl

Correct Answer: NH4Cl

24. Struture of ammonia is

- Trigonal

- Tetrahedral

- Pyramidal

- Trigonal bipyramidal

Correct Answer: Pyramidal

25. H−O−H bond angle in H2O is 104.5o and not 109.5o because of

- High electronegativity of oxygen

- Lone pair – lone pair attraction

- Bond pair –bond pair repulsion

- Lone pair – lone pair repulsion

Correct Answer: Lone pair – lone pair repulsion

26. Which one has lone pair with central atom

- BF3

- CH4

- NH4+

- H2O

Correct Answer: H2O

27. In which of the following bond pair-bond pair angle is minimum

- Water

- Ammonia

- Hydrogen sulphide

- Nitrogen tri fluoride

Correct Answer: Hydrogen sulphide

28. Which one of the following has maximum bond angle

- CCl4

- NF3

- NH3

- CO2

Correct Answer: CO2

29. The shape of is NH2-1

- Linear

- Angular

- Pyramidal

- Tetrahedral

Correct Answer: Angular

30. According to VSEPR theory, a molecule with the general formula AX4 with one lone pair will have a \_\_\_\_ molecular shape

- Bent

- Trigonal planar

- Trigonal pyramidal

- Tetrahedral

Correct Answer: Trigonal pyramidal

31. The structure of CO2 is similar to that of

- Ethene

- Carbon disulphide

- Ethyne

- Both B and C

Correct Answer: Both B and C

32. Among following molecules, which has different number of π-electrons than others

- SO3

- C6H6

- C6H5CH3

- CH3CN

Correct Answer: CH3CN

33. Hybridization is the extended form of \_\_\_\_\_\_\_\_ theory

- VSEPR

- Lewis

- Molecular orbital

- Valence bond

Correct Answer: Valence bond

34. The percentage of s-character in hybrid orbital which indicates shortest bond length

- 25% s-character

- 33.4% s-character

- 50% s-character

- 75% s-character

Correct Answer: 50% s-character

35. In which of the followings central atom is not sp3 hybridized

- NH3

- PH3

- AlH3

- H3O+

Correct Answer: AlH3

36. In the resonance structure of benzene the number of σ-bonds and π-delocalized electrons are respectively

- 12 and 6

- 6 and 3

- 6 and 6

- 12 and 3

Correct Answer: 12 and 6

37. When water donates its electron pair to hydrogen ion to form hydronium ion, hybridization is changed from

- sp2 to sp3

- sp3 to sp2

- sp3 to sp

- Remains unchanged

Correct Answer: Remains unchanged

38. In which of the following compound, carbon atoms has sp2 hybridization only

- Carbon dioxide

- 1, 3–butadiene

- Propene

- Ethane nitrile

Correct Answer: 1, 3–butadiene

39. Which are the species in which central atom undergoes sp3 hybridization?  
(i) SnCl2 (ii) NF3 (iii) (iv) H2S  
Select the correct answer using the code given below

- i and ii

- ii, iii and iv

- i, iii and iv

- i, ii and iii

Correct Answer: ii, iii and iv

40. Number of sigma and pi bonds in chloroprene

- 7, 2

- 9, 2

- 10, 2

- 11, 2

Correct Answer: 9, 2

41. The hybridization state of ‘S’ in SO3 is similar to that of

- C in C2H2

- C in C2H6

- C in CO2

- C in C2H4

Correct Answer: C in C2H4

42. Strongest bond among the following is

- H–H

- F–F

- C– C

- N–N

Correct Answer: H–H

43. Which one has highest average bond energy

- C = O

- C = C

- C ΞC

- N ΞN

Correct Answer: N ΞN

44. Which one has maximum bond dissociation energy

- F2

- Cl2

- Br2

- I2

Correct Answer: Cl2

45. Bond energy of nitrogen molecule is greater than C2H6, C2H4 and C2H2, the bond length of nitrogen molecule may be

- 120 pm

- 110 pm

- 154 pm

- 133 pm

Correct Answer: 110 pm

46. The molecule having highest bond energy is

- N ≡ N

- C ≡ N

- C ≡ C

- C ≡ O

Correct Answer: C ≡ O

47. When bond order increases, then bond length becomes \_\_\_\_\_\_ and bond becomes \_\_\_\_\_\_

- Shorter, stronger

- Shorter, weaker

- Longer, weaker

- Longer, stronger

Correct Answer: Shorter, stronger

48. Bond length decreases with

- Increase in size of atom

- Increase in the number of bonds between the atoms

- Decreases in the number of bonds between the atoms

- Decrease in the s-character

Correct Answer: Increase in the number of bonds between the atoms

49. The order of bond strength as a result of following head to head overlapping is

- s – s > p – p > s – p

- p – p > s – s > p – s

- s –s > s – p > p – P

- p – p > s – p > s – s

Correct Answer: p – p > s – p > s – s

50. \_\_\_\_\_\_\_\_\_ has highest dipole moment

- CH4

- CCl4

- CHCl3

- CHI3

Correct Answer: CHCl3

51. Which of the following is the most polar?

- CH3I

- CH3F

- CH3Br

- CH3Cl

Correct Answer: CH3F

52. Which among the following has net dipole moment

- CH4

- S2Cl2

- BF3

- SF6

Correct Answer: S2Cl2

53. Which one of the following is a non-polar molecule with polar bonds

- H2O

- NH3

- PF5

- CO

Correct Answer: PF5

54. Covalent compounds show the phenomenon of isomerism because covalent bonds are

- Directional and rigid

- Non-directional and non-rigid

- Non-directional and rigid

- Directional and non-rigid

Correct Answer: Directional and rigid

55. Which one has dipole moment

- Which one has dipole moment

- Benzene

- o-Dichlorobenzene

- Trans 1, 2-dichloroethene

Correct Answer: o-Dichlorobenzene

56. Which of the following molecule has zero dipole moment

- NH3

- CH3Cl

- CCl4

- H2O

Correct Answer: CCl4

57. Which of the following is the best explanation that CO2 is non polar molecule

- Linear geometry

- Net dipole moment is zero

- Sp hybridization

- Polarity

Correct Answer: Net dipole moment is zero

58. Which of the following have their outer most shell complete in atomic form

- Noble gases

- Alkali metals

- Coinage metals

- Gun metals

Correct Answer: Noble gases

59. Which one of the following compounds does not obey Octet rule

- PF3

- BF3

- NF3

- AsF3

Correct Answer: BF3

# 7-S & P Block Elements & Transition Elements

1. The maximum electrical conductivity is exhibited by

- Fluorine

- Beryllium

- Aluminium

- Magnesium

Correct Answer: Aluminium

2. Which one of the following is least reactive alkali metal?

- Na

- Mg

- Li

- K

Correct Answer: Li

3. Non-metallic character of elements in the periodic table \_\_\_\_\_\_\_ in periods

- Increases

- Decreases

- Remains same

- First increases then decreases

Correct Answer: Increases

4. Which of the following will decrease along the period?

- Atomic size

- Atomic number

- Number of shells

- Ionization energy

Correct Answer: Atomic size

5. The lowest melting and boiling point of an element in 3rd period

- Na

- P

- Si

- Ar

Correct Answer: Ar

6. Colour in transition metal compounds is attributed to

- Small size metal ions

- Complete s subshell

- Absorption of light in UV region

- d-d transition

Correct Answer: d-d transition

7. The pair of groups of transition elements that shows abnormal electronic configuration

- I-B and II-B

- II-B and III-B

- I-B and VI-B

- V-B and VI-B

Correct Answer: I-B and VI-B

8. Which of the following non-typical transition element is present in group IIIB

- Sc

- Cu

- Hg

- Zn

Correct Answer: Sc

9. The common oxidation of elements which belong to 3d series

- +3

- +4

- +2

- +7

Correct Answer: +2

10. Which one of the following pair of ions have colored complexes?

- Ti4+, Cu+

- Co2+, Fe3+

- Sc3+, Zn2+

- Zn2+, V5+

Correct Answer: Co2+, Fe3+

11. One of the following properties increases from top to bottom in VIIA group

- Oxidizing power

- Atomic radii

- Reactivity

- Ionization energy

Correct Answer: Atomic radii

12. Which ion is not formed in water

- H-(aq)

- H+(aq)

- O-2(aq)

- Both (a) and (c)

Correct Answer: Both (a) and (c)

13. Shielding effect across a third period

- Increases

- first increase then decrease

- Decreases

- Remains same

Correct Answer: Remains same

14. Which of the following electronic configuration represents atoms of element having the highest 2nd Ionization energy

- 1s2 2s2 2p4

- 1s2 2s2 2p5

- 1s2 2s2 2p6 3s1

- 1s2 2s2 2p6 3s2

Correct Answer: 1s2 2s2 2p6 3s1

15. Select the correct option according to size

- Mg+ > Mg2+

- Ca+ > Ca+2

- Be+2 < Be+1

- All

Correct Answer: All

16. Carbonate of \_\_\_\_\_\_\_\_ is least soluble in IA group.

- Li2CO3

- Na2CO3

- K2CO3

- Cs2CO3

Correct Answer: Li2CO3

17. Which of the following oxide is most basic among alkali metals.

- Li2O

- Na2O

- K2O

- BeO

Correct Answer: K2O

18. Nitrate of which alkali metal does not give Nitrite upon heating

- Na

- Li

- K

- Mg

Correct Answer: Li

19. Ionization energy of Group IA is minimum for

- Li

- Na

- K

- Cs

Correct Answer: Cs

20. One of the following is least reactive among following

- Li

- Na

- K

- Cs

Correct Answer: Li

21. Which of the following compound is least soluble in water.

- Mg(OH)2

- Ca(OH)2

- Sr(OH)2

- Ba(OH)2

Correct Answer: Mg(OH)2

22. Hydroxide of which Alkaline earth metal cannot be prepared by direct reaction with water.

- Be

- Ca

- Sr

- Ba

Correct Answer: Be

23. Which IIA hydroxide decomposes most easly

- Mg(OH)2

- Ca(OH)2

- SrOH)2

- BaOH)2

Correct Answer: Mg(OH)2

24. Which oxide of IIA dissociate into ions in water, most eaily

- BeO

- MgO

- CaO

- BaO

Correct Answer: BaO

25. Which of the followings show —1 oxidation state of in its oxides, formed by its reaction with O2 at 600°C

- Be

- Mg

- Ca

- Ba

Correct Answer: Ba

26. One of the following will form superoxide when burnt in air

- Li

- Na

- K

- Be

Correct Answer: K

27. Which of the following element reacts vigorously with H2O

- Na

- Al

- Mg

- S

Correct Answer: Na

28. Lithium is only Group IA metal which combines with nitrogen and carbon to form

- Lithium nitrite and lithium carbide

- Lithium nitride and lithium carbonate

- Lithium nitride and lithium carbide

- Lithium carbide and lithium nitrite

Correct Answer: Lithium nitride and lithium carbide

29. Which alkali metal explode spontaneously when it is in contact with air/ O2

- Cs

- Na

- K

- Rb

Correct Answer: Cs

30. Which among the alkali metals does not react with C2H2

- Li

- Na

- K

- All of these react with C2H2

Correct Answer: Li

31. Burning of Be in air requires

- 600°C

- 800°C

- 1400°C

- 200°C

Correct Answer: 800°C

32. Magnesium burns in air to form

- MgO

- Mg3N2

- MgCO3

- MgO and Mg3N2

Correct Answer: MgO and Mg3N2

33. Which of the following metals produce oxide upon reaction with steam only

- Be

- Sr

- Ca

- Mg

Correct Answer: Mg

34. Which reaction is practically not possible

- Be +2H2O → H2+ Be(OH)2

- Mg + 2H2O → H2 + MgO

- Ca +2H2O → H2 + Ca(OH)2

- Ba + 2H2O → H2 + Ba(OH)2

Correct Answer: Be +2H2O → H2+ Be(OH)2

35. Which alkaline earth metal liberates hydrogen when treated with NaOH

- Mg

- Be

- Ca

- Ba

Correct Answer: Be

36. The amphoteric oxide is

- Na2O2

- Na2O

- Al2O3

- SO2

Correct Answer: Al2O3

37. Sodium and Magnesium form oxide with oxygen

- Normal oxide only

- Acidic oxide

- Basic oxide

- Amphoteric oxide only

Correct Answer: Basic oxide

38. The elements of period 3rd react violently with water and make the solution

- Alkaline

- Acidic

- Amphoteric

- All arepossible

Correct Answer: All arepossible

39. Which of the following element of 3rd period and group III does not react with water

- B

- Mg

- Al

- In

Correct Answer: Al

40. Which of the following pair does not react directly with oxygen?

- P and S

- Al and Ar

- Cl and Ar

- P and Ar

Correct Answer: Cl and Ar

41. The stable states of an orbital are when it is

- Half filled

- completely filled

- Empty

- both a & b

Correct Answer: both a & b

42. The first transition series starts with

- Sc

- Y

- La

- Ac

Correct Answer: Sc

43. f- block elements are called

- inner transition

- outer transition

- lanthanides & actinides

- both a & c

Correct Answer: both a & c

44. Which group contains the elements with the weakest binding energies

- IB

- IIB

- VB

- VIB

Correct Answer: IIB

45. Which group elements usually show single oxidation state.

- IB

- IIB

- VB

- VIB

Correct Answer: IIB

46. Which of the following pairs show resemblance in their valence shell configuration

- Sc , Y

- Mn, Mo

- Zn,V

- Pt, Au

Correct Answer: Sc , Y

47. The number of unpaired electrons present in Cr3+ ion is/are:

- 1

- 3

- 2

- 4

Correct Answer: 3

48. Which of the following pairs show resemblance in their valence shell configuration:

- Ti, Ta

- Mn, Mo

- Zn, Cd

- Pt, Au

Correct Answer: Zn, Cd

49. The ion that is iso-electronic with argon

- Cr4+

- Sc3+

- Ti3+

- Mn2+

Correct Answer: Sc3+

50. Minimum number of unpaired electrons are present in

- Mn+2

- Cu+2

- Fe+2

- Cu+1

Correct Answer: Cu+1

51. The transition metal which has only colourless compounds

- Ti

- Cr

- Cu

- Zn

Correct Answer: Zn

52. Which transition element from the 3d-series has highest binding energy

- Mn

- Zn

- Fe

- V

Correct Answer: V

53. The binding energy of elements is in the order is:

- Fe > Mn > Cr > V

- V > Mn > Cr > Fe

- V > Cr > Fe > Mn

- Cr > Fe > Mn > V

Correct Answer: V > Cr > Fe > Mn

54. Which one of the following is most paramagnetic?

- Ni+2

- Fe+3

- Zn+2

- All are diamagnetic

Correct Answer: Fe+3

55. Which element of 3-d series show maximum oxidation state

- Ti

- Fe

- Mn

- Co

Correct Answer: Mn

56. Ethylenediaminetetraacetate (EDTA) is a:

- Monodenate ligand

- Polydentate ligand

- Bidentate ligand

- Tridentate ligand

Correct Answer: Polydentate ligand

57. Which is the formula of tetra-ammine chloro-nitro platinum (IV) sulphate

- [Pt(NH3)4(NO2)]SO4

- [PtNO2Cl(NH3)4]SO4

- [PtCl(NO2)(NH3)4]SO4

- [Pt(NH3)4(NO2)Cl]SO4

Correct Answer: [PtCl(NO2)(NH3)4]SO4

58. In which complex ligand makes ring like structure

- [Pt(C2O4)2]2–

- [Ag(NH3)2]Cl

- [Fe(CO)5]

- [Co(NO2)3(NH3)3]

Correct Answer: [Pt(C2O4)2]2–

59. The geometry of which complex is octahedral

- [MnCI4]2-

- [Cu(NH3)4]2+

- [Fe (CO)5]

- [Co(NH3)6]

Correct Answer: [Co(NH3)6]

60. The substance which donates a pair of electron to transition metal is known as

- Ligand

- Electrophile

- Coordination number

- Lewis acid

Correct Answer: Ligand

# 8-Fundamental Concepts of Organic Chemistry & Chemistry of Hydrocarbon

1. Diethyl ether is functional group isomer of \_\_\_\_\_\_

- Ethanol

- Butanol

- Butanal

- Butanone

Correct Answer: Butanol

2. The product of reaction of propene with conc. H2SO4 followed by hydrolysis gives

- Propanoic acid

- 1-Propanol

- Propanal

- 2-Propanol

Correct Answer: 2-Propanol

3. Which of the following shows geometrical isomerism?

- 1-Butene

- 1,1-Dichloroethene

- 2-pentene

- 1-Pentene

Correct Answer: 2-pentene

4. Which of the following compounds is heterocyclic aromatic compound

- Benzene

- Pyridine

- Toluene

- Phenol

Correct Answer: Pyridine

5. If similar groups lie on the opposite sides of double bond. Then it is called

- Cis-isomer

- Tautomers

- Metamers

- Trans-isomer

Correct Answer: Trans-isomer

6. Ka value of phenol is more than that of ethanol because phenoxide ion is

- Bulkier than ethoxide

- More stable than ethoxide ion

- Less stable than ethoxide ion

- Stronger base than ethoxide ion

Correct Answer: More stable than ethoxide ion

7. The number of s bonds and p electrons in but-1-en-3-yne is

- 5s and 5 p bonds

- 7 s and 3p bonds

- 7 s bonds and 6p es–

- 6 s and 4 p bonds

Correct Answer: 7 s bonds and 6p es–

8. Dehydrohalogenation of 2-Bromobutane gives major product

- 1-Butene

- 2-Pentene

- 2-Methyl-2-butene

- 2-Butene

Correct Answer: 2-Butene

9. In which of the following acetophenone is formed

- C6H6 + CH3COCl equation="  
→  
AlCl  
3  
" editorid="OptionA" />

- C6H6 + CH3Cl equation="  
→  
AlCl  
3  
" editorid="OptionB" />

- C6H6+CH3CH2Cl equation="  
→  
AlCl  
3  
" editorid="OptionC" />

- C6H5CH3 + CH3COCl equation="  
→  
AlCl  
3  
" editorid="OptionD" />

Correct Answer: C6H6 + CH3COCl equation="  
→  
AlCl  
3  
" editorid="OptionA" />

10. What are the suitable conditions for dehydration of tertiary alcohol

- 10% H2SO4, 200°C

- 60% H2SO4, 100°C

- 75% H2SO4, 140 – 170°C

- 20% H2SO4, 85°C

Correct Answer: 20% H2SO4, 85°C

11. The number of possible chain isomers for hexane is

- 6

- 5

- 3

- 4

Correct Answer: 5

12. Which of the following does not contain isolated rings?

- Biphenyl

- Phenanthrene

- Diphenyl amine

- Triphyenyl methane

Correct Answer: Phenanthrene

13. Which of the following is alicyclic organic compound

- Benzene

- Cyclohexene

- Thiophene

- Toluene

Correct Answer: Cyclohexene

14. All are saturated alicyclic compounds except

- Cyclohexane

- Methyl cyclopropane

- Cyclohexene

- Ethylene epoxide

Correct Answer: Cyclohexene

15. All are aromatic hydrocarbons except

- Anthracene

- Naphthalene

- Toluene

- Aniline

Correct Answer: Aniline

16. Naphthalene and Anthracene are the example of

- Alicyclic hydrocarbons

- Acyclic Hydrocarbons

- Aromatic hydrocarbons

- Heterocyclic hydrocarbons

Correct Answer: Aromatic hydrocarbons

17. The no. of isomers of methane are

- One

- two

- Four

- Zero

Correct Answer: Zero

18. The relationship of the following two molecules is best described by  
(i). Isopentane (ii). Neopentane

- Position isomer

- Skeletal isomer

- Metamer

- Functional group isomer

Correct Answer: Skeletal isomer

19. 2-Propanol and 1–propanol show the isomerism

- Metamerism

- Functional group isomerism

- Geometric isomerism

- Positional isomerism

Correct Answer: Positional isomerism

20. The isomerism exhibited by Butanal and Butanone

- Chain isomerism

- Geometric isomerism

- Functional group isomerism

- Metamerism

Correct Answer: Functional group isomerism

21. Which alkene could exist in cis and trans forms?

- 1-Propene

- 2,3-Dimethyl-2-pentene

- 2-Methylbutene

- None of these

Correct Answer: None of these

22. The isomerism exhibited by acetone is

- Chain isomerism

- Geometric isomerism

- Functional group isomerism

- Metamerism

Correct Answer: Functional group isomerism

23. Total number of possible chain isomers of butylalcohol among alcohols are

- Four

- Three

- Five

- Six

Correct Answer: Four

24. Alkenes can not show which of the following \_\_\_\_\_\_\_ isomerism

- Position

- Functional group

- Cis–trans

- Chain

Correct Answer: Functional group

25. Which one of the following class of compounds has been incorrectly matched with their general formula

- Phenol …..Ph –OH

- Alcohols …….CHO

- Ketone ……..RCOR’

- Carboxylic acids ………RCOOH

Correct Answer: Alcohols …….CHO

26. Which of the following is NOT an amine

- (NH2)2CO

- NH2CH3

- C6H5NH2

- N(CH3)3

Correct Answer: (NH2)2CO

27. Imino group is present in

- CH3NH2

- HCONH2

- CH2 = NH

- (NH2)2CO

Correct Answer: CH2 = NH

28. The formyl functional group is present in

- Aldehyde

- Ketone

- Ester

- Acid anhydride

Correct Answer: Aldehyde

29. >

- o-xylene

- p-xylene

- m-xylene

- Toluene

Correct Answer: o-xylene

30. Which of the following is alcohol

- >

- >

- >

- All are alcohols

Correct Answer: >

31. IUPAC name of   
>

- 2,3,5 – Trimethyl – 2-hexene

- 2,3,5 – Trimethyl – 2-hexane

- 2,4,5 – Trimethyl – 2-hexene

- 2,4,5 – Trimethyl – 2-pentene

Correct Answer: 2,3,5 – Trimethyl – 2-hexene

32. Iso-butylene has structure:

- CH º C – CH2 – CH3

- >

- >

- None of these

Correct Answer: >

33. Maleic acid is

- Saturated dicarboxylic acid

- Unsaturated dicarboxylic acid

- Unsaturated monocarboxylic acid

- Saturated monocarboxylic acid

Correct Answer: Unsaturated dicarboxylic acid

34. When methane reacts with Cl2 in the presence of diffused sunlight, the products obtained are

- Chloroform only

- Carbon tetrachloride only

- Chloromethane and dichloromethane

- Mixture of a, b, c

Correct Answer: Mixture of a, b, c

35. Reaction mechanism of alkanes with halogens is known as

- Addition

- Elimination

- Free radical substitution

- Nucleophilic substitution

Correct Answer: Free radical substitution

36. The order of reactivity of halogens with alkanes in sunlight is

- I2 > Br2 > Cl2 > F2

- Cl2 > Br2 > F2 > I2

- F2 > Cl2 > Br2 > I2

- None of these

Correct Answer: F2 > Cl2 > Br2 > I2

37. In free radical mechanism the step in which free radical react with free radical is called

- Initiation

- Propagation

- Termination

- All of the above

Correct Answer: Termination

38. In halogenation of alkane, the least reactive halogen is

- F2

- I2

- Cl2

- Br2

Correct Answer: I2

39. If ozonolysis of an alkene produce acetone and propionaldehyde, then the alkene is:

- 2-Methyl-1-pentene

- 2-Methyl-3-Ethyl-propene

- 2-Methyl-2-pentene

- 4-Methyl-3-pentene

Correct Answer: 2-Methyl-2-pentene

40. Which of the following set can be used for dehydration of alcohols?

- Al2O3, H2SO4, H3PO4, P4O10

- AlCl3, H2SO4, H3PO4

- Al2O3, H2SO4, H2PO3, P4O10

- AlCl3, H2SO4, H3PO4, P2O3

Correct Answer: Al2O3, H2SO4, H3PO4, P4O10

41. Addition of HX to CH3CH = CH2 takes place according to:

- Hund’s Rule

- Markownikov’s Rule

- Aufbau principle

- Octet rule

Correct Answer: Markownikov’s Rule

42. Dehydrohalogenation of alkyl halides takes place in the presence of:

- Aqueous KOH

- Alcoholic KOH

- Dry AlCl3

- Anhydrous P2O5

Correct Answer: Alcoholic KOH

43. The olefins are

- V  
 Alkane

- alkene

- alkyne

- none of these

Correct Answer: alkene

44. When 20% H2SO4 reacts with propyne in the presence of HgSO4, it gives

- Ethanal

- Propanol

- Propanoic Acid

- Acetone

Correct Answer: Acetone

45. Vinylacetylene combine with HCl to form

- Polyacetylene

- Benzene

- Chloroprene

- Divinyl acetylene

Correct Answer: Chloroprene

46. Chlorine react readily with ethyne in presence of \_\_\_\_\_\_

- CH3COOH

- CHCl3

- CCl4

- H2SO4

Correct Answer: CCl4

47. Acetone is prepared by the hydration of

- Ethyne

- Propyne

- Ethane

- Propane

Correct Answer: Propyne

48. Ethyne polymerize into chloroprene in the presence of

- Cu2Cl2 / NH4Cl

- Cu2Cl2 / NH4OH

- CuCl2 / NH4Cl

- CuCl2 / NH4OH

Correct Answer: Cu2Cl2 / NH4Cl

49. The total resonance structures of benzene are

- 2

- 3

- 4

- 5

Correct Answer: 5

50. Ammonia when added to acetylene in the presence of hot alumina forms

- Ethanenitirile

- Acrylonitrile

- Ethyl nitrile

- Methyl alcohol

Correct Answer: Ethanenitirile

51. Which of the following does not contain isolated rings?

- Biphenyl

- Phenanthrene

- Diphenyl methane

- Tetraphenyl methane

Correct Answer: Phenanthrene

52. The resonance energy of benzene is:

- 358.5 kJ/mole

- -150.5 kJ/mole

- 150.5 kJ/mole

- 231.5 kJ/mole

Correct Answer: 150.5 kJ/mole

53. The reaction of bromobenzene with ethylbromide in presence of Na/ether is called:

- Wurtz reaction

- Friedal craft reaction

- Halogenation

- Wurtz-Fittig reaction

Correct Answer: Wurtz-Fittig reaction

54. Which of the following is produced by the action of CH3Cl on benzene in presence of AlCl3:

- Toluene

- Chlorobenzene

- Ortho-Chlorotoluene

- Both (a) and (b)

Correct Answer: Toluene

55. Benzene is heated in air with V2O5 at 450°C it undergoes

- Substitution reaction

- Addition reaction

- Elimination reaction

- Oxidation reaction

Correct Answer: Oxidation reaction

56. The name of the following compound is:  
C7H7Cl

- Benzyl chloride

- Benzal chloride

- Phenyl chloride

- Benzo chloride

Correct Answer: Benzyl chloride

57. When toluene reacts with Cl2 in the presence of sunlight, the final product will be

- Benzotrichloride

- Benzal chloride

- Benzyl chloride

- Chlorobenzene

Correct Answer: Benzotrichloride

58. Benzene upon catalytic oxidation with V2O5 at 450°C gives a compound which on reaction with water gives.

- Maleic anhydride

- Maleic acid

- Succinic acid

- Benzoic acid

Correct Answer: Maleic acid

59. The conversion of benzene to chlorobenzene is an example of \_\_\_\_\_\_\_\_\_\_\_ reaction

- Electrophilic addition

- Nucleophile addition

- Electrophilic substitution

- Nucleophile substitution

Correct Answer: Electrophilic substitution

60. Which reagent can best be used to distinguish between 1-hexene and toluene:

- Aqueous ammoniacal AgNO3 solution

- Iodine in aqueous sodium hydroxide

- Bromine in carbon tetrachloride

- Dilute aqueous sulphuric acid

Correct Answer: Bromine in carbon tetrachloride

# 9-Alkyl Halides, Alcohols & Phenols, Aldehydes & Ketones

1. Compound “A” reacts with Conc. H2SO4 at 140oC to give diethyl ether as a product, A is

- 1-Propanol

- Ethene

- Ethyl methyl ether

- Ethanol

Correct Answer: Ethanol

2. Methyl alcohol on oxidation with acidic K2Cr2O7 gives

- Formic acid

- Acetone

- Acetic acid

- Acetaldehyde

Correct Answer: Formic acid

3. Which of the following undergo difficult dehydration as compared to others

- 2-Propanol

- 2–Methyl propan–2–ol

- 1-propanol

- 2-Butanol

Correct Answer: 1-propanol

4. Which of the following haloform is yellow crystalline solid

- CHF3

- CHI3

- CHCl3

- CHBr3

Correct Answer: CHI3

5. The correct option about this reaction is   
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- Both “A” and “C”

Correct Answer: equation="  
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6. An α-Hydroxy acid with empirical formula CH2O and molecular mass 90 has its IUPAC name

- 3-Hydroxy propanoic acid

- 2-Hydroxy propanoic acid

- Propanoic acid-2-ol

- 2-Hydroxy propionic acid

Correct Answer: 2-Hydroxy propanoic acid

7. The geometry of HCHO is

- Tetrahedral

- Linear

- Trigonal planar

- Angular

Correct Answer: Trigonal planar

8. 1-Chloro-2,2-dimethylpropane also known as

- Isobutyl chloride

- Neopentyl chloride

- Tertiary butyl chloride

- Isopropyl chloride

Correct Answer: Neopentyl chloride

9. The general formula of primary alkyl halides is:

- CnH2n+1X

- CnH2nX2

- CnH2n-1X3

- All of these

Correct Answer: CnH2n+1X

10. CnH2nX2 is the general formula of

- Mono haloalkanes

- Di- haloalkanes

- Tri- haloalkanes

- none of these

Correct Answer: Di- haloalkanes

11. The IUPAC name of following compound is  
 >

- 1-Chloro-2-methylpropane

- 2-Chloro-2-methylpropane

- 2,2-Dichlorobutane

- 2-Chloro-4-methylbutane

Correct Answer: 2-Chloro-2-methylpropane

12. The conversion of ethyl bromide to ethene requires

- Alcoholic KOH

- Aqueous KOH

- Etheral KOH

- Dry KOH

Correct Answer: Alcoholic KOH

13. In SN2 reaction the % of retention of configuration is:

- 0%

- 100%

- 50%

- 66%

Correct Answer: 0%

14. When electron pair donor attacks β-hydrogen of primary alkyl halide reaction may be

- E1

- E2

- SN1

- SN2

Correct Answer: E2

15. Tetraethyl Lead, an anti-knocking reagent can be synthesized by reacting ethyl halide with

- Na4Pb

- Na2Pb

- Zn/Hg

- Hg/Na

Correct Answer: Na4Pb

16. All of the following belong to alcohol class except

- HOCH2CH(OH)CH2OH

- C6H5CH2OH

- HOCH2CH2OH

- CH3C6H4OH

Correct Answer: CH3C6H4OH

17. Monohydric alcohols are classified into \_\_\_\_\_\_\_\_\_\_ types

- 2

- 3

- 4

- 5

Correct Answer: 3

18. In tertiary alcohols the tertiary carbon is attached to

- One hydrogen atom

- Two hydrogen atoms

- Three hydrogen atoms

- One hydroxal group

Correct Answer: One hydroxal group

19. The oxygen atom in alcoholic group is

- sp-hybridized

- sp3 hybridized

- sp2 hybridized

- Only carbons are hybridized

Correct Answer: sp3 hybridized

20. Absolute alcohol is obtained when rectified spirit is distilled with

- Ca(OH)2

- CaCO3

- CaCl2

- CaO

Correct Answer: CaO

21. Enzyme Zymase helps the hydrolysis of

- Starch to maltose

- Maltose to glucose

- Glucose to ethyl alcohol

- Ethyl alcohol to carboxylic acid

Correct Answer: Glucose to ethyl alcohol

22. Which enzyme is not involved in the formation of alcohol

- Diastase

- Zymase

- Urease

- Invertase

Correct Answer: Urease

23. Enzyme maltase helps the hydrolysis of

- Starch to maltose

- Maltose to glucose

- Glucose to ethyl alcohol

- Ethyl alcohol to carboxylic acid

Correct Answer: Maltose to glucose

24. Ethyl alcohol is heated with conc. H2SO4 at 180°C. The product formed

- CH3COC2H5

- C2H4

- CH3COCH3

- C2H2

Correct Answer: C2H4

25. Tertiary alcohols on treating with acidified Na2Cr2O7 give

- Aldehydes

- Ketones

- Alkenes

- Ethers

Correct Answer: Alkenes

26. Which alcohol is most reactive towards sodium metal

- ter.Butyl alcohol

- n-Propyl alcohol

- Isopropyl alcohol

- All have same reactivity

Correct Answer: n-Propyl alcohol

27. Aldehyde are prepared by the oxidation of

- Primary alcohols

- Tertiary alcohols

- Secondary alcohols

- Secondary alcohols

Correct Answer: Primary alcohols

28. If an electrophile attacks alcohols, which bond will break

- C – O

- C – H

- O – H

- C – C

Correct Answer: O – H

29. Which of the following is not a property of phenol?

- It is completely soluble in water

- It forms pink solution in water

- It is poisonous

- All are property of pehnol

Correct Answer: It is completely soluble in water

30. >

- Tartaric acid

- 2-chloro 3-hydroxy ethylbenzene

- 1-Hydroxy-2-chloro-3-ethylbenzene

- 2-chloro-3-ethylphenol

Correct Answer: 2-chloro-3-ethylphenol

31. Phenol is also known as

- Picric acid

- Carbolic acid

- Formic acid

- Carbonic acid

Correct Answer: Carbolic acid

32. The compound used as disinfectants in hospitals and washrooms:

- Ethanol

- Diethyl ether

- Phenol

- Phenol+Methanol

Correct Answer: Phenol

33. Which of the following is not the property of phenol?

- phenol is colorless

- It is crystalline solid

- It is sparingly soluble in water

- All are properties of phenol

Correct Answer: All are properties of phenol

34. Which of the following is least acidic

- Ethanoic acid

- Phenol

- Water

- Ethanol

Correct Answer: Ethanol

35. Phenol reacts with alkaline acetyl chloride to form

- ortho-Hydroxy acetophenone

- Phenyl acetate

- para-Hydroxy acetophenone

- Acetophenone

Correct Answer: Phenyl acetate

36. When hydrogen gas is passed through phenol at 150oC with Ni as catalyst. It forms

- Benzene

- Cyclohexane

- Cyclohexanol

- Benzoic acid

Correct Answer: Cyclohexanol

37. When phenol is treated with Zn, the product formed is

- Benzoic acid

- Benzene

- Toluene

- Phenyl acetate

Correct Answer: Benzene

38. Phenol reacts with alkaline acetyl chloride to form

- Arial

- Phenyl acetate

- para-Hydroxy acetophenone

- Acetophenone

Correct Answer: Phenyl acetate

39. Nitration of phenol produces an explosive called

- O-Nitrophenol

- Picric acid

- TNT

- Carbolic acid

Correct Answer: Picric acid

40. The structure and hybridization of carbonyl carbon in alkanal and alkanone is

- Trigonal and sp3

- Linear and sp2

- Linear and sp3

- Planar and sp2

Correct Answer: Planar and sp2

41. Acetophenone is also called

- `  
 Diphenyl ketone

- Dimethyl ketone

- Ethyl methyl ketone

- Methyl phenyl ketone

Correct Answer: Methyl phenyl ketone

42. Homologous series of both aldehyde and ketones have the general formula

- CnH2n

- CnH2n+2O  
`

- CnH2nO2

- CnH2nO

Correct Answer: CnH2nO

43. Formalin is

- 10% solution of formaldehyde in water

- 20% solution of formaldehyde in water

- 40% solution of formaldehyde in water

- 60% solution of formaldehyde in water

Correct Answer: 40% solution of formaldehyde in water

44. 2-Methyl-2-propanol is an example of

- Primary alcohol

- Secondary alcohol

- Tertiary alcohol

- Dihydric alcohol

Correct Answer: Tertiary alcohol

45. 3-Pentanone forms a yellow precipitate with 2,4-dinitrophenyl hydrazine but does not form precipitate with:

- Ammonical silver nitrate solution

- Aqueous NaOH and Iodine

- Saturated NaHSO3 solution

- All of these

Correct Answer: All of these

46. The reduction of \_\_\_\_ gives secondary alcohols always.

- Alcohol

- aldehyde

- ketone

- caboxylic acid

Correct Answer: ketone

47. Which of the following statements is incorrect about ethanal and propanone

- Both can be prepared by oxidation of alcohols

- Both gives wine red or orange colour with sodium nitroprusside

- Both react with 2, 4-Dinitrophenyl hydrazine reagent

- Both give positive iodoform test

Correct Answer: Both gives wine red or orange colour with sodium nitroprusside

48. Which of the following is not oxidized by mild oxidizing agents

- HCHO

- Glucose

- CH3CHO

- (CH3)2CO

Correct Answer: (CH3)2CO

49. Which of the following will react with nitroprusside solution?

- CH3CH2CHO

- (CH3)2CO

- CH3COOH

- CH3–CH2–OH

Correct Answer: (CH3)2CO

50. Consider the following reaction  
R-CHO + 2[Ag (NH3)2] OH RCOONH4 + 2Ag + 2NH3 + H2O  
This reaction represents which of the following tests

- Fehling’s test

- Benedict’s test

- Ninhydrin test

- Tollen’s test

Correct Answer: Tollen’s test

51. Which of the following is the oxidizing agent?

- Tollen’s reagent

- Fehling’s solution

- Benedict’s solution

- All of these

Correct Answer: All of these

52. The acid(s) produced by the oxidation of butanone is/are

- Formic acid + propanoic acid

- Formic acid + Acetic acid

- Only propionic acid

- Only acetic acid

Correct Answer: Only acetic acid

53. An organic compound P when treated with NaBH4 forms Q, which is used in denaturing of the spirit. The compound P is

- Ethanol

- Methanal

- Methanol

- Ethanal

Correct Answer: Methanal

54. All of the following can produce ketone except

- Secondary alcohol

- Propyne

- Calcium acetate

- Primary alcohol

Correct Answer: Primary alcohol

55. Consider the following reaction 2HCHO + NaOH CH3OH + HCOONa. The formation of alcohol is

- Oxidation process

- Reduction process

- Addition reaction

- Disproportionation reaction

Correct Answer: Reduction process

56. In SN2 reaction, hybridization of electrophilic carbon in transition state is

- sp2

- sp3

- sp

- dsp2

Correct Answer: sp2

57. Elimination uni-molecular reaction involves

- First order kinetics

- Second order kinetics

- Third order kinetics

- Zero order kinetics

Correct Answer: First order kinetics

58. Elimination uni-molecular reaction involves

- First order kinetics

- Second order kinetics

- Third order kinetics

- Zero order kinetics

Correct Answer: First order kinetics

59. Which of the following decides the reactivity of alkyl halides?

- C – C bond strength

- C – H bond strength

- C – X bond strength

- Electronegativity difference

Correct Answer: C – X bond strength

60. The products obtained when H2SO4 react with alcohol under different temperature conditions are

- Aldehydes and ketones

- Alkenes and alkynes

- Alkenes and ethers

- Alkenes and ketones

Correct Answer: Alkenes and ethers

# 10-Carboxylic Acids & Macromolecules

1. Which compound will react with NaHCO3 solution to give sodium salt and CO2

- Acetic acid

- Ethanol

- Phenol

- Acetone

Correct Answer: Acetic acid

2. The general formula of aliphatic carboxylic acid is

- (CH2O)n

- (C6H10O5)n

- CnH2nO2

- CnH2nO

Correct Answer: CnH2nO2

3. In the esterification reaction

- –OH of alcohol is replaced by CH3COO– group of acid

- –OH of acid is replaced by C2H5O– group of alcohol

- –H of acid is replaced by C2H5– group of alcohol

- –OH of alcohol is replaced by CH3CO– group of acid

Correct Answer: –OH of acid is replaced by C2H5O– group of alcohol

4. Carboxylic acid does not give the usual addition reactions like aldehydes and ketones because

- O – H bond is more polar than width="52" height="43" />group

- Carboxylate ion gets ionized

- Carboxylate ion gets stabilized by resonance

- It exists as –COOH and there is no carbonyl group

Correct Answer: Carboxylate ion gets stabilized by resonance

5. In the esterification reaction the reactivity order of alcohol is

- CH3OH > C2H5OH > (CH3)2 CHOH > (CH3)3COH

- (CH3)3COH>(CH3)2CHOH > (CH3)3COH

- C2H5OH>CH3OH>(CH3)2CHOH>(CH3)3COH

- CH3OH>C2H5OH>(CH3)3COH>(CH3)2CHOH

Correct Answer: CH3OH > C2H5OH > (CH3)2 CHOH > (CH3)3COH

6. The reaction of acetic acid with sodium metal is

- Nucleophilic addition

- Electrophilic substitution

- Elimination

- Nucleophilic substitution

Correct Answer: Electrophilic substitution

7. The weakest acid among the following is

- CH3COOH

- Cl3CCOOH

- ClCH2COOH

- (CH3)2CHCOOH

Correct Answer: (CH3)2CHCOOH

8. Ethanoic acid reacts with ethanol to give

- Ethyl acetate

- Ethyl formate

- Methyl acetate

- Methyl ethyl ether

Correct Answer: Ethyl acetate

9. equation=”  
CH  
3  
COOH  
+  
X  
→  
CH  
3  
COCl  
” editorid=”QuestionBody” /> the “X” may be

- PCl5 or S2Cl2

- SOCl2 or ClO2

- PCl5 or SOCl2

- PCl5 or SOCl2 or HCl

Correct Answer: PCl5 or SOCl2

10. Which of the following is a cyclic carboxylic acid

- Phthalic acid

- Oxalic acid

- Lactic acid

- Succinic acid

Correct Answer: Phthalic acid

11. Acidic hydrolysis of acetonitrile (CH3CN) yields

- CH3 – NH2

- CH3 – CH3

- CH3COOH

- CH2 = CH2

Correct Answer: CH3COOH

12. Which of the following is not a fatty acid

- Formic acid

- Palmitic acid

- Stearic acid

- Benzoic acid

Correct Answer: Benzoic acid

13. The helical structure of protein is stabilized by

- Dipeptide bonds

- Hydrogen bonds

- Ether bonds

- Peptide bonds

Correct Answer: Hydrogen bonds

14. Large number of amino acids are joined by \_\_\_\_\_\_\_\_to form protein

- Peptide bonds

- Condensation reactions

- Amide linkage

- All are true

Correct Answer: All are true

15. Which one of the following is example of derived proteins

- Albumins

- Phosphoproteins

- Collagen

- Peptones

Correct Answer: Peptones

16. Many enzymes contain a protein part and non protein part. This protein part is\_\_\_\_\_\_

- Apoenzyme

- Holoenzyme

- Co-factor

- Co-enzyme

Correct Answer: Apoenzyme

17. A chain of 800 amino acids has mass equal to one molecule of a haemoglobin is preferably to be called

- Polypeptide

- Protein

- Polyamide

- Polysaccharide

Correct Answer: Protein

18. In formation of protein, carboxylic group of one amino acid and amino group of other amino acid condensed together to give

- Peptide linkage

- Ester linkage

- 1 → 6 glycosidic linkage

- β 1-4 Glycosidic linkage

Correct Answer: Peptide linkage

19. The carboxylic acids which are liquid with pungent smell have number of carbons

- C1 – C4

- C1 – C3

- C4 – C6

- C2 – C5

Correct Answer: C1 – C3

20. The boiling points of carboxylic acids are \_\_\_\_\_\_ than their corresponding alkanes.

- Low due to low molecular masses

- High due to hydrogen bonding

- High due to high molecular masses

- Low due to weak intermolecular forces

Correct Answer: High due to hydrogen bonding

21. The number of atoms present in the ring of dimer of acetic acid in benzene solvent are

- 2

- 4

- 6

- 8

Correct Answer: 8

22. Glacial acetic acid freezes to ice like solid at

- 80C

- 250C

- 390C

- 170C

Correct Answer: 170C

23. C17H35COO–Na+ is sodium salt of a \_\_\_\_\_\_\_\_

- Adipic acid

- Oleic acid

- Stearic acid

- Palmitic acid

Correct Answer: Stearic acid

24. The general formula of aliphatic carboxylic acid is

- (CH2O)n

- (C6H10O5)n

- CnH2nO2

- CnH2nO

Correct Answer: CnH2nO2

25. Which one is aliphatic dicarboxylic acid

- Ethanoic acid

- Oxalic acid

- Benzoic acid

- Phthalic acid

Correct Answer: Oxalic acid

26. The solution of which acid is used for seasoning of food

- Formic acid

- Benzoic acid

- Acetic acid

- Butanoic acid

Correct Answer: Acetic acid

27. Acetic acid was first isolated from \_\_\_\_\_ which is dilute solution of acetic acid.

- Butter

- Vinegar

- Milk

- Red ant

Correct Answer: Vinegar

28. Butyric acid was first isolated from

- Butter

- Vinegar

- Milk

- Red ant

Correct Answer: Butter

29. The solubility of carboxylic acids \_with the increase in the no. of carbons and hydrogens.

- Increases

- Decreases

- un-affected

- First increases and then decreases

Correct Answer: Decreases

30. C17H35COO–Na+ is sodium salt of a fatty acid, its solubility is:

- Higher than fatty acid

- Lower than the fatty acid

- Completely soluble

- Not predictable

Correct Answer: Higher than fatty acid

31. C6H4( COOH)2 is the chemical formula of

- Palmitic acid

- stearic acid

- benzoic acid

- phthalic acid

Correct Answer: phthalic acid

32. Which of the followings is the oxalic acid?

- HCOOH

- CH3COOH

- (COOH)2

- CH2(COOH)2

Correct Answer: (COOH)2

33. A carboxylic acid contains

- Hyroxyl group

- carboxyl group

- hydroxyl & carboxyl group

- carboxyl & formyl group

Correct Answer: carboxyl group

34. Which of the following has maximum number of carbon atoms

- Succinic acid

- Adipic acid

- Oxalic acid

- Malonic acid

Correct Answer: Adipic acid

35. Only first four members of aliphatic acids are soluble in water due to:

- Hydrogen bonding

- Ion dipole

- Debye forces

- All of these forces

Correct Answer: Hydrogen bonding

36. Formic acid was first isolated from

- Butter

- Vinegar

- milk

- Red ant

Correct Answer: Red ant

37. Even carbon carboxylic acids have \_\_\_\_ melting point than the next lower and higher members having odd carbon atoms.

- Higher

- Lower

- Equal

- none of these

Correct Answer: Higher

38. C15H31COOH is the chemical formula of

- Palmitic acid

- stearic acid

- benzoic acid

- phthalic acid

Correct Answer: Palmitic acid

39. Acetic acid undergoes reduction with LiAlH4 to give:

- Ethanol

- Methanol

- Ethane

- Methane

Correct Answer: Ethanol

40. Ethanoic acid reacts with methanol to give:

- Ethyl acetate

- Ethyl formate

- Methyl acetate

- Methyl ethyl ether

Correct Answer: Methyl acetate

41. 2-Hydroxylpropanoic acid is called\_\_\_and 2,3-Dihydroxybutandioic acid is called\_\_\_.

- Oxalic acid, Maleic acid

- lactic acid, tartaric acid

- citric acid, aspartic acid

- None of these

Correct Answer: lactic acid, tartaric acid

42. Which of the following will give positive bromine water test:

- Malonic acid

- Succinic acid

- Oxalic acid

- Maleic acid

Correct Answer: Maleic acid

43. The reactivity of carboxylic acids is due to the presence of \_\_\_\_group.

- Carbonyl group

- hydroxyl group

- ester group

- Both A and B

Correct Answer: Both A and B

44. An aqueous solution of an organic compound reacts with Na2CO3 to produce CO2 gas. The organic compound is

- CH2 = CH – CH3

- CH3CHO

- CH3COOC2H5

- CH3 – CH2 – COOH

Correct Answer: CH3 – CH2 – COOH

45. Carboxylic acids yields\_\_\_\_ on reaction with alcohols in the presence of conc. H2SO4.

- Ester

- aldehyde

- ketone

- alcohols

Correct Answer: Ester

46. The derivative of carboxylic acid is

- Acid chloride (CH3COCl)

- acid amide (CH3CONH2)

- ester

- all of these

Correct Answer: all of these

47. When a carboxylic acid is protonated, protonation occurs at:

- Hydroxyl oxygen atom

- Carbonyl oxygen atom

- Hydroxyl hydrogen atom

- Carbonyl carbon atom

Correct Answer: Carbonyl oxygen atom

48. Which acid is used in the manufacture of synthetic fiber?

- Formic acid

- oxalic acid

- carbonic acid

- acetic acid

Correct Answer: acetic acid

49. Which reagent is used to reduce a carboxylic acid to an alkane?

- H2 / Ni

- HI / P

- NaBH4

- LiAlH4

Correct Answer: HI / P

50. Organic compounds having fruity smell are

- Alcohols

- Carboxylic acids

- Ethers

- Esters

Correct Answer: Esters

51. Which of following is cannot be directly prepared from acetic acid:

- Acetamide

- Acetic anhydride

- Ethyl acetate

- Acetyl chloride

Correct Answer: Acetamide

52. All proteins yield \_\_\_\_\_\_\_\_\_\_\_\_\_\_ upon complete hydrolysis

- Ketones

- Amino acid

- Carbohydrates

- Alcohols

Correct Answer: Amino acid

53. The three dimensional twisting and folding of polypeptide chain results in:

- Primary structure

- Secondary structure

- Tertiary structure

- Quaternary structure

Correct Answer: Tertiary structure

54. The molecular weight of protein is

- > 1000 amu.) < 1000 amu.

- < 1000 amu.

- > 10000 amu.

- < 10000 amu.

Correct Answer: > 10000 amu.

55. Which of following is / are examples of simple protein.

- Polypeptide

- Collagen and albumin

- Phospo proteins

- Peptones

Correct Answer: Collagen and albumin

56. The enzyme which can catalyze the conversion of glucose to ethyl alcohol is

- Zymase

- `  
 Invertase

- Urease

- Maltase

Correct Answer: Zymase

57. Glucoseis converted into ethanol by the enzyme

- Zymase

- Invertase

- Urease

- Diastase

Correct Answer: Zymase

58. Which enzyme is used to catalyze the addition of ammonia, water or carbon dioxide to double bond

- Phospho-transferase

- Phospho-glyceromutases

- Fumarase

- Succinic thiokinase

Correct Answer: Phospho-glyceromutases

59. Enzyme used for conversion of starch to glucose and glucose to ethanol are

- Invertase + Diastase

- Zymase + Invertase

- Invertase + Zymase

- Diastase + Zymase

Correct Answer: Diastase + Zymase

60. Which one of the following statements is incorrect?

- Enzymes are protein in nature

- Enzymes can act as a catalyst

- Enzymes can catalyze any reaction

- Urease is an enzyme

Correct Answer: Enzymes can catalyze any reaction

# Force & Motion

1. The rate of change of momentum of a freely falling body is equal to its:

- Mass

- Acceleration

- Weight

- Velocity

Correct Answer: Weight

2. If the initial speed of a projectile is doubled.

- Its range will double

- Its range will be decreased by a factor of two

- Its range will quadruple

- Its range will decrease by a factor of four

Correct Answer: Its range will quadruple

3. If the time of flight of projectile is doubled its height becomes

- Doubled

- 4times

- Unchanged

- Halved

Correct Answer: 4times

4. Two similar spheres, each of mass m and traveling with speed v, are moving towards each other   
>  
The spheres have a head-on elastic collision. Which statement is correct?

- The spheres stick together on impact.

- The total kinetic energy before impact is zero

- The total kinetic energy after impact is mv2

- The total momentum before impact is 2mv.

Correct Answer: The total kinetic energy after impact is mv2

5. A body is moving in a circular path with a constant speed, it has

- A constant velocity

- A constant acceleration

- An acceleration of constant magnitude

- An acceleration which varies with time

Correct Answer: An acceleration of constant magnitude

6. The slope of the velocity time graph for retarded motion is

- Zero

- Positive

- Negative

- Neutral

Correct Answer: Negative

7. A mass is projected at angle q in air. Which of given statement is correct?

- Its momentum remain constant

- Its energy remain constant

- Velocity become zero at maximum height

- Acceleration become zero at maximum height

Correct Answer: Its energy remain constant

8. Forces in nature always occur in

- Pairs

- Singlet form

- Triplet form

- Octet form

Correct Answer: Pairs

9. At which point for a projectile its kinetic energy is completely converted into potential energy

- at point of projection

- at the highest point

- point to hit the ground

- not possible

Correct Answer: not possible

10. An athlete complete half a round of a circular track of radius R. The displacement covered is

- R

- 2  
R  
"

- 2R

- Zero

Correct Answer: 2R

11. A baseball is thrown vertically into the air. The acceleration of the ball at its highest point is:

- Zero

- g, up

- g, down

- 2g, down

Correct Answer: g, down

12. What is meant by ballistic trajectory?

- The paths followed by an un-powered and unguided projectile

- The paths followed by an powered and unguided projectile

- The paths followed by an powered and guided projectile

- The paths followed by an un-powered but guided projectile

Correct Answer: The paths followed by an un-powered and unguided projectile

13. Angle between  
r  
→  
×  
F  
→  
” and  
−  
F  
→  
×  
r  
→  
” is

- 0o

- 45o

- 180o

- None

Correct Answer: 0o

14. In the case of a projectile fired at an angleequally inclined to the horizontal and vertical with velocity v, the horizontalrange is

- v  
2  
g  
"

- v  
2  
2g  
"

- v  
2  
3g  
"

- v  
2  
4g  
"

Correct Answer: v  
2  
g  
"

15. Force is measured according to which law of motion

- 1st

- 2nd

- 3rd

- All

Correct Answer: 2nd

16. The magnitude of instantaneous velocity is expressed by

- v  
i  
n  
s  
=  
lim  
Δ  
t  
→  
0  
Δ  
t  
Δ  
d  
"

- v  
i  
n  
s  
=  
lim  
Δ  
d  
→  
0  
Δ  
d  
Δ  
t  
"

- v  
i  
n  
s  
=  
lim  
Δ  
d  
→  
0  
Δ  
t  
Δ  
d  
"

- v  
i  
n  
s  
=  
lim  
Δ  
t  
→  
0  
Δ  
d  
Δ  
t  
"

Correct Answer: v  
i  
n  
s  
=  
lim  
Δ  
t  
→  
0  
Δ  
d  
Δ  
t  
"

17. A graph is drawn with force along Y-axis andtime along X-axis. The area under the graph represents

- Momentum

- Couple

- Momentum of the force

- Impulse of the force

Correct Answer: Impulse of the force

18. If velocity of moving object is doubled its K.E will be

- Double

- 6 times

- 4 times

- 5 times

Correct Answer: 4 times

19. The d-t graphs for two bodies A & B are shown, the ratio  
V  
A  
V  
B  
” is  
>

- 1  
3  
"

- 3  
"

- 3

- 1  
3  
"

Correct Answer: 1  
3  
"

20. A train takes 1 hour to go from one station to the other. It travels at a speed of 30 kmh–1 for first half hour and at a speed of 50 kmh–1 for the next half hour. The average speed of the train is:

- 45 kmh–1

- 35 kmh–1

- 40 kmh–1

- 30 kmh-1

Correct Answer: 40 kmh–1

21. A baseball is hit straight up and is caught by the catcher 2.0 s later. The maximum height of the ball during this interval is:

- 4.9 m

- 7.4 m

- 9.8 m

- 12.6 m

Correct Answer: 4.9 m

22. A body moves a distance of5 m along a straight line under the action of a force of 10 N. if the work doneis 25 J, then the angle which the force makes with the direction of motion ofthe body is

- 0o

- 30o

- 60o

- 90o

Correct Answer: 60o

23. The position of a particlemoving along the x-axis at certain times is given below  
>  
Which of the followingdescribes the motion correctly?

- Uniform, decelerated

- Uniform, accelerated

- Non-uniform, accelerated

- none of these

Correct Answer: Uniform, accelerated

24. Displacement time graph of a ball thrown vertically upward is shown in figure then its v-t graph is  
>

- >

- >

- >

- >

Correct Answer: >

25. Inertia of a body has direct dependence on

- velocity

- volume

- mass

- density

Correct Answer: mass

26. A person can throw a stone to maximum distance of 80m the greatest height to which he can throw the stone is

- 100 m

- 80 m

- 50 m

- 20 m

Correct Answer: 20 m

27. A 500 kg car takes a round turn of radius 50 m with a velocity of 36 km/hr. The centripetal force is

- 250 N

- 750 N

- 1000 N

- 1200 N

Correct Answer: 1000 N

28. The displacement time graph for a moving particle is given below. The instantaneous velocity of the particle is negative at the point.>

- D

- F

- C

- E

Correct Answer: E

29. A baseball is thrown vertically into the air. The acceleration of the ball at its highest point is:

- zero

- g, down

- g, up

- 2g, down

Correct Answer: g, down

30. Which of the following velocity-time graphs represents infinite acceleration?

- straight line normal to the time-axis

- straight line parallel to the time-axis

- straight line inclined to the time-axis at an angle of 45°

- straight line inclined to the time-axis at an angle of 135

Correct Answer: straight line normal to the time-axis

31. A body, whose momentum is constant, must have constant

- Force

- Velocity

- Acceleration

- All of these

Correct Answer: Velocity

32. Anobject is projected up wards with velocity of 100 m/sec. it will strike theground in approximately (g=10 m/sec2)

- 10 sec

- 20 sec

- 15 sec

- 5 sec

Correct Answer: 20 sec

33. A cyclist riding at a speed of 5m/sec braked with uniform deceleration and stopped in 3m. The acceleration is

- 2.16m/sec2

- – 2.16m/sec2

- 4.16m/sec2

- – 4.16m/sec2

Correct Answer: – 4.16m/sec2

34. A particle at rest suddenly disintegrates into two particles of equal masses which start moving. The two fragments will.

- Move opposite with unequal speeds

- Move in same direction with equal speeds

- Move in any direction with any speed

- Move opposite with equal speed

Correct Answer: Move opposite with equal speed

35. A projectile is projected with kinetic energy (K.E). If it has the maximum possible horizontal range, then its kinetic energy at the highest point will be:

- K.E

- 0.75 K.E

- 0.5 K.E

- 0.25 K.E

Correct Answer: 0.5 K.E

36. A force of 5F acts on a body of mass 30 kg producing acceleration 50 m/s2. If 2F force acts on a body of mass M it produces acceleration 60 ms–2. What is mass M

- 10 kg

- 20 kg

- 30 kg

- 40 kg

Correct Answer: 10 kg

37. A body is projected from a point with different angles of projections 20°, 35°, 45°, 60° with the horizontal but with same initial speed. Their respective horizontal ranges are R1, R2, R3 and R4. Identify the correct order in which the horizontal ranges are arranged in increasing order

- R1, R4, R2, R3

- R1, R2, R4, R3

- R2, R1, R4, R3

- R4, R1, R2, R3

Correct Answer: R1, R4, R2, R3

38. The horizontal component of velocity of projectile moving with initial velocity of 500m/s at an angle 60° with x-axis is

- 500m/s

- 250m/s

- 1000m/s

- zero

Correct Answer: 250m/s

39. A pendulum of mass m and length l vibrate. The maximum torque in pendulum is at

- Mean position

- Extreme position

- All position torque is same

- None of these

Correct Answer: Extreme position

40. Which of the following pair has same direction always?

- Force, displacement

- Force, velocity

- Force, acceleration

- Force, momentum

Correct Answer: Force, acceleration

41. The range of a particle when launched at an angle of 15o with the horizontal is 1.5 km. what is the range of projectile when launched at an angle of 45o to the horizontal:

- 1.5 km

- 3.0 km

- 6.0 km

- 0.75 km

Correct Answer: 3.0 km

42. A child starts from rest at the top of a slides of height 4.0m. What is his speed at the bottom of slide is frictionless?

- 8.8 ms–1

- 10 ms–1

- 6.8 ms–1

- 5 ms–1

Correct Answer: 8.8 ms–1

43. Imran travels 2m with speed v1 and then 2m with speed v2, his average speed is:

- v  
1  
+  
v  
2  
2  
"

- v  
1  
v  
2  
2  
"

- v  
1  
v  
2  
v  
1  
+  
v  
2  
"

- 2  
v  
1  
v  
2  
v  
1  
+  
v  
2  
"

Correct Answer: 2  
v  
1  
v  
2  
v  
1  
+  
v  
2  
"

44. For range to have maximum value, the function sin2θ should have value:

- 90

- 45

- 1

- 0

Correct Answer: 1

45. A bullet is fired horizontally from a rifle at adistant target. Ignoring the effect of air resistance, which of the followingis correct?

- Horizontal Vertical  
 Acceleration Acceleration  
 10 ms–2 10 ms–2

- Horizontal Vertical  
Acceleration Acceleration  
10 ms–2 0ms–2

- Horizontal Vertical  
Acceleration Acceleration  
0 ms–2 10 ms–2

- Horizontal Vertical  
Acceleration Acceleration  
0 ms–2 0 ms–2

Correct Answer: Horizontal Vertical  
Acceleration Acceleration  
0 ms–2 10 ms–2

46. The rate of change in momentum is called

- Force

- Torque

- Distance

- Time

Correct Answer: Force

47. The area between velocity time graph and the time axis is numerically equal to

- speed of object

- average velocity of the object

- distance covered by the object

- acceleration of the object

Correct Answer: distance covered by the object

48. Fuel-mass is how much percentage of thelaunch-mass of a rocket?

- 50%

- 80%

- 95%

- 10%

Correct Answer: 80%

49. Momentum has same direction as that of the direction of

- Force

- Velocity

- Impulse

- Both impulse and velocity

Correct Answer: Velocity

50. A 70 g ball collides with another ball of mass 140 g. The initial velocity of the first ball is 9 ms-1 to the right while the second ball is at rest. If the collision were perfectly elastic; what would be the velocity of the two balls in ms–1 after the collision?

- –3, 6

- 3, 7

- 6, –3

- –7, 3

Correct Answer: –3, 6

51. A force time graph for a linear motion is shown in figure, where the segments are circular, the linear momentum gained between zero and 8 second is>

- −  
2  
π  
N  
s  
"

- 0  
N  
s  
"

- 4  
π  
N  
s  
"

- −  
6  
π  
N  
s  
"

Correct Answer: 0  
N  
s  
"

52. Angular acceleration is produced by

- Momentum

- Torque

- Angular momentum

- Force

Correct Answer: Torque

53. If body is falling freely, distance covered in 3 second is (g = 10ms-2)

- 45m

- 90m

- 54m

- 25m

Correct Answer: 45m

54. At which angle range of projectile will be half of its maximum value.

- 15°

- 60°

- 30°

- 90°

Correct Answer: 15°

55. A handball is tossed vertically upward with a velocity of 19.6 meters per second.Approximately how high will it rise?

- 15m

- 20m

- 25m

- 30m

Correct Answer: 20m

56. Time of flight of projectile is:

- v  
i  
sin  
θ  
g  
"

- 2  
v  
i  
sin  
θ  
g  
"

- v  
i  
sin  
2  
θ  
g  
"

- v  
i  
2  
g  
"

Correct Answer: 2  
v  
i  
sin  
θ  
g  
"

57. A ball is in free fall. Its acceleration is:

- Downward during both ascent and descent

- Downward during ascent and upward during descent

- Upward during both ascent and descent

- Upward during ascent and downward during descent

Correct Answer: Downward during both ascent and descent

58. A racing car accelerates with following average speeds 5ms–1 for 6 sec, 10 ms–1 for 2 sec, 15ms–1 for 2 sec what is overall average speed of car

- 5ms–1

- 6ms–1

- 8ms–1

- 7ms–1

Correct Answer: 8ms–1

59. Displacement time graph is shown in figure below acceleration will be  
>

- 5 ms–2

- 2.5 ms–2

- 10 ms–2

- 0

Correct Answer: 0

60. An object of mass 100 g is falling freely under gravity. Consider there is no air friction, then after 2 s, net force on it become

- 1 N

- 98 N

- 9.8 N

- Zero

Correct Answer: 1 N

# 2-Work & Energy

1. Force 10 N acts through a distance 20m. The force is then increased to 30 N and thenacts through a further distance 40 m. Calculate the work done

- 1200 J

- 1400 J

- 200 J

- 1500 J

Correct Answer: 1400 J

2. The P.E gained by projectile when it reaches at maximum height is expressed by equation

- K.Ei cos2 "  
θ  
" >

- K.Ei tan "  
θ  
" >

- K.Ei sin2 "  
θ  
" >

- K.Ei cot "  
θ  
" >

Correct Answer: K.Ei sin2 "  
θ  
" >

3. Work done by gravity when P.E of body is increased is

- Positive

- Zero

- Negative

- Both positive and negative

Correct Answer: Negative

4. Due to application of 5 N force an object moves 10 meter along perpendicular direction of the force. What amount work is done?

- 50 Joule

- 15 Joule

- 5 Joule

- 0 Joule

Correct Answer: 0 Joule

5. A spherical ball of mass 20 kg is stationary at the top of a hill of height 100 m. It rolls down a smooth surface to the ground and then climbs up another hill of height 30 m and finally rolls down to a horizontal base at a height of 20 m above the ground. The velocity attained by the ball is

- 40 ms–1

- 20 ms–1

- 10 ms–1

- "  
10  
30  
" > ms–1

Correct Answer: 40 ms–1

6. The relation between horse power and watt is

- 1 hp = 546 watts

- 1 hp = 746 watts

- 1 hp = 1000 watts

- 1 hp = 946 watts

Correct Answer: 1 hp = 746 watts

7. On an object the work done does not depend upon:

- Displacement

- Angle between force and displacement

- Force applied

- Initial velocity of an object

Correct Answer: Initial velocity of an object

8. A force of “  
3  
i  
^  
” >+ “  
4  
j  
^  
” > N displaces the body by “  
2  
i  
^  
” > + “  
3  
j  
^  
” > m work done by force is

- 18J

- -18J

- 12J

- 20J

Correct Answer: 18J

9. Force 100N is applied on a wire produces extension 5mm in it. Energy stored in it is

- 0.125 J

- 0.250 J

- 0.50 J

- 1 J

Correct Answer: 0.250 J

10. A body moving with velocity v has momentum p and K.E numerically equal. The value of v is:

- 1m s-1

- 2m s-1

- 3m s-1

- 0.5m s-1

Correct Answer: 2m s-1

11. The power of the engine which accelerates a car of mass 800 kg to a speed of 72km/hr from rest in 32 s is:

- 10 kW

- 15 kW

- 20 kW

- 5 kW

Correct Answer: 5 kW

12. One mega watt hour is equal to:

- 3.6 × 106 J

- 3.6 × 108 J

- 3.6 × 1012 J

- 3.6 × 109 J

Correct Answer: 3.6 × 109 J

13. A particle moves with “  
V  
→  
=  
i  
^  
+  
3  
j  
^  
+  
2  
k  
^  
ms  
–  
1  
” > under “  
F  
→  
=  
3  
i  
^  
+  
3  
j  
^  
+  
2  
k  
^  
” > N. the power applied

- 20 Js-1

- 14 Js-1

- 18 Js-1

- 16 Js-1

Correct Answer: 16 Js-1

14. In the presence of air friction, the relation for free falling body is

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
−  
f  
h  
" >

- "  
m  
g  
h  
=  
f  
h  
−  
1  
2  
m  
v  
2  
" >

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
h  
" >

- "  
m  
g  
h  
=  
f  
g  
+  
1  
2  
m  
v  
2  
" >

Correct Answer: "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
h  
" >

15. A boy is sitting on a swing at a maximum height of 5m above the ground. When the swing passes through the mean position which is 2m above the ground its velocity is approximately  
>

- 7.6 m/s

- 6.26 m/s

- 9.8 m/s

- None of these

Correct Answer: 7.6 m/s

16. A bicycle dynamo is started at time zero. Thetotal energy transformed by the dynamo during the first 5 seconds increases asshown in the graph>  
What is the maximum powergenerated at any instant during these first 5 second?

- 0.10 W

- 0.30 W

- 0.13 W

- 0.50 W

Correct Answer: 0.30 W

17. The amount of work required to stop a moving object is equal to:

- the velocity of the object

- the kinetic energy of the object

- the mass of the object times its acceleration

- the mass of the object times its velocity

Correct Answer: the kinetic energy of the object

18. When the force retards the motion of body the work done is

- 0

- +Ve

- – Ve

- Depend

Correct Answer: – Ve

19. A ball of mass 0.2 kg is thrown vertically upwards by applying a force by hand. If the hand moves 0.2 m which applying the force and the ball goes upto 2 m height further, find the magnitude of the force. Consider g = 10 m/s 2

- 22N

- 16N

- 20N

- 4N

Correct Answer: 20N

20. If K.E of two particles is in ratio 2:1 and their momentum in ratio 4:1. What isthe ratio of their masses

- 2:1

- 1:2

- 8:1

- 1:8

Correct Answer: 8:1

21. A force F acting on an object varies with distance x as shown here. The force is in N and x in m. The work done by the force in moving the object from x = 0 to x = 6 m is:  
>

- 18.0 J

- 13.5 J

- 4.5 J

- 9.0 J

Correct Answer: 13.5 J

22. The input power to a motor is 300 W. In 20s it lifts a load of 400 N through a height of 6.0 m. What is the efficiency of the motor?

- 12%

- 40%

- 25%

- 75%

Correct Answer: 40%

23. Work done in case of circular motion is?

- maximum

- minimum

- zero

- depend on radius

Correct Answer: zero

24. Two bodies of masses 2m and 1m have their K.E. in the ratio 8 : 1, then their ratio of momenta is:

- 1 : 1

- 2 : 1

- 4 : 1

- 8 : 1

Correct Answer: 4 : 1

25. Three bricks each of mass m & thickness h placed are on floor. Work done to place them over each other is:

- 2 mgh

- 4 mgh

- 3 mgh

- 6 mgh

Correct Answer: 3 mgh

26. The work done by force “ “  
F  
→  
” >” in figure shown is  
>

- Fd cos "  
θ  
" >

- Fd tan "  
θ  
" >

- Fd sin "  
θ  
" >

- Fd cot "  
θ  
" >

Correct Answer: Fd sin "  
θ  
" >

27. Rate of doing work is known as:

- 1mpulse

- Momentum

- power

- torque

Correct Answer: power

28. Which of the followingsources of energy is nonrenewable?

- Coal

- Uranium

- Tar sand

- All of these

Correct Answer: All of these

29. A crane can raise a body of mass 120kg vertically upward with a speed of 4.5 ms-1. What is the power of its engine?

- 5.3 kW

- 6.3 kW

- 7.3 kW

- 8.3 kW

Correct Answer: 5.3 kW

30. Energy time graph is shown in Fig. Power delivered is:  
>

- 2.5 W

- 5 W

- 0.2 W

- 0.5 W

Correct Answer: 5 W

31. Two electrons are brought closer together. The potential energy of the system will be

- Zero

- Less

- More

- Infinity

Correct Answer: More

32. When two bodies collide elastically then the quantity conserved is

- Kinetic energy

- Momentum

- Both

- None

Correct Answer: Both

33. A body moves a distance of 10 m along a straight line under the action of a force of 5 N. If the work done is 25 joules, the angle which the force makes with the direction of motion of the body:

- 0°

- 30°

- 60°

- 90°

Correct Answer: 60°

34. Mathematical form of work energy principle is:

- "  
F  
d  
=  
1  
2  
m  
v  
i  
2  
−  
1  
2  
m  
v  
f  
2  
" >

- "  
F  
d  
=  
1  
2  
m  
v  
f  
−  
1  
2  
m  
v  
i  
" >

- "  
F  
d  
=  
1  
2  
m  
v  
f  
2  
−  
1  
2  
m  
v  
i  
2  
" >

- "  
F  
d  
=  
1  
2  
m  
v  
f  
2  
+  
1  
2  
m  
v  
i  
2  
" >

Correct Answer: "  
F  
d  
=  
1  
2  
m  
v  
f  
2  
−  
1  
2  
m  
v  
i  
2  
" >

35. A toy car moves of mass 5kg up a ramp under the influence of force F plotted against displacement. The maximum height attained is given by >

- "  
y  
max  
=  
20  
m  
" >

- "  
y  
max  
=  
15  
m  
" >

- "  
y  
max  
=  
10  
m  
" >

- "  
y  
max  
=  
5  
m  
" >

Correct Answer: "  
y  
max  
=  
10  
m  
" >

36. Thenegative work done in the given diagram is  
>

- 4J

- –3 J

- 3J

- 12J

Correct Answer: –3 J

37. 1 horsepower is equal to

- 746kW

- 746MW

- 746W

- none

Correct Answer: 746W

38. A force of “  
2  
i  
^  
−  
3  
j  
^  
” >N give displacement of “  
2  
i  
^  
” > the work done is:

- 4

- -6

- -4

- 4

Correct Answer: 4

39. A force of “  
3  
i  
^  
+  
2  
j  
^  
+  
4  
k  
^  
” > N gives displacement “  
2  
j  
^  
−  
3  
j  
^  
+  
5  
k  
^  
” > m work done is

- 20J

- 32J

- 26J

- Zero

Correct Answer: 20J

40. A body of 5N falls through 0.25m height its K.E will be:

- 1.25J

- 12.5J

- 125J

- 0.125J

Correct Answer: 1.25J

41. How much time will be required to perform 520 J of work at the rate of 20 W?

- 24 s

- 20 s

- 16 s

- 26 s

Correct Answer: 26 s

42. A light and a heavy body have equal kinetic energy. Which of the following has agreater momentum?

- The heavy body

- The light body

- Both

- Cannot be said

Correct Answer: The heavy body

43. Slope of work time graph is equal to

- displacement

- acceleration

- power

- energy

Correct Answer: power

44. An automobile of mass m is at the top of an incline plane h(m) high and d(m) long, is released and rolls down the hill. If f is frictional force then which of given correctly relate P.Eloss and K.Egain

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
−  
f  
h  
" >

- "  
m  
g  
h  
−  
f  
h  
=  
1  
2  
m  
v  
2  
" >

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
d  
" >

- "  
m  
g  
d  
=  
1  
2  
m  
v  
2  
+  
f  
h  
" >

Correct Answer: "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
d  
" >

45. A person of mass 60kg carries a 15kg body on the top of building 10m high in 5 minutes. He puts a power in carrying the body.

- 10W

- 30W

- 5W

- 15W

Correct Answer: 5W

46. In a certain situation, “  
F  
→  
” > and “  
S  
→  
” > are not equal to zero but the work done is zero. From this, we conclude that

- "  
F  
→  
" > and "  
S  
→  
" > are in the same directions

- "  
F  
→  
" > and "  
S  
→  
" > are in the oppositedirections

- "  
F  
→  
" > and "  
S  
→  
" > are at right angles

- "  
F  
→  
" > > "  
S  
→  
" >

Correct Answer: "  
F  
→  
" > and "  
S  
→  
" > are at right angles

47. What will be the speed of electron having an energy of 18.2 x 10-17 Joule?

- 1.9 x 1018

- 2 x 107

- 2.197 x 10-25

- None

Correct Answer: 2 x 107

48. A particle moves with “  
v  
→  
=  
−  
3  
j  
^  
+  
5  
i  
^  
+  
6  
k  
^  
ms  
–  
1  
” > Under “  
F  
→  
=  
10  
i  
^  
+  
10  
j  
^  
+  
20  
k  
^  
” class=”k-editor-image-auto”> N. the power applied:

- 200 Js-1

- 40 Js-1

- 170 Js-1

- 140 Js-1

Correct Answer: 140 Js-1

49. Fig. shows F-x graph of a particle. The work done is:  
>

- 0 J

- 20 J

- 10 J

- 30 J

Correct Answer: 10 J

50. A force of 10N acts on a body moving with constant velocity for a distance of 10m. What is the work done by friction if body remains in equilibrium?

- 100J

- 0J

- –100J

- Can’t be predicted

Correct Answer: –100J

51. What is the mathematical expression for the K.E of a body of mass m moving with speed v

- 2mv2

- "  
1  
2  
m  
v  
2  
" >

- "  
1  
2  
v  
2  
m  
" >

- "  
1  
2  
m  
v  
→  
.  
v  
→  
" >

Correct Answer: "  
1  
2  
m  
v  
→  
.  
v  
→  
" >

52. In the presence of air friction the relation for free falling body is

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
−  
f  
h  
" >

- "  
m  
g  
h  
=  
f  
h  
−  
1  
2  
m  
v  
2  
" >

- "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
h  
" >

- "  
m  
g  
h  
=  
f  
g  
+  
1  
2  
m  
v  
2  
" >

Correct Answer: "  
m  
g  
h  
=  
1  
2  
m  
v  
2  
+  
f  
h  
" >

53. For constant force, the shape of the graph between power and velocity will be:

- A circle

- A hyperbola

- A parabola

- A straight line

Correct Answer: A straight line

54. Which statement best represents the principle of conservation of energy?

- Energy cannot be used faster than it is created.

- The supply of energy is limited, so energy must be conserved.

- The total energy in a closed system is constant.

- The total energy input to a system is equal to the useful energy output.

Correct Answer: The total energy in a closed system is constant.

55. A car of mass 1000 kg moving on a horizontal road with a steady speed of 10 m/sec has total frictional force on it of 400 N. The power due to engine is

- 40 W

- 4000 W

- 400 W

- 20 W

Correct Answer: 4000 W

56. If the K.E of a particle is doubled its momentum will be:

- Quadrupled

- Doubled

- Remain same

- "  
2  
" > times

Correct Answer: "  
2  
" > times

57. The diagram shows the distance-time graph of a car.   
>  
The car is travelling along a straight road up a hill. Which quantity for the car is constant and greater than zero?

- acceleration

- gravitational potential energy

- kinetic energy

- resultant force

Correct Answer: kinetic energy

58. The momentum of a bodyhaving kinetic energy E is doubled. The new kinetic energy is

- E

- 4E

- 16E

- 32E

Correct Answer: 4E

59. An engine develops 10 kW power. How much time will it take to lift a mass of 200kgto a height 40 m

- 4s

- 5s

- 8s

- 10s

Correct Answer: 8s

60. A bomb of mass 30 kg at rest explodes into two pieces of masses 18 kg and 12 kg. The velocity of 18 kg mass is 6 ms–1. The KE of other mass is

- 324 J

- 486 J

- 256 J

- 524 J

Correct Answer: 486 J

# 3-Rotational and Circular Motion

1. The radius of geo-stationary orbit from the centerof earth

- 4.24 x 103 km

- 3.6 x 104 km

- 4.2 x 104 km

- 2.42 x 104 km

Correct Answer: 4.2 x 104 km

2. When a body moves in a circle , the angle between linear velocity “  
v  
¯  
” and angular “  
w  
¯  
” is:

- 180°

- 60°

- 90°

- 45°

Correct Answer: 90°

3. A string can withstand a tension of 25N. What is the greatest speed at which a body of mass 1 kg can be whirled in a horizontal circle using 1 m length of the string?

- 10ms-1

- 5ms-1

- 7.5ms-1

- 2.5ms-1

Correct Answer: 5ms-1

4. If a particle moves with uniform speed that its tangential acceleration will be:

- zero

- infinite

- constant

- none of these

Correct Answer: zero

5. A body is moving in a circular path with a constant speed, it has

- A constant velocity

- A constant acceleration

- An acceleration of constant magnitude

- An acceleration which varies with time

Correct Answer: An acceleration of constant magnitude

6. The distance of a planet from the sun is 5 times the distance between the earth and the sun. The time period of the planet is:

- 53/2years

- 52/3years

- 51/3years

- 51/2years

Correct Answer: 53/2years

7. The angular velocity of the second hand in a mechanical watch is

- "  
π  
60  
rad s  
-1  
"

- "  
π  
30  
rad s  
-1  
"

- "  
π  
120  
rad s  
-1  
"

- "  
π  
" rad s-1

Correct Answer: "  
π  
30  
rad s  
-1  
"

8. A geostationary satellite above equator of earth is at a height of:

- 36000 km

- 42300 km

- 30,000 km

- 27000 km

Correct Answer: 36000 km

9. A particle is moving along a circular path of radius ‘R’ with uniform speed of 1 ms–1, the time taken to complete 1 rotation is \_\_\_\_\_\_\_\_\_\_\_\_\_sec.

- "  
π  
" R

- 2 "  
π  
" R

- "  
π  
R  
2  
"

- 4 "  
π  
" R

Correct Answer: 2 "  
π  
" R

10. Radius of geostationary satellite is

- 4.23 × 106 km

- 4.23 × 104 km

- 4.23 × 105 km

- 4.23 × 103 km

Correct Answer: 4.23 × 104 km

11. In equation “  
a  
→  
=  
α  
→  
×  
r  
→  
” 90° is angle between

- "  
a  
→  
and  
α  
→  
"

- "  
r  
→  
and  
α  
→  
"

- "  
r  
→  
and  
a  
→  
"

- All of these

Correct Answer: All of these

12. A car is taking a turn on a level road. It may be thrown outwards because of the

- Reaction of the ground

- Friction force

- Weight

- Lack of centripetal force

Correct Answer: Lack of centripetal force

13. A body is rotating clockwise with decreasing angular velocity. Its angular acceleration is directed

- Into the plane of paper

- Out of the plane of paper

- Along the radius

- Along the tangent to the circle

Correct Answer: Out of the plane of paper

14. If a body of mass m is rotating in a circle of radius r with frequency of rotation “f” then centripetal force acting on it is

- "  
2  
π  
m  
r  
f  
"

- "  
4  
π  
2  
m  
r  
f  
"

- "  
4  
π  
2  
m  
r  
f  
2  
"

- "  
π  
2  
m  
r  
f  
2  
"

Correct Answer: "  
4  
π  
2  
m  
r  
f  
2  
"

15. If “  
r  
→  
=  
4  
i  
^  
” and “  
ω  
→  
=  
4  
j  
^  
” then “  
v  
→  
” is along

- +x–axis

- +z–axis

- –z–axis

- –y–axis

Correct Answer: –z–axis

16. When a body is whirled in a horizontal circle by means of a string the centripetal force is supplied by:

- Mass of a body

- Tension in the string

- Velocity of body

- Centripetal acceleration

Correct Answer: Tension in the string

17. Angular speed of second’s hand of mechanical watch in rad/min is

- "  
2  
π  
"

- "  
π  
12  
 "

- "  
π  
6  
"

- "  
π  
30  
"

Correct Answer: "  
2  
π  
"

18. A body revolved around the sun 27 times faster then the earth what is the ratio of their radii

- 1/27

- 1/4

- 1/9

- 1/3

Correct Answer: 1/9

19. Time taken by geostationary satellite to complete one rotation around earth is:

- 1 year

- 1 hour

- 1 day

- 84 min

Correct Answer: 1 day

20. A planet has half the mass of earth and half the radius. Compared to the acceleration due to gravity near the surface of earth, the acceleration of gravity near the surface of the other planet is.

- Twice as much

- One-fourth as much

- Half as much

- The same

Correct Answer: Twice as much

21. Torque due to centripetal force is

- Zero

- Infinity

- Negative

- Positive

Correct Answer: Zero

22. A ball of mass m and radius r is released in aviscous liquid. The value of its terminal velocity is proportional to

- "  
1  
r  
" only

- "  
m  
r  
"

- "  
m  
r  
1  
2  
"

- m only

Correct Answer: "  
m  
r  
"

23. 1 radian is equal to

- 57.3°

- >

- 53.7°

- Both A & B

Correct Answer: Both A & B

24. An angular ring with inner and outer radii R1 and R2 is rolling without slipping with a uniform angular speed. The ratio of the forces experienced by the two particles situated on the inner and outer parts of the ring , “  
F  
1  
F  
2  
” is

- 1

- "  
R  
2  
R  
1  
"

- "  
R  
1  
R  
2  
"

- "  
R  
2  
R  
1  
2  
"

Correct Answer: "  
R  
1  
R  
2  
"

25. Minimum velocity required to complete vertical circle is

- "  
r  
g  
"

- "  
3  
r  
g  
"

- "  
5  
r  
g  
"

- "  
8  
r  
g  
"

Correct Answer: "  
5  
r  
g  
"

26. The radius of orbit of a geostationary satellite depends upon:

- Mass of satellite and its time period

- Mass of satellite and mass of earth

- Mass of earth, mass of satellite and time period of satellite

- Mass of earth and time period of satellite

Correct Answer: Mass of earth and time period of satellite

27. 1 radian is equal to

- 57.3°

- "  
1  
2  
π  
r  
e  
v  
"

- 53.7°

- Both A & C

Correct Answer: Both A & C

28. The direction of linear velocity of body moving in a circle is

- along the axis of rotation

- along the tangent

- directed towards the center

- directed away from the center

Correct Answer: along the tangent

29. A cyclist turns around a curve at 15 miles/hour. If he turns at double the speed, the tendency to overturn is

- Doubled

- Quadrupled

- Halved

- Unchanged

Correct Answer: Quadrupled

30. A car of mass 1000 kg is moving with speed 72 km/h in a circular track of radius 100 m. The centripetal force acting on it is

- 4 N

- 40 N

- 400 N

- 4000 N

Correct Answer: 4000 N

31. A body is rotating in circle of radius r. Keeping period of rotation constant but radius is doubled (2r) then centripetal force become:

- Half

- Double

- Same

- Four times

Correct Answer: Double

32. Close orbiting satellitesorbit the earth at a height of

- 200 km

- 3600000 km

- 400 km

- 36000 km

Correct Answer: 400 km

33. Centripetal force may be equal to

- "  
m  
v  
2  
r  
"

- "  
p  
2  
m  
r  
"

- "  
p  
v  
r  
"

- All of these

Correct Answer: All of these

34. A stone is whirled in a vertical plane. The stone has

- radial acceleration only

- both radial and tangential accelerations

- tangential acceleration only

- neither radial nor tangential acceleration

Correct Answer: both radial and tangential accelerations

35. A wheel rotates with a constant angular velocity of 600 r.p.m. What is the angle through which the wheel rotates in one second?

- 5 "  
π  
" radian

- 15 "  
π  
" radian

- 20 "  
π  
" radian

- 10 "  
π  
" radian

Correct Answer: 20 "  
π  
" radian

36. One end of the string of length 1.0 m is tied to a body of mass 0.5 kg. It is whirled in a vertical circle as shown in figure below. If the angular frequency of the body is 4 rad s-1, what is the tension in the string when the body is at the topmost point A? Take g = 10 ms-2.  
>

- 3N

- 15N

- 13 N

- 18 N

Correct Answer: 3N

37. The relation between the linear velocity and angular velocity is.

- "  
ω  
→  
=  
r  
→  
×  
v  
→  
"

- "  
v  
→  
=  
r  
→  
×  
ω  
→  
"

- "  
v  
→  
=  
ω  
→  
×  
r  
→  
"

- "  
ω  
→  
=  
v  
→  
×  
r  
→  
"

Correct Answer: "  
v  
→  
=  
ω  
→  
×  
r  
→  
"

38. Direction of “  
'  
ω  
'  
” is

- Along "  
α  
"

- Along w

- Along axis of rotation

- No direction

Correct Answer: Along axis of rotation

39. A body rotating with angular velocity of 2 radian/s and linear velocity is also 2ms–1 , then radius of circle is:

- 1 m

- 4 m

- 0.5 m

- 2 m

Correct Answer: 1 m

40. A block of mass ‘m’ at the end of a string is whirled round in a verticle circle of radius r. The critical speed of the block at the top of its swing below which the string would slacken before block reaches top is:

- "  
2  
r  
g  
"

- "  
3  
r  
g  
"

- "  
r  
g  
"

- "  
5  
r  
g  
"

Correct Answer: "  
r  
g  
"

41. A fighter aircraft ismoving in a vertical plane. The minimum velocity at the highest point is (Given: r = radius of circle)

- "  
1  
2  
gr  
"

- "  
2  
g  
r  
"

- "  
g  
r  
"

- "  
3  
g  
r  
"

Correct Answer: "  
g  
r  
"

42. If a particle moves in a circle, making equal angles in equal time its velocity

- Remains constant

- Changes in magnitude only

- Changes in direction only

- Changes both in magnitude and direction

Correct Answer: Changes in direction only

43. The direction of theangular velocity vector is along

- The tangent to the circularpath

- The inward radius

- The outward radius

- The axis of rotation

Correct Answer: The axis of rotation

44. Which of given is correct formula of centripetal force

- "  
F  
→  
=  
m  
v  
2  
r  
r  
^  
"

- "  
F  
→  
=  
m  
r  
ω  
2  
r  
^  
"

- "  
F  
→  
=  
m  
v  
2  
r  
2  
r  
^  
"

- "  
F  
→  
=  
m  
r  
ω  
2  
−  
r  
^  
"

Correct Answer: "  
F  
→  
=  
m  
r  
ω  
2  
−  
r  
^  
"

45. A disc is rotating about an axis through its centre and perpendicular to its plane. A point p on the disc is twice as far from the axis as a point Q.  
At a given instant, what is the value of the linear velocity of “  
the linearr velocity of P  
the linear velocity of Q  
?  
” “  
the linearr velocity of P  
the linear velocity of Q  
?  
”   
“  
the linearr velocity of P  
the linear velocity of Q  
?  
”

- 4

- 2

- "  
1  
2  
"

- "  
1  
4  
"

Correct Answer: 2

46. The angle subtended by an arc equal to radius is:

- 1 rad

- 1 Revolution

- One degree

- All

Correct Answer: 1 rad

47. The rate of change of angular momentum of a body is equal to

- Impulsive force

- Applied force

- moment of inertia

- The applied torque

Correct Answer: The applied torque

48. The direction of centripetalforce is

- Towards velocity

- Towards centre

- Away from centre

- No direction

Correct Answer: Towards centre

49. A weight is suspended fromthe roof of a stationary lift by a spring balance. The balance reads 50g. ifthe cable supporting the lift breaks and the lift starts falling freely undergravity, the reading of the spring balance will be.

- 0 g

- 50 g

- 75 g

- 100 g

Correct Answer: 0 g

50. A point mass m is suspended from a light thread of length l, fixed at O, is whirled in a horizontal circle at constant speed as shown. From your point of view, stationary with respect to the mass, the forces on the mass are  
>

- >

- >

- >

- >

Correct Answer: >

51. A body is moving in a circular path withconstant speed. The magnitude of tangential and centripetal acceleration are

- Tangential Centripetal  
 rv2 0

- Tangential Centripetal  
 0 0

- Tangential Centripetal  
 0 v2/r

- Tangential Centripetal  
  
 "  
v  
2  
r  
               v  
2  
r  
"

Correct Answer: Tangential Centripetal  
 0 v2/r

52. Bending of starlight by theSun found in solar eclipse of 1919 was

- 1.745 degrees

- 1.745 minutes

- 1.745 seconds

- 1.745 radians

Correct Answer: 1.745 seconds

53. The gravitational force between two masses is 36 newtons. if the distance between the masses is tripled, the force of gravity will be

- The same

- 18N

- 9N

- 4N

Correct Answer: 4N

54. Period of geostationary satellite is

- 12 hrs

- 24 hrs

- 5 hrs

- 8 hrs

Correct Answer: 24 hrs

55. The rotational K.E of solid sphere is given byformula.

- "  
1  
4  
m  
v  
2  
"

- "  
3  
2  
m  
v  
2  
"

- "  
2  
5  
m  
v  
2  
"

- "  
1  
5  
m  
v  
2  
"

Correct Answer: "  
1  
5  
m  
v  
2  
"

56. A bucket filled with water is revolved in vertical circle of radius 4m. speed of bucket at highest point just to avoid fall of water is

- 2m s-1

- 4m s-1

- 2.5m s-1

- 2 "  
π  
" m s-1

Correct Answer: 2 "  
π  
" m s-1

57. Which of given is correctly related the orbital radius and period of rotation of satellite

- "  
T  
2  
∝  
r  
"

- "  
r  
2  
∝  
T  
"

- "  
r  
3  
∝  
T  
2  
"

- "  
r  
2  
∝  
T  
3  
"

Correct Answer: "  
r  
3  
∝  
T  
2  
"

58. If the earth shrinks to half the present radius , without any change in mass , then the duration of day and night becomes

- 24 hours

- 6 hours

- 12 hours

- 3 hours

Correct Answer: 6 hours

59. When a body is moving along a circular path it covers a certain angle in a giveninterval of time. Such type of motion is

- vibratory motion

- linear motion

- rotatory motion

- angular motion

Correct Answer: angular motion

60. A body is rotating in circle of radius r. Keeping period of rotation constant but radius is doubled (2r) then centripetal force become

- Half

- Double

- Same

- Four times

Correct Answer: Double

# 4-Wave

1. The velocity of sound in air is 332 ms–1. The length of a closed pipe whose frequency of second overtone is 332 Hz, will be:

- 0.51 m

- 0.75 m

- 1.25 m

- 1.75 m

Correct Answer: 0.75 m

2. In Standing Wave if l = l (length of string) the number of antinodes:

- 1

- 3

- 2

- 4

Correct Answer: 3

3. Water waves in the sea are observed to have a wavelength of 300 m and a frequency of 0.07 Hz. The speed of these waves is:

- 0.00021 m/s

- 2.1 m/s

- 21 m/s

- 210 m/s

Correct Answer: 21 m/s

4. Sonar is used to detect

- Depth of sea

- Location of submarine

- Under sea objects

- All of these

Correct Answer: All of these

5. If a string is fixed at both ends vibrates in “n” loops, then wave-length in term of length ” “  
l  
” ” of string is given by

- "  
n  
l  
2  
"

- "  
2  
l  
n  
"

- "  
l  
2  
n  
"

- "  
2  
l  
v  
"

Correct Answer: "  
2  
l  
n  
"

6. The frequency of an open organ pipe is f. If one end is closed then its fundamental frequency will be:

- "  
f  
2  
"

- "  
3  
f  
4  
"

- f

- 2f

Correct Answer: "  
f  
2  
"

7. When two identical traveling waves are superimposed, velocity of resultant wave

- decreases

- remains same

- increases

- becomes zero

Correct Answer: remains same

8. The wavelength of the sound produced by a source is 0.8m. If the source moves towards the stationary listener at 32 ms–1, what will be apparent wavelength of the sound? The velocity of sound is 320 ms–1.

- 0.80 m

- 0.72 m

- 0.40 m

- 0.32 m

Correct Answer: 0.72 m

9. A sound wave of frequency 400 Hz is travelling in a gas at a speed of 320 ms–1. What is the phase difference between two points 0.2 m apart in the direction of travel?

- "  
π  
4  
r  
a  
d  
"

- "  
π  
2  
r  
a  
d  
"

- "  
2  
π  
5  
r  
a  
d  
"

- "  
4  
π  
5  
r  
a  
d  
"

Correct Answer: "  
π  
2  
r  
a  
d  
"

10. Any point on a string carrying a wave is moving with its maximum speed when:

- the magnitude of its acceleration is a maximum

- the magnitude of its displacement is a maximum

- the magnitude of its displacement is a minimum

- the magnitude of its displacement is half the amplitude

Correct Answer: the magnitude of its displacement is a minimum

11. A tube closed at one end and containing air, produces, when excited, thefundamental note of frequency 512 Hz. If the tube is open at both ends, thefundamental frequency that can be excited is (in Hz)

- 1024

- 256

- 512

- 128

Correct Answer: 1024

12. Doppler Effect is used to monitor blood flow through major arteries by ultrasound waves of frequency.

- 5 Hz to 10 Hz

- 5 MHz to 10 MHz

- 5 kHz to 10 kHz

- 5 GHz to 10 GHz

Correct Answer: 5 MHz to 10 MHz

13. When a wave reflects from the boundary of densermedium, then in the reflected wave there will be

- No phase change

- 90o Phase change

- 180o phase change

- 270o phasechange

Correct Answer: 180o phase change

14. When a jet fighter movesfaster than air, a huge sound is produced called

- Big – bang

- Ultra-boom

- Sonic – boom

- Infra boom

Correct Answer: Sonic – boom

15. If the shift of wavelength of light emitted by a star is towards blue, then this shows that star is

- Stationary

- Moving towards earth

- Moving away from earth

- Information is incomplete

Correct Answer: Moving towards earth

16. A wall poster showing the electromagnetic spectrum is displayed in a laboratory.  
>  
A section of the electromagnetic spectrum has been accidentally ripped from this wall poster. Which piece is missing?

- >

- >

- >

- >

Correct Answer: >

17. Two wave of same frequencytraveling in opposite direction give

- Interference

- Beats

- Standing waves

- Echo

Correct Answer: Standing waves

18. When a wave moves through 10m, a point changes from crest to trough and time taken is 1s then wavelength of wave and its frequency are

- 20 m, 0.5 Hz

- 10 m, 1 Hz

- 0.5 Hz, 20 m

- 1 m, 10 Hz

Correct Answer: 20 m, 0.5 Hz

19. Radio waves of wavelength l are sent from RADAR towards an aeroplane. If the aeroplane is moving towards the RADAR station, the wavelength of the radio waves received after reflection from the aeroplane will be

- "  
λ  
"

- < "  
λ  
"

- "  
>  
λ  
"

- More or less than "  
λ  
" , depending on the speed of aeroplane

Correct Answer: < "  
λ  
"

20. A pipe has a length of 1m. Determine the frequencies of the fundamental and the first two harmonics if the pipe is open at both ends

- 85 Hz, 255 Hz, 425 Hz

- 170 Hz, 510 Hz, 850 Hz

- 85 Hz, 170 Hz, 255 Hz

- 170 Hz, 340 Hz, 510 Hz

Correct Answer: 170 Hz, 340 Hz, 510 Hz

21. The ratio of frequencies in a stretched string is:

- 1 : 2 : 3

- 1 : 3 : 5

- 2 : 4 : 6

- 3 : 2 : 1

Correct Answer: 1 : 2 : 3

22. Doppler shift in frequency does not depend upon

- The actual frequency of the wave

- The distance of the source from the listener

- The velocity of the source

- The velocity of the observer

Correct Answer: The distance of the source from the listener

23. Which waves are longitudinal?

- sound waves in water

- ultra-violet waves in air

- waves on the surface of water

- X-rays in a vacuum

Correct Answer: sound waves in water

24. With what speed an observer should move towards a stationary source such that apparent frequency is double the actual frequency (v is speed of sound waves)

- v

- 2v

- "  
v  
2  
"

- 4v

Correct Answer: v

25. Beats is an application of

- Diffraction

- Polarization

- Super-position

- Reflection

Correct Answer: Super-position

26. The ratio of frequencies in a stretched string is:

- 1 : 2 : 3

- 1 : 3 : 5

- 2 : 4 : 6

- 3 : 2 : 1

Correct Answer: 1 : 2 : 3

27. A source of frequency f sends waves of wavelength λ traveling with speed v in some medium. If the frequency is changed from f to 2f, then the new wavelength and new speed are (respectively):

- 2λ, v

- λ/2, v

- λ, 2v

- λ, v/2

Correct Answer: λ/2, v

28. Which of the following gives three regions of the electromagnetic spectrum in order of increasing wavelength?

- Gamma rays, microwaves, visible radiation

- Radio waves, ultra-violet, X-rays

- Ultra-violet, infra-red, microwaves

- Visible radiation, gamma rays, radio waves

Correct Answer: Ultra-violet, infra-red, microwaves

29. The speed of sound in air is 350 meter per second. The fundamental frequency of anopen pipe 50 cm long will be

- 175 Hz

- 700 Hz

- 350 Hz

- 50 Hz

Correct Answer: 350 Hz

30. If velocity of sound in air be 350 ms–1, then the fundamental frequency of an open pipe of length 100 cm is:

- 175 Hz

- 350 Hz

- 700 Hz

- 500 Hz

Correct Answer: 175 Hz

31. In Doppler effect if the source moves towards the observer, the spectral line are shifted towards the

- Blue end of spectrum

- Red end of spectrum

- Either end of the spectrum

- None of these

Correct Answer: Blue end of spectrum

32. In the stretched string if speed of the wave is doubled, the tension will be

- 2 times

- 8 times

- 4 times

- 6 times

Correct Answer: 4 times

33. The vibrations produced in prongs of the tuning fork are

- Transverse

- Stationary

- Longitudinal

- Electromagnetic

Correct Answer: Longitudinal

34. A stationary wave is established in a string which vibrates in four segments at a frequency of 120 Hz. Its fundamental frequency is

- 15Hz

- 60 Hz

- 30 Hz

- 480 Hz

Correct Answer: 30 Hz

35. In stationary waves when the anti nodes simultaneously through their equilibrium positions, the energy is wholly

- K.E

- P.E

- Heat energy

- none of these

Correct Answer: K.E

36. The waves produced by a motorboat sailing inwater are

- Transverse

- Longitudinal

- Longitudinal and transverse

- Stationary

Correct Answer: Longitudinal and transverse

37. The speed of a wave on a string depends on:

- the frequency of the wave

- the wavelength of the wave

- the area of the string

- the tension in the string

Correct Answer: the tension in the string

38. The velocity of sound in any gas depends upon

- Wave length of sound only

- Density and elasticity of gas

- Intensity of sound wavesonly

- Amplitude and frequency ofsound

Correct Answer: Density and elasticity of gas

39. Sound of maximum intensity is heard successively at an interval of 0.2 second on sounding two tuning forks together. What is the difference of frequencies of the two tuning forks?

- 5Hz

- 0.2Hz

- 2.5Hz

- 10Hz

Correct Answer: 5Hz

40. The distance between 1st node and 4th antinode is:

- "  
7  
4  
λ  
"

- "  
13  
λ  
4  
"

- "  
5  
λ  
4  
"

- "  
11  
λ  
4  
"

Correct Answer: "  
7  
4  
λ  
"

41. The speed of sound in air at NTP is 300 m s-1.If air pressure becomes four times, then the speed of sound will be

- 150 m s-1

- 300 m s-1

- 600 m s-1

- 1200 m s-1

Correct Answer: 300 m s-1

42. Four wires of identical lengths, diameters and materials are stretched on a sonometer box. The ratio of their tensions is 1 : 4 : 9 : 16. The ratio of their fundamental frequencies is

- 16 : 9 : 4 : 1

- 4 : 3 : 2 : 1

- 1 : 2 : 3 : 4

- 1 : 4 : 9 : 16

Correct Answer: 1 : 2 : 3 : 4

43. An observer with velocity “  
u  
o  
” is receding from a sound source of frequency f and wavelength “  
λ  
” then number of waves received in one second by the observer if speed of sound is v.

- "  
λ  
V  
−  
u  
o  
"

- "  
V  
−  
u  
o  
λ  
"

- "  
V  
V  
−  
u  
o  
f  
"

- "  
V  
V  
+  
u  
o  
f  
"

Correct Answer: "  
V  
−  
u  
o  
λ  
"

44. Two pipes, one is open, and other is closed at one end, having same length the ratio of their fundamental frequency is

- 1 : 2

- 3 : 1

- 2 : 1

- 4 : 1

Correct Answer: 2 : 1

45. A sitar wire vibrates with frequency of 330 vibrations per second. If its length is increased three times and tension is increased four times then the frequency of the wire will be

- 110 Hz

- 220 Hz

- 330 Hz

- 440 Hz

Correct Answer: 220 Hz

46. In strings, the position of antinodes are obtained at

- "  
λ  
,  
2  
λ  
,  
3  
λ  
"

- "  
0  
,  
λ  
2  
,  
λ  
"

- "  
2  
λ  
,  
4  
,  
6  
λ  
"

- "  
λ  
4  
,  
3  
λ  
4  
,  
5  
λ  
4  
"

Correct Answer: "  
λ  
4  
,  
3  
λ  
4  
,  
5  
λ  
4  
"

47. In a transverse wave the distance between a crest and a trough is equal to:

- "  
λ  
2  
"

- "  
λ  
4  
"

- "  
λ  
"

- 2 "  
λ  
"

Correct Answer: "  
λ  
"

48. A source of sound of frequency 500 Hz is moving towards an observer with velocity 30 ms–1. The speed of sound is 330 ms–1. The frequency heard by observer will be:

- 550 Hz

- 458.3 Hz

- 530 Hz

- 454.5 Hz

Correct Answer: 550 Hz

49. The sonometer wire is vibrating in the second overtone. We may say that there are

- Two nodes and two antinodes

- Four nodes and three antinodes

- One nodes and two antinodes

- Three nodes and three antinodes

Correct Answer: Four nodes and three antinodes

50. If a stretched-string is 4m and it has 4 loops of stationary waves, then wave length is

- 1m

- 3m

- 2m

- 4m

Correct Answer: 2m

51. In an open end pipe, first overtone is produced, when the length of pipe is

- "  
λ  
4  
"

- "  
λ  
2  
"

- "  
λ  
3  
"

- "  
λ  
"

Correct Answer: "  
λ  
"

52. The distance between two particles in a wave motion in the same phase is

- "  
λ  
4  
"

- "  
λ  
2  
"

- "  
3λ  
4  
"

- "  
λ  
"

Correct Answer: "  
λ  
"

53. If water waves oscillates up and down three times each second and distance betweenwaves crest is 2, what is its wave speed.

- 3m/s

- 1.5m/s

- 6m/s

- 9m/s

Correct Answer: 6m/s

54. When an aero plane move towards air port, then the frequency of reflected wave from the aeroplane received by radar

- Decreases

- Remain some

- Increases

- Become zero

Correct Answer: Increases

55. Stationary waves of fundamental frequency 50 Hzare produced in an organ pipe closed at one end. The distance betweena node and anti-node is (velocity of sound = 300 m/s)

- 6 m

- 2 m

- 3 m

- 1.5 m

Correct Answer: 1.5 m

56. Two pipes, one is open, and other is closed atone end, have same wavelength the ratio of their fundamental frequency is

- 1 : 2

- 2 : 1

- 3 : 1

- 4 : 1

Correct Answer: 2 : 1

57. The essential properties of a medium for the propagation of mechanical waves are

- Inertia and mass

- Elasticity only

- Inertia and elasticity

- Inertia only

Correct Answer: Inertia and elasticity

58. A whistle giving out 450 Hz approaches a stationary observer at a speed of 33 m/s. The frequency heard by the observer in Hz is (speed of sound = 330 m/s)

- 409

- 517

- 429

- 500

Correct Answer: 500

59. A source of sound of frequency 450 cycles/sec is moving towards a stationary observer with 34 m/sec speed. If the speed of sound is 340 m/sec, then the apparent frequency will be

- 410 cycles/sec

- 500 cycles/sec

- 550 cycles/sec

- 450 cycles/sec

Correct Answer: 500 cycles/sec

60. The length of a string is 1m, tension in it is 40N and mass of the string is 0.1 kg. Then the velocity of transverse waves produced in the string will be:

- 400 ms–1

- 180 ms–1

- 80 ms–1

- 20 ms–1

Correct Answer: 20 ms–1

# 5-Thermodynamiccs

1. Graph between pressure and temperature for an ideal gas at constant volume is

- Straight line

- Ellipse

- Parabola

- Sinusoidal

Correct Answer: Straight line

2. The speeds of 5 molecules of gas (in orbitrary units) are as follows.  
2, 3, 4, 5, 6  
The root mean square speed for these molecules is

- 2.91 ms–1

- 4.00 ms–1

- 3.52 ms–1

- 4.24 ms–1

Correct Answer: 4.24 ms–1

3. A system does 600J of work at the same time has its internal energy increased by 320J. How much heat has been supplied.

- 280 J

- 920 J

- 600 J

- 20 J

Correct Answer: 920 J

4. In Young's double slit experiment, the phase difference between the light waves reaching third bright fringe from the central fringe will be ( “  
λ  
” = 6000 Å)

- Zero

- 2π

- 4π

- 6π

Correct Answer: 6π

5. A gas is taken in a sealed container at 300 K. it is heated at constant volume to a temperature 600 K. the mean K.E. of its molecules is

- Halved

- Tripled

- Doubled

- Quadrupled

Correct Answer: Doubled

6. The state of an ideal gas was changed three times at three different temperatures. The diagram represents three different isothermal curves. Which of the following is true about the temperature of the gas?  
!vml]–>>

- T1 > T2 > T3

- T1 > T2 < T3

- T1 < T2 < T3

- T1 > T2 = T3

Correct Answer: T1 < T2 < T3

7. At the same temperature that mean kinetic energies of molecules of hydrogen and oxygen are in the ratio

- 1 : 1

- 1 : 16

- 8 : 1

- 16 : 1

Correct Answer: 1 : 1

8. A sample of an ideal gas taken through a closed cycle is presented by the P-V diagram. The process 1-2 is perfectly isothermal. Which of the following is true about the change in internal energy and work done by the gas during the process 1-2?   
>

- Δ U = 0 W by the gas > 0

- Δ U > 0 W by the gas = 0

- Δ U < 0 W by the gas < 0

- Δ U = 0 W by the gas = 0

Correct Answer: Δ U = 0 W by the gas > 0

9. In adiabatic expansion

- ΔU = 0

- ΔU = negative

- ΔU = positive

- ΔW = zero

Correct Answer: ΔU = negative

10. Which of the substances A, B, or C has the highest specific heat?  
>

- A

- B

- C

- All have equal specific heat

Correct Answer: C

11. Gas molecules of different masses in the same container have the same average transnational kinetic energy, which is directly proportional to

- Volume

- Pressure

- Absolute temperature

- Time

Correct Answer: Absolute temperature

12. The rms speed of molecules of a gas depends upon

- Pressure of gas

- Temperature of gas

- Density of gas

- All of these

Correct Answer: All of these

13. In the mass of all molecules of a gas are halved and their speed is doubled, then the ratio of their initial and final pressure is

- 1:4

- 4:1

- 1:2

- 2:1

Correct Answer: 1:2

14. Pressure exerted by a perfect gas is equal to

- Mean kinetic energy per unit volume

- Half of mean kinetic energy per unit volume

- One-third of mean kinetic energy per unit volume

- Two-thirds of mean kinetic energy per unit volume

Correct Answer: Two-thirds of mean kinetic energy per unit volume

15. The pressure of an ideal gas is doubled in an isothermal process. The root mean square speed of the molecules

- increases by a factor "  
2  
"

- decreases by a factor "  
2  
"

- increases by factor 2

- does not change

Correct Answer: does not change

16. The root mean square velocity for an ideal gas is (where the symbols have their used meanings).

- "  
V  
r  
m  
s  
=  
3  
M  
T  
R  
"

- "  
V  
r  
m  
s  
=  
3  
R  
T  
M  
"

- "  
V  
r  
m  
s  
=  
3  
R  
M  
T  
"

- "  
V  
r  
m  
s  
=  
3  
R  
M  
T  
"

Correct Answer: "  
V  
r  
m  
s  
=  
3  
R  
T  
M  
"

17. The expression for the absolute temperature T of an ideal gas is given by

- T = 3/2 k <1/2 m v2>

- T = 2/3 "  
N  
A  
R  
" <1/2 m v2>

- T = 2/3 k <1/2 m v2>

- T = 2/3 "  
R  
N  
A  
" <1/2 m v2>

Correct Answer: T = 2/3 "  
N  
A  
R  
" <1/2 m v2>

18. 110 Joules of heat are added to a gaseous system, whose internal energy is 40 J. The amount of external work done is

- 150 J

- 70 J

- 110 J

- 40 J

Correct Answer: 70 J

19. In an adiabatic process, “  
P  
V  
γ  
=  
” constant; the value ‘ “  
γ  
” ’ is

- "  
C  
v  
C  
p  
"

- "  
1  
−  
R  
C  
v  
"

- "  
R  
C  
v  
−  
1  
"

- "  
1  
+  
R  
C  
v  
"

Correct Answer: "  
1  
+  
R  
C  
v  
"

20. In which of the processes, internal energy of system remains constant?

- Adiabatic

- Isochoric

- Isobaric

- Isothermal

Correct Answer: Isothermal

21. The processes or systems that do not involve heat are called

- isothermal processes

- thermal processes

- equilibrium processes

- adiabatic processes.

Correct Answer: adiabatic processes.

22. According to kinetic energy of gases, root mean square (rms) velocity of a gas is directly proportional to:

- "  
T  
"

- T2

- T

- "  
1  
T  
"

Correct Answer: "  
T  
"

23. Average translational kinetic energy per molecule of an ideal gas is given by

- 3NAT/2 R

- 2NAT/3

- 3RT/2NA

- None

Correct Answer: 3RT/2NA

24. Which of the following is relation for Vrms

- "  
3  
P  
ρ  
"

- "  
3  
R  
T  
M  
"

- "  
3  
k  
T  
m  
"

- All

Correct Answer: All

25. At what temperature the kinetic energy of gas molecules will be double of its value at 27°C?

- 54°C

- 108°C

- 300°C

- 327°C

Correct Answer: 327°C

26. The specific at constant temperature is

- zero

- maximum

- minimum

- infinite

Correct Answer: infinite

27. Mean square velocity of five molecules of velocities 2 m/s, 3 m/s, 4 m/s, 5 m/s and 6 m/s is

- 10 m2/s2

- 20 m2/s2

- 18 m2/s2

- 15 m2/s2

Correct Answer: 18 m2/s2

28. Two containers are filled with diatomic hydrogen gas and diatomic oxygen gas. The gases have the same temperature. Compare the average speed of hydrogen molecules to the average speed of oxygen molecules.

- 1/16

- 1/4

- 16/1

- 4/1

Correct Answer: 4/1

29. A and B are two gases “  
T  
A  
M  
A  
=  
4  
T  
B  
M  
B  
” where T is the temperature and M is the molecular mass. If vA and vB are rms speeds, then “  
v  
A  
v  
B  
” will be:

- 2

- 4

- 0.5

- 0.25

Correct Answer: 2

30. The average molecular kinetic energy of a gas depends on:

- Pressure

- Volume

- Temperature

- Number of moles

Correct Answer: Temperature

31. The equation of state for 5 g of oxygen at a pressure P and temperature T, when occupying a volume V, will be

- PV = 5 RT

- "  
PV  
=  
5  
16  
RT  
"

- "  
P  
V  
=  
5  
2  
RT  
"

- "  
PV  
=  
5  
32  
RT  
"

Correct Answer: "  
PV  
=  
5  
32  
RT  
"

32. If a cylinder containing a gas at high pressure explodes, the gas undergoes

- Reversible adiabatic change and fall of temperature

- Reversible adiabatic change and rise of temperature

- Irreversible adiabatic change and fall of temperature

- Irreversible adiabatic change and rise of temperature

Correct Answer: Irreversible adiabatic change and fall of temperature

33. As Cp – Cv = R shows that Cp > Cv. What is also true?

- "  
∆  
T  
P  
>  
∆  
T  
V  
"

- "  
∆  
U  
P  
>  
∆  
U  
V  
"

- both A and B

- "  
∆  
U  
P  
=  
∆  
U  
V  
"

Correct Answer: "  
∆  
U  
P  
=  
∆  
U  
V  
"

34. Mass (m) of one molecule of a gas can be written as

- Molecular mass "  
×  
" NA

- "  
molecular mass  
N  
A  
"

- "  
N  
A  
molecular mass  
"

- Molecular mass + NA

Correct Answer: "  
molecular mass  
N  
A  
"

35. Two identical sample of a gas are allowed to expand (i) isothermally (ii) adiabatically. Work done is

- More in the isothermal process

- More in the adiabatic process

- Neither of them

- Equal in both processes

Correct Answer: More in the isothermal process

36. Estimatepressure of air molecules at 273K, if the mean square speed is 2>500m2/s2 and density of air under these conditions is6kg/m3:

- 2.5 "  
×  
" 102 Pa

- 1 "  
×  
" 103Pa

- 1 "  
×  
" 102 Pa

- 2.7 "  
×  
" 103 Pa

Correct Answer: 1 "  
×  
" 103Pa

37. A cycle tyre bursts suddenly. This represents an

- Isothermal process

- Isobaric process

- Isochoric process

- Adiabatic process

Correct Answer: Adiabatic process

38. The mean kinetic energy of one gram-mole of a perfect gas at absolute temperature T is

- "  
1  
2  
kT  
"

- "  
1  
3  
kT  
"

- "  
1  
2  
RT  
"

- "  
3  
2  
RT  
"

Correct Answer: "  
3  
2  
RT  
"

39. Which of the substances A, B, or C has the lowest specific heat?  
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- A

- B

- C

- All have equal specific heat

Correct Answer: A

40. In the diagrams (i) to (iv) of variation of volume with changing pressure is shown. A gas is taken along the path ABCDA. The change in internal energy of the gas will be  
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- Positive in all cases (i) to (iv)

- Positive in cases (i), (ii) and (iii) but zero in (iv) case

- Negative in cases (i), (ii) and (iii) but zero in (iv) case

- Zero in all four cases

Correct Answer: Zero in all four cases

41. According to the first law of thermodynamics, applied to a gas, the increase in the internal energy during any process:

- Equals the heat input minus the work done on the gas

- Equals the work done on the gas minus the heat input

- Equals the heat input plus the work done on the gas

- Is independent of the heat input

Correct Answer: Equals the heat input plus the work done on the gas

42. The correct relation connecting the universal gas constant (R), Avogadro number NA and Boltzman constant (K) is

- R = NAK2

- K = NAR

- NA = RK

- R = NAK

Correct Answer: R = NAK

43. At constant pressure the volume of the given mass of a gas is V at temperature T. At what temperature volume of the gas will be 4V:

- 4T

- "  
1  
4  
T  
"

- 2T

- "  
1  
2  
T  
"

Correct Answer: 4T

44. Four students found set of CP and CV (in cal/deg mole) as given below. Which of the following set is correct?

- CV = 4, CP = 2

- CV = 2, CP = 1

- CV = 3, CP = 3

- CP = 5, CV = 3

Correct Answer: CP = 5, CV = 3

45. If the volume of a given mass of a gas is doubled at atmospheric pressure then the temperature of the gas rises from 127°C to

- 625°C

- 527°C

- 572°C

- 127°C

Correct Answer: 527°C

46. The characteristic equation of gases PV = nRT holds good for

- monoatomic gases

- real gases

- diatomic gas

- ideal gases

Correct Answer: ideal gases

47. In the relation of “  
n  
=  
P  
V  
R  
T  
” , n is

- Number of molecules

- Atomic number

- Mass number

- Number of moles

Correct Answer: Number of moles

48. Which of the following is relation for Vms

- "  
3  
P  
ρ  
"

- "  
3  
R  
T  
M  
"

- "  
3  
k  
T  
m  
"

- All

Correct Answer: All

49. Which of the following possess maximum root mean square velocity at same temperature?

- Hydrogen

- Nitrogen

- Oxygen

- All have same velocity

Correct Answer: Hydrogen

50. If “  
C  
V  
=  
5  
2  
R  
” then CP in

- "  
2  
5  
R  
"

- "  
2  
R  
7  
"

- "  
7  
2  
R  
"

- "  
5  
2  
R  
"

Correct Answer: "  
7  
2  
R  
"

51. For mono atomic gas “  
C  
v  
=  
3  
2  
R  
” value of Cp is

- "  
5  
2  
R  
"

- "  
1  
2  
R  
"

- R

- "  
7  
2  
R  
"

Correct Answer: "  
5  
2  
R  
"

52. If the amount of heat given to a system be 35 joules and the amount of work done by the system be 15 joules, then the change in the internal energy of the system is

- −50 joules

- 20 joules

- 30 joules

- 50 joules

Correct Answer: 20 joules

53. The processes or systems that do not involve heat are called

- isothermal processes

- thermal processes

- equilibrium processes

- adiabatic processes.

Correct Answer: adiabatic processes.

54. Two different ideal gases are enclosed in two different vessels at the same pressure. If “  
ρ  
1  
” and “  
ρ  
2  
” are their densities and c1 and c2 are their rms speeds, respectively, then “  
c  
1  
c  
2  
” editorid=”QuestionBody” class=”k-editor-image-auto”>is equal to

- "  
ρ  
1  
2  
ρ  
2  
2  
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- "  
ρ  
2  
2  
ρ  
1  
2  
" editorid="OptionB" class="k-editor-image-auto">

- "  
ρ  
1  
ρ  
2  
" editorid="OptionC" class="k-editor-image-auto">

- "  
ρ  
2  
ρ  
1  
" editorid="OptionD" class="k-editor-image-auto">

Correct Answer: "  
ρ  
2  
ρ  
1  
" editorid="OptionD" class="k-editor-image-auto">

55. The temperature of a gas is increased from 27°C to 127°C. The ratio of its mean kinetic energies will be.

- "  
10  
9  
"

- "  
9  
16  
"

- "  
4  
3  
"

- "  
3  
4  
"

Correct Answer: "  
3  
4  
"

56. Three containers filled with 1 kg of each: water, ice, and water vapor at the same temperature T = 0 ̊C. Which of the following is true about the internal energy of the substances?   
>

- U water > U ice > U vapor

- U water < U ice > U vapor

- U water = U ice = U vapor

- U ice < U water < U vapor

Correct Answer: U ice < U water < U vapor

57. The correct value of temperature on kelvin scale corresponding to 0°C is:

- 0 K

- 273.15 K

- 273.2 K

- 273 K

Correct Answer: 273.15 K

58. Two coherent light sources S1 and S2 ( “  
λ  
” = 6000 Å) are 1mm apart from each other. The screen is placed at a distance of 25 cm from the sources. The width of the fringes on the screen should be

- 0.015 cm

- 0.025 cm

- 0.010 cm

- 0.030 cm

Correct Answer: 0.015 cm

59. For mono-atomic gas “  
C  
V  
=  
3  
R  
2  
” , therefore γ for this gas is

- "  
3  
2  
"

- "  
5  
3  
"

- "  
3  
5  
"

- "  
3  
4  
"

Correct Answer: "  
5  
3  
"

60. Pressure of a gas at constant volume is proportional to

- Total energy of gas

- Average P.E of molecules

- Average K.E of molecules

- Total internal energy of gas

Correct Answer: Average K.E of molecules

# 6-Electrostatics

1. The points resembling equal potentials are   
>

- P and Q

- S and Q

- S and R

- P and R

Correct Answer: S and R

2. Some charge is being given to a conductor. Then its potential is

- maximum at surface

- maximum at centre

- remain same throughout the conductor

- maximum somewhere between surface and centre

Correct Answer: remain same throughout the conductor

3. If 4 × 1020 eV of energy in requiredto move a charge of 1C between two points, the P. D between the points is

- 4 × 1020 V

- 64 × 1820 V

- 64 × 1919 V

- 64 V

Correct Answer: 64 V

4. A capacitor of capacitance C has charge Q and stored energy is E. If the charge is increase to 3Q. The stored energy will

- "  
E  
9  
"

- "  
E  
2  
" editorid="OptionB" class="k-editor-image-auto">

- 4E

- 9E

Correct Answer: 9E

5. A positive charge is moved from a low potential (A) to a high potential point (B) then the electric potential energy.

- increase

- decrease

- will remain the same

- nothing definite can be predicted

Correct Answer: increase

6. Electric lines of force about a negative pointcharge are

- Circular, anticlockwise

- Circular, clockwise

- Radial inwards

- Radial outwards

Correct Answer: Radial inwards

7. The unit of electric flux is

- Nm2C-1

- Nm-1C-1

- NmC-1

- NmC-2

Correct Answer: Nm2C-1

8. A Capacitor C has a charge Q. The actual charges on its plates are

- +Q , - Q

- +Q , +Q

- Q/2, -Q/2

- Q , 0

Correct Answer: +Q , - Q

9. The electric field at a distance 3R/2 from the centre of a charged conducting spherical shell of radius R is E. The electric field at a distance R/2 from the centre of the sphere is.

- E/2

- Zero

- E

- E/2

Correct Answer: Zero

10. The electric field created by positive charge is

- radially outward

- circular

- radially inward

- zero

Correct Answer: zero

11. If mica sheet is placed between the plates of a capacitor the capacity

- increases

- increases then decreases

- decreases

- decreases then increases

Correct Answer: increases

12. An isolated charged point particle produces an electric field with magnitude E at a point 2 m away. At a point 1 m from the particle the magnitude of the field is:

- E

- 2E

- 4E

- E/2

Correct Answer: 4E

13. The energy required to charge a capacitor of 5F by connecting D.C. source of 20 V is

- 10 kJ

- 5 kJ

- 2 kJ

- 1 kJ

Correct Answer: 1 kJ

14. Uniform electric field can be mapped with electric field lines which are

- Parallel

- Parallel and equally spaced

- Equal spaced

- Parallel and unequally spaced

Correct Answer: Parallel and equally spaced

15. The electric potential at the surface of an atomic nucleus (Z = 50) of radius 9.0×10–15 m is

- 9 V

- 9 × 105V

- 8 × 106V

- 80 V

Correct Answer: 8 × 106V

16. If a charge on a capacitor is doubled, then itscapacitance will be

- Halved

- Doubled

- Remain unchanged

- Become four times

Correct Answer: Remain unchanged

17. Two-point charges +4 mC and -1mC are separated by a distance of d. The ratio of force acting on them will be

- 1:4

- 1:1

- 1:16

- 1:-4

Correct Answer: 1:1

18. A force of 0.01 N is exerted on a charge of 1.2 ´ 10-5 C. at a certain point. The electric field at that point is

- 5.3 "  
×  
" 106 N/C

- 8.3 "  
×  
" 106 N/C

- 5.3 "  
×  
" 106 N/C

- 8.3 "  
×  
" 102 N/C

Correct Answer: 8.3 "  
×  
" 102 N/C

19. A 10 mF capacitor is charged by a battery of emf 100 volt. The energy drawn from the battery, and the energy stored in the capacitor, are respectively

- 0.10 J and 0.05 J

- 0.05 J and 0 J

- 1.0 mJ and 0.5 mJ

- 0.05 J and 0.05 mJ

Correct Answer: 0.10 J and 0.05 J

20. What will be the effect on the capacitance of a capacitor if area of each plate is doubled with separation between the plates is halved?

- Capacitance remains same

- Capacitance becomes double

- Capacitance becomes four times

- Capacitance reduces of half

Correct Answer: Capacitance becomes four times

21. Electric potential at a point distance 1m from2μC charge is,

- "  
1.8  
×  
10  
4  
V  
"

- "  
18  
×  
10  
4  
V  
"

- "  
1.8  
×  
10  
6  
V  
"

- "  
1.8  
×  
10  
9  
V  
"

Correct Answer: "  
1.8  
×  
10  
4  
V  
"

22. Two plates are 2cm apart. If a potentialdifference of 10 volts is applied between the plates. The electric fieldbetween the plates will be

- 20 N/C

- 250 N/C

- 500 N/C

- 1000 N/C

Correct Answer: 500 N/C

23. Capacitor is a device used for

- Storing direct current

- Storing electrical energy

- Storing alternating current

- Storing voltage.

Correct Answer: Storing electrical energy

24. Two bulbs X and Y having same voltage rating and of power 40 watt and 60 watt respectively are connected in series across a potential difference of 300 volt, then  
>

- X will glow brighter

- heat produced in Y will be greater than X

- resistance of Y is greater than X

- voltage drop in X will be greater than Y

Correct Answer: X will glow brighter

25. Two charges 1 mC and 5 mC separated by 20 cm, the ratio of electric forces acting on them will be:

- 1 : 2

- 1:1

- 1:5

- 5:1

Correct Answer: 1:1

26. The dielectric constant k of an insulator cannot be

- 3

- 6

- 8

- "  
∞  
"

Correct Answer: "  
∞  
"

27. 10 V potential difference is applied across the plates of 1 F capacitor. What is the energy stored in capacitor?

- 0.5 mJ

- 0.05 mJ

- 5 J

- 50 J

Correct Answer: 50 J

28. Value of constant K in Coulomb's law has value of

- 9 × 10³

- 9 × 105

- 9 × 107

- 9 × 109

Correct Answer: 9 × 109

29. The force between two electrons separated by a distance r varies as:

- r2

- r

- r–1

- r–2

Correct Answer: r–2

30. The amount of work done in joule in carrying a charge +q along the closed path PQRSP between the oppositely charged metal plates is (where E is electric field between the plates)>

- Zero

- q

- qE(PQ+QR+SR+SP)" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_46294417-94c2-413f-92a4-5c4797384a60.svg" class="k-editor-image-auto">

- qε0" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_5478d2bb-0ae7-4170-b026-c6834a728b9e.svg" class="k-editor-image-auto">

Correct Answer: Zero

31. To charge a 1.0 F capacitor with 2 C requires a potential diﬀerence of:

- 2 V

- 5 V

- 0.2 V

- 0.5 V

Correct Answer: 2 V

32. For a set of oppositely charged, infinite parallel plates, what is true about the electric field inside and outside the plates?

- The electric field decreases as you move from the positive to the negative plate and is a non-zero constant outside.

- The electric field decreases as you move from the positive to the negative plate and is non-zero constant outside.

- The electric field is a non-zero constant within the plates and zero outside.

- The electric field is zero within the plates and a non-zero constant outside.

Correct Answer: The electric field is a non-zero constant within the plates and zero outside.

33. Two unlike charges of magnitude q are separated by a distance 2d. The potential at a point midway between them is

- Zero

- "  
1  
4  
π  
ε  
o  
"

- "  
1  
4  
π  
ε  
o  
.  
q  
d  
"

- "  
1  
4  
π  
ε  
o  
.  
2  
q  
d  
2  
"

Correct Answer: Zero

34. The expression for electric potential Vr at a distance ‘r’ from ‘q’ is

- "  
V  
r  
=  
1  
4  
π  
∈  
0  
q  
r  
2  
"

- "  
V  
r  
=  
K  
q  
r  
"

- "  
v  
r  
=  
1  
4  
π  
∈  
0  
q  
r  
"

- both B & C

Correct Answer: both B & C

35. If air is the dielectric between plates of a capacitor, by doubling the distance between the plates and reducing area to 13” src=”https://cdn.kipslms.com/kipslms/content/images/ic125486\_5bfedfed-09fb-40ac-a3dc-ff211c145165.svg”> of the original value, its capacitance becomes

- 10 times

- 6 times

- 16" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_0b4b97dd-99d9-4e70-880b-b7f3127100ac.svg">times

- 90 times

Correct Answer: 16" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_0b4b97dd-99d9-4e70-880b-b7f3127100ac.svg">times

36. A hollow metal sphere of radius 6 cm is charged such as the potential on its surface is 40V. The potential at the centre of sphere is

- Zero

- 40 V

- 25 V

- 50 V

Correct Answer: 40 V

37. A capacitor having a capacity 2.0 micro farad is charged to 200 volts and then the plates of the capacitor are connected to a resistance wire. The heat produced in joules will be

- 4×104J

- 4×1010J

- 4×10−2J

- 2×10−2J

Correct Answer: 4×10−2J

38. Electric potential energy and electric potential difference are related as

- "  
Δ  
U  
=  
q  
o  
q  
 "

- "  
Δ  
U  
=  
Δ  
v  
q  
o  
 "

- "  
Δ  
U  
 = q  
o  
Δ  
V  
 "

- "  
U =   
Δ  
V  
Δ  
r  
"

Correct Answer: "  
Δ  
U  
 = q  
o  
Δ  
V  
 "

39. A positive charge of 6µC moves between two points through an electric field. Work done by the electric field on the charge is 30 mJ. What is the potential difference between the two points?

- 3kV

- 4kV

- 5kV

- 6kV

Correct Answer: 5kV

40. The energy of a charged capacitor resides in

- The electric field only

- The magnetic field only

- Both theelectric and magnetic field

- Neither in electric nor magnetic field

Correct Answer: The electric field only

41. Find the force between 2C and -1C separated by a distance 1m in air (in newton).

- 18 × 10 -9

- -18 × 10 -9

- 18 × 10 9

- 18 × 10 -9

Correct Answer: 18 × 10 -9

42. Coulomb law is employed in

- Electrostatics

- Maxwell theory

- Electromagnetics

- None

Correct Answer: Electrostatics

43. A and B are two spherical conductors of the same extent and size. A is solid and B is hollow Both are charged to the same potential. If the charges on A and B are QA and QB respectively, then

- QA is less than QB

- QA is greater than QB but not double

- QA = QB

- QA = 2QB

Correct Answer: QA = QB

44. If the potential difference across the two plates of a parallel plate capacitor is doubled then its energy stored in it will be:

- 2 times

- 16 times

- 4 times

- remains same

Correct Answer: 4 times

45. Two point charges +3μC and +8μC repel each other with a force of 40N. If a charge of -5μC is added to each of them, then the force between them will become

- -20N

- +20N

- +10N

- -10N

Correct Answer: -10N

46. Charge on a capacitor is 50 µC. If voltage applied across its plates is 10V then its capacitance will be

- 5µF

- 0.02µF

- 500µF

- 0.02µF

Correct Answer: 5µF

47. The amount of work done to move a unit positive charge from one point to another against the E is measure of

- Electric potential difference between two points

- Capacitance

- Intensity of E

- Resistance between two points

Correct Answer: Electric potential difference between two points

48. Capacitance in the presence of medium is given by:

- "  
A  
ε  
r  
ε  
o  
r  
2  
"

- "  
A  
ε  
r  
ε  
o  
d  
"

- "  
A  
ε  
r  
r  
2  
"

- "  
A  
ε  
r  
d  
"

Correct Answer: "  
A  
ε  
r  
ε  
o  
d  
"

49. Value of potential at a point due to a point charge is

- Inversely proportional to square of the distance

- Directly proportional to square of the distance

- Inversely proportional to the distance

- Directly proportional to the distance

Correct Answer: Inversely proportional to the distance

50. An-α-particle is accelerated through a potential difference of 106 V. Its K.E will be

- 1 MeV

- 2MeV

- 4 MeV

- 8MeV

Correct Answer: 2MeV

51. The figure below shows two point charges, +Q and +Q. If the right-hand charge were absent, the electric field at Point P due to +Q would have a strength of E. With the right-hand charge in place, what is the strength of the total electric field at P, which lies at the midpoint of the line segment joining the charges?>

- 0

- E4" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_5f9a9892-44ca-44f0-a76e-829c013ce487.svg">

- E2" src="https://cdn.kipslms.com/kipslms/content/images/ic125486\_30f941fb-7466-4c7f-b258-12a9c1be3b6b.svg">

- 2E

Correct Answer: 0

52. At which point in the figure shown “  
E  
→  
” has multiple values   
>

- B

- C

- A

- Not possible

Correct Answer: Not possible

53. If the distance between the two-point charges become half then force between them becomes

- double

- four times

- half

- remains same

Correct Answer: four times

54. Two plates are 2cm apart. If a potential differenceof 10 volts is applied between the plates. The electric field between theplates will be

- 20 N/C

- 250 N/C

- 500 N/C

- 1000 N/C

Correct Answer: 500 N/C

55. Two protons A and B are placed is between the two plates of a parallel plate capacitor charged to a potential difference V as shown in figure. The force on two protons are FA and FB ; then   
>

- "  
F  
A  
>  
F  
B  
" editorid="OptionA" class="k-editor-image-auto">

- "  
F  
A  
=  
F  
B  
" editorid="OptionB" class="k-editor-image-auto">

- "  
F  
A  
<  
F  
B  
" editorid="OptionC" class="k-editor-image-auto">

- nothing can be predicted

Correct Answer: "  
F  
A  
=  
F  
B  
" editorid="OptionB" class="k-editor-image-auto">

56. Electric lines of force about a negative point charge are

- Circular, anticlockwise

- Circular, clockwise

- Radial inwards

- Radial outwards

Correct Answer: Radial inwards

57. A isolated charged point particle produces am electric field with magnitude E at a point 2m away. At point 1 m from the particle, the magnitude of the field is

- 2 E

- 4 E

- 3 E

- E

Correct Answer: 4 E

58. Two charges are placed at a certain distance. If the magnitude of each charge is doubled the force will become

- 1/4th of its original value

- 1/8th of its original value

- 4 times of its original value

- 8 times of its original value

Correct Answer: 4 times of its original value

59. A capacitor with air as the dielectric is charged to a potential of 100 volts. If the space between the plates is now filled with a dielectric of dielectric constant 10, the potential difference between the plates will be

- 1000 volts

- 100 volts

- 10 volts

- Zero

Correct Answer: 10 volts

60. A point charge at a distance ‘x’ from another point charge experiences a force of repulsion, which one of the following graph shows. How the force is related to ‘x’:

- >

- >

- >

- >

Correct Answer: >

# 7-Current Electricity

1. A wire of resistance 4 “  
Ω  
” is bent in the form acircle. The resistance between the ends of any diameter is

- 1 "  
Ω  
"

- 2 "  
Ω  
"

- 4 "  
Ω  
"

- 8 "  
Ω  
"

Correct Answer: 1 "  
Ω  
"

2. Ohm's law is true

- For metallic conductors at low temperature

- For metallic conductors at high temperature

- For electrolytes when current passes through them

- For diode when current flows

Correct Answer: For metallic conductors at low temperature

3. Ohms law for an ohmic resistor gives a straight line whose slope gives (if V is along x-axis)

- Resistivity

- Resistance

- Conductivity

- Conductance

Correct Answer: Conductance

4. A cell of e.m.f.1.5Vhaving a finite internal resistance is connected to a load resistance of 2Ω. For maximum power transfer the internal resistance of the cell should be

- 4 ohm

- 0.5 ohm

- 2 ohm

- None of these

Correct Answer: 2 ohm

5. Maximum power is delivered by battery to a load resistance R when

- R = r

- R > r

- R < r

- R ³ r

Correct Answer: R = r

6. Two resistors of resistance R1 and R2 having R1 > R2 are connected in parallel. For equivalent resistance R, the correct statement is

- R > R1+R2

- R1 < R < R2

- R2 < R < (R1+R2)

- R < R2

Correct Answer: R < R2

7. When a current flows through a conductor, its temperature

- Increases

- Decreases

- Remains same

- May increase or decrease

Correct Answer: Increases

8. Which of following is not same as watt?

- "  
A  
V  
"

- "  
J  
s  
"

- AV

- "  
A  
2  
Ω  
"

Correct Answer: "  
A  
V  
"

9. What is the current in a 2 “  
×  
” 106 ohm resistors having a potential difference of 2 “  
×  
” 103 volts?

- 10-1 A

- 10-4 A

- 10-2 A

- 1 m A

Correct Answer: 1 m A

10. If 2 A current is passed through a wire of 1 ohm resistance for 2.5 s, how much heat will be lost?

- 2 J

- 4 J

- 10 J

- 16 J

Correct Answer: 10 J

11. The diagram shows a cell connected in series with an ammeter and three resistors (10W, 20W, 30W). The circuit can be completed by a moveable contact M. When M is connected to X, the ammeter reads 0.6 A. What is the ammeter reading when M is connected to Y?>

- 0.1 A

- 0.3 A

- 0.2 A

- 0.6 A

Correct Answer: 0.2 A

12. A flat iron is marked “120 V, 600 W”. In normal use, the current in it is:

- 2 A

- 4 A

- 5 A

- 7.2 A

Correct Answer: 5 A

13. The length of a wire gets doubled on applying a stress of 20 “  
×  
” 108 N/m2. The Young’s modulus of elasticity for the wire in N/m2, will be

- 40 "  
×  
" 108

- 10 "  
×  
" 108

- 5 "  
×  
" 108

- 20 "  
×  
" 108

Correct Answer: 20 "  
×  
" 108

14. The electric current in conductor is due to the flow of

- Positive charges only

- negative charges only

- both positive and negative charges

- neutral particles only

Correct Answer: negative charges only

15. Three resistors of 2 ohm, 3 ohm and 5 ohm are connected in parallel across a battery of 10 V and of negligible internal resistance. The potential difference across the 3 ohm resistor is

- 2 V

- 3 V

- 9 V

- 10 V

Correct Answer: 10 V

16. The specific resistance of managing is 50×10−8ohm m. The resistance of a cube of length 50cm will be

- 10−6ohm

- 2.5×10−5ohm

- 10−8ohm

- 5×10−4ohm

Correct Answer: 10−6ohm

17. A current of 2A passes through a wire for 20 minutes. The number of electrons that crossed the cross-section in this period is

- 1.5 × 1021

- 1.5 × 1022

- 1.5 × 1020

- 1.5 × 1023

Correct Answer: 1.5 × 1022

18. A charge of 90C passes through a wire in 1 hour and 15 minutes. What is the current in the wire?

- 10mA

- 20mA

- 15mA

- 25mA

Correct Answer: 20mA

19. In the figure given below, the current passing through 6Ω resistor is   
>

- 0.40 ampere

- 0.48 ampere

- 0.72 ampere

- 0.80 ampere

Correct Answer: 0.48 ampere

20. Kirchhoff’s voltage law is based on principle of conservation of

- energy

- momentum

- mass

- charge

Correct Answer: energy

21. Five resistances are connected as shown in the figure. The effective resistance between the points A and B is>

- "  
10  
3  
Ω  
"

- "  
20  
3  
Ω  
"

- "  
15  
Ω  
"

- "  
6  
Ω  
"

Correct Answer: "  
10  
3  
Ω  
"

22. Three resistors of 2 ohm, 3 ohm and 5 ohm are connected in parallel across a battery of 10V and of negligible internal resistance. The p.d. across the 3 ohm resistor is

- 2V

- 3V

- 5V

- 10V

Correct Answer: 10V

23. Heat generated by a 40 W bulb in one hour is:

- 140 J

- 14400 J

- 1440 J

- 144000 J

Correct Answer: 144000 J

24. If a metal wire is heated, its resistance\_\_\_\_\_\_\_\_

- Increases

- Decreases

- Remain same

- None of these

Correct Answer: Increases

25. What is the current (I) in the circuit as shown in figure?   
>

- 2 A

- 1.2 A

- 1 A

- 0.5 A

Correct Answer: 2 A

26. Referring to the figure below, the effective resistance of the network is  
>

- 2r

- 4r

- 10r

- 5r/2

Correct Answer: 5r/2

27. What is the voltage across a 6 “  
Ω  
” resistor when 3A of current passes through it?

- 2V

- 18V

- 9V

- 36V

Correct Answer: 18V

28. An electrical motor has power 500W. The current drawn through it is 4A. Find potential difference

- 126V

- 125V

- 127V

- 120V

Correct Answer: 125V

29. If the current through a resistance is halved, then the

- Power is halved

- Potential difference is halved

- Heat dissipated is halved

- Resistance is doubled

Correct Answer: Potential difference is halved

30. A wire of resistance of 10 “  
Ω  
” is stretched and its length becomes twice. Its resistance becomes

- "  
10  
Ω  
"

- "  
30  
Ω  
"

- "  
20  
Ω  
"

- "  
40  
Ω  
"

Correct Answer: "  
40  
Ω  
"

31. If a source of emf is traversed from positive to negative the potential change will be

- Positive

- Negative

- Zero

- Constant

Correct Answer: Negative

32. Resistance of a conductor depends upon

- Nature of conductor

- Physical state of theconductor

- Dimension of conductor

- All of these

Correct Answer: All of these

33. In Ohm’s law, which factor remains constant:

- Volume

- Pressure

- Length

- Temperature

Correct Answer: Temperature

34. The specific resistance of a wire

- Varies with its length

- Varies with its cross – section

- Varies with its mass

- Does not depend on its length, area of cross – section and mass

Correct Answer: Does not depend on its length, area of cross – section and mass

35. The value of current I in the given circuit is  
>

- 3 A

- 23 A

- 13 A

- –3 A

Correct Answer: 13 A

36. When the length and area of cross-section both are doubled, then its resistance

- Will become half

- Will be doubled

- Will remain the same

- Will become four times

Correct Answer: Will remain the same

37. In the given current distribution, what is the value of I?  
>

- 3 A

- 8 A

- 2 A

- 5 A

Correct Answer: 2 A

38. The product of resistance and conductance of a resister is equal to

- 1

- Conductivity

- Resistivety

- Zero

Correct Answer: 1

39. What is the current in the arm OD?  
>

- 3A from O to D

- 2A from O to D

- 2A from D to O

- 4A from O to D

Correct Answer: 2A from D to O

40. A 60-watt light bulb carries a current of 0.5 A. The total charge passing through it in one hour is:

- 120 C

- 3600 C

- 1800 C

- 2400 C

Correct Answer: 1800 C

41. In the following figure, current through 3 “  
Ω  
” resistor is 0.8 amp; then the potential drop through 4 “  
Ω  
” resistor is:  
>

- 9.6 V

- 2.6 V

- 4.8 V

- 1.2 V

Correct Answer: 4.8 V

42. Which expression is the best to compare the power dissipation in different resistors which are connected in parallel

- "  
I  
2  
R  
"

- IV

- "  
V  
2  
R  
"

- Any of these may be used

Correct Answer: "  
V  
2  
R  
"

43. No current flows between two charged bodies when connected if they have same:

- capacity

- charge

- potential

- none of the above

Correct Answer: potential

44. An electrical motor has power 2000 W and the resistance is 2 Ω. Find potential difference.

- 6V

- 0.5V

- 63.25V

- 0.09V

Correct Answer: 63.25V

45. Which of the following bulbs has the least resistance:

- 100 watt

- 500 watt

- 200 watt

- 1000 watt

Correct Answer: 1000 watt

46. A 100W, 220V bulb is operated on a 110V line, the power consumed is

- 25W

- 75W

- 50W

- 100W

Correct Answer: 25W

47. A heater coil is cut into two equal parts and only one part is now used in heater. The heat generated will now be

- Four times

- Doubled

- Halved

- One fourth

Correct Answer: Doubled

48. The length of the wire is doubled, its conductance will

- remain unchanged

- be halved

- be doubled

- be quadrupled

Correct Answer: be halved

49. The resistance of a material increases with temperature. It is a

- Metal

- Insulator

- Semiconductor

- Semi-metal

Correct Answer: Metal

50. Three 2-ohm resistors are connected to form a triangle. The resistance between any two corners is

- 6 "  
Ω  
"

- "  
(  
3  
4  
)  
 Ω  
"

- 2 "  
Ω  
"

- "  
(  
4  
3  
)  
 Ω  
"

Correct Answer: "  
(  
4  
3  
)  
 Ω  
"

51. Emf and terminal potential are related as

- "  
ε  
=  
V  
t  
+  
I  
r  
"

- "  
ε  
I  
+  
r  
"

- "  
ε  
−  
I  
r  
=  
V  
t  
"

- Both A and C

Correct Answer: Both A and C

52. Which expression is the best to compare the power dissipation in different resistors which are connected in parallel?

- "  
I  
2  
R  
"

- IV

- "  
V  
2  
R  
"

- Any of these may be used

Correct Answer: "  
V  
2  
R  
"

53. The charge on an electron is known to be “  
1.6  
×  
10  
−  
19  
” coulomb. In a circuit the current flowing is 1 A. How many electrons will be flowing through the circuit in a second?

- "  
1.6  
×  
10  
19  
"

- "  
1.6  
×  
10  
-  
19  
"

- 0.625×1019

- "  
0.625  
×  
10  
−  
19  
"

Correct Answer: 0.625×1019

54. For a metallic wire, the ratio V/I (V= the applied potential difference, I = current flowing) is

- Independent of temperature

- Increases as the temperature rises

- Decreases as the temperature rises

- Increases or decreases as temperature rises, depending upon the metal

Correct Answer: Increases as the temperature rises

55. A cell of emf E Volt and internal resistance r ohm is being charged with a current of i amp. Then the terminal potential difference is

- E

- E– ir

- E + ir

- E– iR

Correct Answer: E + ir

56. For an open circuit

- E = Vt

- E < Vt

- E > Vt

- E = Vt + Ir

Correct Answer: E = Vt

57. Two unequal resistances are connected in parallel. Which one of the statements is correct?

- The current flow is same in both

- More current will flow form high resistance

- The potential drop is same in both

- All of above

Correct Answer: The potential drop is same in both

58. A cell of emf E Volt and internal resistance r ohm is being charged with a current of i amp. Then the terminal potential difference is

- E

- E – ir

- E + ir

- E – iR

Correct Answer: E + ir

59. Whatis voltage across terminal AA/  
>

- 10V

- 5V

- 20V

- 4V

Correct Answer: 10V

60. Ohm’s law establishes a relation between

- Current and voltage

- Resistance and voltage

- Charge and voltage

- Current and resistance

Correct Answer: Current and voltage

# 8-Electromgnetism & Electromagnetic Induction

1. A 10 meter wire carrying a current of 2 A is at right angles to the uniform magnetic field of 0.5 weber/m². The force on the wire is:

- 1.5 N

- 4 N

- 10 N

- 5 N

Correct Answer: 10 N

2. Magnetic lines of force:

- Cannot intersect at all

- Intersect within the magnet

- Intersect only at south and north poles

- Intersect at neutral point only

Correct Answer: Cannot intersect at all

3. An electron and a proton enter a magnetic field perpendicularly. Both have same kinetic energy. Which of the following is true?

- Trajectory of electron is less curved

- Trajectory of proton is less curved

- Both trajectories are equally curved

- Both move on straight-line path

Correct Answer: Trajectory of proton is less curved

4. If the current flowing through the conductor is made two times. Magnetic field strength due to it will increase;

- two times

- three times

- remain same

- four times

Correct Answer: two times

5. The relation for e/m of an electron is

- "  
2  
V  
2  
B  
R  
"

- "  
2  
V  
B  
r  
2  
"

- "  
2  
V  
B  
2  
r  
"

- "  
2  
V  
B  
2  
r  
2  
"

Correct Answer: "  
2  
V  
B  
2  
r  
2  
"

6. An electron of mass ‘m’ and charge ‘e’ is moving in a circle of radius ‘r’ with speed ‘v’ in a uniform magnetic field of strength B. then

- "  
r  
∝  
m  
"

- "  
r  
∝  
1  
v  
"

- "  
r  
∝  
B  
"

- "  
r  
∝  
1  
m  
"

Correct Answer: "  
r  
∝  
m  
"

7. A proton (or charged particle) moving with velocity v is acted upon by electric field E and magnetic field B. The proton will move undeflected if

- E is perpendicular to B

- E is parallel to v and perpendicular to B

- E, B and v are mutually perpendicular and v=E/B

- E and B both are parallel to v

Correct Answer: E, B and v are mutually perpendicular and v=E/B

8. When a current carrying conductor is placed ina magnetic field. It moves from a region of

- Stronger to weak field

- Strong to weak if current is large

- Weak to strong field

- Weak to strong if current is large

Correct Answer: Stronger to weak field

9. When a charged particle moves perpendicular

- Speed of the particle is changed

- Speed of the particle remains unchanged

- Direction of the particle remains unchanged

- Acceleration of the particle remains unchanged

Correct Answer: Speed of the particle remains unchanged

10. A charged particle of mass m and charge q travels on a circular path of radius r that is perpendicular to a magnetic field B. the time taken by the particle to complete one revolution is

- "  
2  
π  
m  
q  
B  
"

- "  
2  
π  
q  
2  
B  
m  
"

- "  
2  
π  
q  
B  
m  
"

- "  
2  
π  
m  
q  
B  
"

Correct Answer: "  
2  
π  
m  
q  
B  
"

11. Proton and “  
α  
” editorid=”QuestionBody” class=”k-editor-image-auto”>- particle enter with same velocity at 180o with a uniform magnetic field. Ratio of radius of their paths will be:

- 1 : 2

- 2 : 1

- 4 : 1

- none of these

Correct Answer: none of these

12. A charged particle moving in a magnetic field experiences a force given by:

- F = qvBcos "  
θ  
"

- F / sin "  
θ  
" = qvB

- "  
F  
=  
qv  
B  
cosθ  
"

- "  
F  
=  
qv  
B  
sinθ  
"

Correct Answer: F / sin "  
θ  
" = qvB

13. A magnetic field that is uniform can be found

- around a current carrying wire

- around a current carrying loop

- outside a current carrying solenoid

- inside a current carrying solenoid

Correct Answer: inside a current carrying solenoid

14. Magnetic effects of current were discovered by:

- Faraday

- Oersted

- Ampere

- Joule

Correct Answer: Oersted

15. Two long straight parallel wires are carrying equal currents. The resultant magnetic field at a point O, midway between the wires, is

- Zero

- Nonzero, directed into the paper

- Nonzero, directed out of the paper

- Nonzero, directed in a direction other than into out of the paper

Correct Answer: Zero

16. The branch of physics which deals with the magnetic effect of electric current is known as

- Magnetism

- Electromagnetism

- Electrical engineering

- Electronics engineering

Correct Answer: Electromagnetism

17. In case of a straight conductor, the magnetic lines of force are

- Circular

- Only a straight-line

- Tangential

- All of above

Correct Answer: Circular

18. One Wbm-2 is equal to

- 104 gauss

- 102 gauss

- 10-2 gauss

- 10-4 gauss

Correct Answer: 104 gauss

19. Two charges are projected in a magnetic field. Their paths after entering field is shown in figure. What type of these charges are?  
>

- One is proton and other is α-particle

- One is electron and other is proton

- One is proton and other is neutron

- None of these

Correct Answer: One is electron and other is proton

20. When the current flowing through the wire isstopped, the magnetic field around the wire becomes.

- Doubles

- Half

- Remains same

- Zero

Correct Answer: Zero

21. A current carrying conductor experiences a maximum force in a magnetic field when it is placed

- parallel to the field

- perpendicular to the field

- at an angle of 45∘ to the field

- at an angle of 60∘ to the field

Correct Answer: perpendicular to the field

22. A uniform electric field and a uniform magnetic field are acting along the same direction in a certain region. If an electron is projected along the direction of the fields with a certain velocity then.

- it will turn towards left of direction of motion

- it will turn towards right of direction of motion

- its velocity will increase

- its velocity will decrease

Correct Answer: its velocity will decrease

23. A current of 10 A is flowing in a wire of length 1.5m. A force of 15N acts on it when it is placed in a uniform magnetic field of 2T. The angle between the magnetic field and the direction of the current is

- 30o

- 45o

- 60o

- 90o

Correct Answer: 30o

24. What happens when two compass needles are placed near a current carrying wire at points P and Q as shown below?>

- Both the needles will not deflect.

- Only needle P will deflect.

- Both the needles will deflect in the same direction.

- Both the needles will deflect in the opposite direction

Correct Answer: Both the needles will deflect in the opposite direction

25. The quantity “  
1  
2  
ε  
o  
E  
2  
” has significance of

- Energy/ farad

- Energy/ coloumb

- Energy/ voulume

- Energy

Correct Answer: Energy/ voulume

26. >

- >

- >

- >

- Both “C” and “B”

Correct Answer: Both “C” and “B”

27. A 0.1 m long conductor carrying a current of 50 A is perpendicular to a magnetic field of 1.25 mT. The mechanical power required to move the conductor with a speed of 1 ms–1 is

- 6.25 m W

- 0.625 W

- 6.25 W

- 1 W

Correct Answer: 6.25 W

28. Will the two conductors in the diagram given below repel or attract?  
>

- Repel

- Attract

- Neither repel nor attract

- Insufficient data

Correct Answer: Attract

29. A proton charge (+e coulomb C) enters in a magnetic field of strength B(Tesla) making an angle 30o with the direction of magnetic field with speed v. The magnetic force on the proton is

- evB

- "  
∞  
"

- Zero

- "  
e  
v  
B  
2  
"

Correct Answer: "  
e  
v  
B  
2  
"

30. In case of a straight conductor, the magnetic lines of force are

- Circular

- Only a straight-line

- Tangential

- All of above

Correct Answer: Circular

31. Soft iron core in a transformer is used to reduce

- Eddy current losses

- Iron losses+

- Hysteresis losses

- Heat losses due to resistance

Correct Answer: Hysteresis losses

32. According to Faraday’s law of electromagnetic induction

- Electric field is produced by time varying magnetic flux

- Magnetic field is produced by time-varying electric flux

- Magnetic field is associated with a moving charge

- None of the above

Correct Answer: Electric field is produced by time varying magnetic flux

33. The phase of A.C at the positive peak from origin is:

- "  
π  
2  
"

- "  
π  
"

- "  
π  
4  
"

- "  
3  
π  
2  
"

Correct Answer: "  
π  
2  
"

34. Vrms is \_\_\_\_\_\_\_\_\_\_\_percent of peak value

- 30%

- 70%

- 141%

- 41%

Correct Answer: 70%

35. The ratio of emf across primary coil to the emf across secondary coil is

- "  
N  
s  
N  
P  
"

- "  
I  
s  
2  
I  
p  
2  
"

- "  
I  
s  
I  
P  
"

- None of these

Correct Answer: "  
I  
s  
I  
P  
"

36. Primary coil of a transformer (turns ratio 1 : 1) isconnected to AC source E = E0 sin wt. Then the form ofsecondary voltage during one complete cycle will be

- >

- >

- >

- >

Correct Answer: >

37. To construct a step-down transformer:

- Ns < Np

- Ns = Np

- Np < Ns

- Ns . Np = 1

Correct Answer: Ns < Np

38. A transformer converts 240 V into 12V. If thereare 200 turns on primary coil, the number of turns on secondary coil are

- 10

- 120

- 200

- 2400

Correct Answer: 10

39. A simple a.c generator produces a voltage which varies with time as shown.  
>  
Which graph shows how the voltage varies with time when the generator rotates at twice the original speed?

- >

- >

- >

- >

Correct Answer: >

40. The main reason for the world – wide use of A.C. is that it can be transmitted to:

- Long Distance Easily

- Intermediate Distance

- Short Distance

- All of these

Correct Answer: Long Distance Easily

41. The power loss in transformer is due to

- Eddy current

- Resistance of coils

- Magnetic hysteresis

- All

Correct Answer: All

42. The peak value of A.C current is “  
5  
2  
” editorid=”QuestionBody” class=”k-editor-image-auto img-eq-selected”>, its virtual value will be:

- 1A

- 5A

- 4A

- zero

Correct Answer: 5A

43. A transformer is employed to

- Obtain a suitable dc voltage

- Convert dc into ac

- Obtain a suitable ac voltage

- Convert ac into dc

Correct Answer: Obtain a suitable ac voltage

44. The working principle of transformer is:

- self induction

- mutual induction

- faraday’s law

- electromagnetic induction

Correct Answer: mutual induction

45. A coil having 500 square loops, each of side 10 cm, is placed normal to a magnetic field which increases at the rate of 1.0T/s. The induced emf in volts is

- 0.1

- 0.5

- 0.1

- 5.0

Correct Answer: 5.0

46. Which of the following statements is true of Faraday's laws of electromagnetic induction?

- Whenever magnetic flux linked with a circuit changes, induced e.m.f is produced

- The induced e.m.f lasts as long as the change in the magnetic flux continues

- The magnitude of the induced e.m.f is directly proportional to the rate of change of the magnetic flux linked with the circuit

- All of the above

Correct Answer: The magnitude of the induced e.m.f is directly proportional to the rate of change of the magnetic flux linked with the circuit

47. A real transformer does not change:

- voltage level

- frequency level

- current level

- power level

Correct Answer: power level

48. In step up transformer, voltage in the secondary increases and power in secondary

- Remain same

- Decreases because voltage increases

- Increases because current decreases

- May increases if voltage remain same

Correct Answer: Remain same

49. The sum of positive and negative peak values are usually written as:

- Peak Value

- Rms Value

- Peak to Peak Value

- Average Value

Correct Answer: Peak to Peak Value

50. Power is transmitted from a power house on high voltage ac because

- The rate of transmission is faster at high voltage

- It is more economical due to less power wastage

- The life of current carrying wire is prolonged

- a precaution against the theft of transmission line

Correct Answer: It is more economical due to less power wastage

51. In a circular coil, the current is found to be flowing in anticlockwise direction. In which direction is the magnetic field produced at a point on the axis of the coil?

- It is parallel to the plane of the coil

- It is perpendicular to the plane of the coil

- It is above the plane of the coil

- It is below the plane of the coil

Correct Answer: It is perpendicular to the plane of the coil

52. A transformer has 100 turns in primary coil and 200 turns in the secondary coil. If 200 V emf is induced in the secondary coil then the input emf is

- 2000 V

- 400 V

- 400000 V

- 100 V

Correct Answer: 100 V

53. In step up transformer, voltage in the secondary increases and power in secondary

- Remain same

- Decreases because voltage increases

- Increases because current decreases

- May increases if voltage remain same

Correct Answer: Remain same

54. A copper ring having a cut such as not to form a complete loop is held horizontally and a bar magnet is dropped through the ring with its length along the axis if the ring. The acceleration of the falling magnet is

- g

- Less then g+

- More then g

- Depends on the relative size of the cut

Correct Answer: g

55. Unit of induced emf is

- Volts

- newton

- ampere

- joule

Correct Answer: Volts

56. The unit of magnetic flux is:

- tesla

- henry

- weber

- rutherford

Correct Answer: weber

57. The diagram shows how the e.m.f. of a simple generator varies with time. What is the frequency and the maximum value of the e.m.f?  
>

- >

- >

- >

- >

Correct Answer: >

58. Lenz’s law is a not the consequence of the law of conservation of

- Charge

- Mass

- Momentum

- All of these

Correct Answer: All of these

59. The graph shows how an alternating current I of peak value I0 varies with time v:shapes=”\_x0000\_i1027″ class=”k-editor-image-auto” width=”11″ height=”19″>  
>  
.  
Which expression gives the alternating current I?

- "  
I  
=  
I  
o  
sin  
5  
π  
t  
" editorid="OptionA" class="k-editor-image-auto">

- "  
I  
=  
I  
o  
sin  
2  
π  
t  
2.5  
" editorid="OptionB" class="k-editor-image-auto">

- "  
I  
=  
I  
o  
sin  
π  
t  
0.0025  
" editorid="OptionC" class="k-editor-image-auto">

- I=Io sin(800 "  
π  
" editorid="OptionD" class="k-editor-image-auto">t)

Correct Answer: I=Io sin(800 "  
π  
" editorid="OptionD" class="k-editor-image-auto">t)

60. The power loss in transformer is due to

- Eddy current

- Resistance of coils

- Magnetic hysteresis

- All

Correct Answer: All

# 9-Electronics & Dawn of Modern Physics

1. Bridge rectifier is a

- Full wave rectifier

- Peak rectifier

- Half wave rectifier

- None of the mentioned

Correct Answer: Full wave rectifier

2. Output of bridge rectifier is pulsating D.C. If f is the frequency of input a.c, the frequency of ripples in output is

- f

- 2f

- "  
f  
2  
"

- 3f

Correct Answer: 2f

3. When p-n junction diode is forward biased

- The depletion region is reduced and barrier height is increased

- The depletion region is widened and barrier height is reduced

- Both the depletion region and barrier height reduced

- Both the depletion region and barrier height increased.

Correct Answer: Both the depletion region and barrier height reduced

4. Open loop gain of operational amplifier is

- Zero

- "  
∞  
"

- 10–5

- 10+5

Correct Answer: 10+5

5. In a half wave rectifier, the current through load resistance flows only in

- Positive half cycle

- Negative half cycle

- Both half cycles

- One half cycle

Correct Answer: One half cycle

6. A device which amplifies and also perform mathematical operations is called

- Transistor

- Op-Amp

- Diode

- Rectifier

Correct Answer: Op-Amp

7. The process in which A.C is converted into D.C is

- Amplification

- Rectification

- Modulation

- Magnification

Correct Answer: Rectification

8. Which one is reverse-biased?

- >

- >

- >

- >

Correct Answer: >

9. The unit of gain of non-inverting amplifier

- ohm

- ohm–1

- ohm per volt

- None of these

Correct Answer: None of these

10. In an half wave rectifier, the input sine wave is 250sin100 “  
π  
” t. The output ripple frequency of rectifier will be

- 100Hz

- 200Hz

- 50Hz

- 25Hz

Correct Answer: 50Hz

11. A semi-conductor can be used as a rectifier because

- It has low resistance to the current flow when forward biased

- It has low resistance to the current flow when reversed biased

- It has low resistance to the current flow when forward biased and high resistance when reversed biased

- None of above

Correct Answer: It has low resistance to the current flow when forward biased and high resistance when reversed biased

12. The resistance of an ideal diode in reverse bias condition is

- Infinite

- Finite

- Zero

- Negative

Correct Answer: Infinite

13. To reduce ripples in the output of bridge rectifier we should use

- Diodes having low forward resistance

- Diodes having high forward resistance

- Low frequency A.C

- A filter circuit

Correct Answer: A filter circuit

14. Rectifier allows unidirectional current through load during entire 360° of input cycle is

- halfwave rectifier

- full wave rectifier

- comparator

- amplifier

Correct Answer: full wave rectifier

15. Which diagram is the correct circuit for-full-wave rectification?

- >

- >

- >

- >

Correct Answer: >

16. Op-amp consist of dozens of transistor, capacitors and resistors due to this reason is known as

- IC (Integrated circuit)

- A.C

- D.C

- Black box approach

Correct Answer: IC (Integrated circuit)

17. Mathematical operations can be performed electronically by

- Diode

- Amplifier

- Operational amplifier

- Transformer

Correct Answer: Operational amplifier

18. For single phase supply frequency of 50 Hz, ripple frequency in full wave rectifier is

- 25 Hz

- 50 Hz

- 100 Hz

- 200 Hz

Correct Answer: 100 Hz

19. A pn junction (D) shown in the figure can act as a rectifier. An alternating current source (V) is connected in the circuit. The output current in the circuit is represented by: >

- >

- >

- >

- >

Correct Answer: >

20. An operational amplifier works with open loop. Potential difference between input terminals is 150 mV. The out voltage is

- 50 V

- 15 V

- 100 V

- 150 V

Correct Answer: 15 V

21. AC voltage is fed into a single diode rectifier. The output of the rectifier is

- Full wave rectified dc voltage

- Half wave rectified dc voltage

- Double frequency AC voltage

- None of these

Correct Answer: Half wave rectified dc voltage

22. To derive expression for voltage gain of inverting op amplifier we apply

- Virtual ground principle

- Kirchhoff current rule

- Kirchhoff voltage rule

- Virtual ground principle and Kirchhoff’s current rule

Correct Answer: Virtual ground principle and Kirchhoff’s current rule

23. Op-amp can be used as?

- Inverting amplifier

- Non-inverting amplifier

- Night switch

- All of these

Correct Answer: All of these

24. If signal is applied to input of non-inverting amplifier through resistance of 100 k ohm, and the value of feedback resistance is 10 k ohm, the gain is:

- 11

- 1.1

- 10

- 0.11

Correct Answer: 1.1

25. The voltage supplied to input is “  
V  
i  
=  
0.20  
V  
” editorid=”QuestionBody” class=”k-editor-image-auto”> as in fig. The voltage output is  
>

- 1.2 V

- 20 V

- 1 V

- 60 V

Correct Answer: 1 V

26. The input resistance of the operational amplifier is very high of order of

- Several K "  
Ω  
"

- "  
S  
e  
v  
e  
r  
a  
l  
 M  
Ω  
"

- "  
S  
e  
v  
e  
r  
a  
l  
 G  
Ω  
"

- "  
S  
e  
v  
e  
r  
a  
l  
 Ω  
"

Correct Answer: "  
S  
e  
v  
e  
r  
a  
l  
 M  
Ω  
"

27. In full wave rectification by bridge the number of diodes required are

- 3

- 2

- 5

- 4

Correct Answer: 4

28. In an operational amplifier potential at inverting input is V – and at non-inverting terminal is V+ while output voltage is Vo then “  
V  
o  
V  
+  
−  
V  
−  
” is called

- Voltage gain

- Open loop gain

- Closed loop gain

- Power factor

Correct Answer: Open loop gain

29. Momentum of an electron if wavelength associated with it is 2Ao

- 2.31×10-24 kgms-1

- 3.31×10-24 kgms-1

- 1/3.31×10-24 kgms-1

- 3.31×1024 kgms-1

Correct Answer: 3.31×10-24 kgms-1

30. In the formula “  
G  
=  
−  
R  
2  
R  
1  
” , the negative sign indicates that the

- Input signals is 180° out of phase with respect to output signal

- Output signals is 180° out of phase with respect to input signal

- Output signals is "  
π  
2  
" out of phase with respect to input signal

- Input signals is "  
π  
4  
" out of phase with respect to output signal

Correct Answer: Output signals is 180° out of phase with respect to input signal

31. To detect a signal of radio wave\_\_\_\_\_\_\_\_\_\_ of photons are needed.

- One

- Few hundred

- Infinite no

- Millions

Correct Answer: Millions

32. In photoelectric effect if the intensity of light is doubled then maximum kinetic energy of photoelectrons will become

- Double

- Half

- Four time

- No change

Correct Answer: No change

33. Photoelectric effect can be explained by

- Electromagnetic wave theory

- Quantum theory

- Wave theory

- Corpuscular theory

Correct Answer: Quantum theory

34. Photoelectric effect is reverse process of

- Compton’s effect

- Pair production

- X-rays production

- All of these

Correct Answer: X-rays production

35. If momentum of a particle is doubled then de-Broglie wavelength become

- Double

- Unchanged

- Half

- Four times

Correct Answer: Half

36. The momentum of photon is

- "  
h  
c  
"

- "  
h  
λ  
"

- "  
h  
c  
λ  
"

- Both B and C

Correct Answer: "  
h  
λ  
"

37. Rest mass of photon of frequency f is

- Zero

- hf

- "  
h  
c  
f  
"

- "  
h  
c  
c  
"

Correct Answer: Zero

38. Frequency of photon having energy 66 eV is

- 8×10−15Hz

- 12×10−15Hz

- 16×1015Hz

- None of these

Correct Answer: 16×1015Hz

39. The frequency of a photon, having energy 100 eV is (h=6.610−34J–sec)

- 2.42×1026Hz

- 2.42×1016Hz

- 2.42×1012Hz

- 2.42×109Hz

Correct Answer: 2.42×1016Hz

40. Which of the following figure represents the variation of particle momentum and the associated de-Broglie wavelength?

- >

- >

- >

- >

Correct Answer: >

41. The unit of De-Broglie wavelength is

- per meter

- meter

- meter2

- per meter2

Correct Answer: meter

42. The experimental value of Rydberg constant is

- 1.097 ×10-8 m-1

- 1.097 ×108 m-1

- 1.097 ×107 m-1

- 1.097 ×10-7 m-1

Correct Answer: 1.097 ×107 m-1

43. When yellow light is incident on a surface, no electrons are emitted while green light can emit. If red light is incident on the surface, then

- No electrons are emitted

- Photons are emitted

- Electrons of higher energy are emitted

- Electrons of lower energy are emitted

Correct Answer: No electrons are emitted

44. A photo cell shows current I when a bulb is placed at a distance 50 cm from it. What is the current if bulb is placed at a distance 1m from photo cell?

- "  
I  
2  
"

- "  
I  
4  
"

- 4I

- 2I

Correct Answer: "  
I  
4  
"

45. Indivisible tiny bundles of energy in electromagnetic radiation is named as

- "  
γ  
" -ray

- Spectrum

- Photon

- "  
β  
" -rays

Correct Answer: Photon

46. The curves (A), (B), (C) and (D) show the variation between the applied potential difference (V) and the photoelectric current (I), at two different intensities of light (I1 > I2). In which figure is the correct variation shown

- >

- >

- >

- >

Correct Answer: >

47. Stopping potential for photoelectrons

- Does not depend on the frequency of the incident light

- Does not depend upon the nature of the cathode material

- Depends on both the frequency of the incident light and nature of the cathode material

- Depends upon the intensity of the incident light

Correct Answer: Depends on both the frequency of the incident light and nature of the cathode material

48. Which of the following electromagnetic radiations has photons with the greatest energy?

- blue light

- yellow light

- x rays

- radio waves

Correct Answer: radio waves

49. If the energy of the photon is increased by a factor of 4, then its momentum

- Does not change

- Decreases by a factor of 4

- Increases by a factor of 4

- Decreases by a factor of 2

Correct Answer: Increases by a factor of 4

50. A photosensitive plate is illuminated by green light and photoelectrons are emitted with maximum kinetic energy “  
4  
e  
V  
” . If the intensity of the incident radiation is reduced to one-fourth of the original value, then the maximum K.E. of the photoelectrons will be

- 0.1 eV

- 1 eV

- 4 eV

- 16 eV

Correct Answer: 4 eV

51. Which photon have the maximum momentum

- green

- blue

- red

- have same momentum

Correct Answer: blue

52. Which gas is filled in photocell?

- Neon

- Helium

- Hydrogen

- No gas

Correct Answer: No gas

53. An electron is accelerated through potential difference ‘V’ volt. If ‘m’ is mass and ‘e’ is charge on electron then de-Broglie wavelength of electron is

- "  
λ  
=  
h  
m  
V  
e  
"

- "  
λ  
=  
h  
2  
m  
V  
e  
"

- "  
λ  
=  
h  
m  
V  
e  
"

- "  
λ  
=  
h  
2  
m  
V  
e  
"

Correct Answer: "  
λ  
=  
h  
2  
m  
V  
e  
"

54. The incident photon involved in the photoelectric effect experiment.

- Completely disappears

- Comes out with an increased frequency

- Comes out with a decreased frequency

- Comes out without change in frequency

Correct Answer: Completely disappears

55. The correct curve between the stopping potential (V) and intensity of incident light (I) is

- >

- >

- >

- >

Correct Answer: >

56. Which one is the correct expression of de Broglie equation for the wave length of atoms of mass m at temperature T? (k = Boltzmann constant)

- "  
λ  
=  
h  
3  
m  
k  
"

- "  
λ  
=  
h  
3  
k  
T  
m  
"

- "  
λ  
=  
h  
3  
k  
T  
m  
"

- "  
λ  
=  
h  
3  
k  
T  
"

Correct Answer: "  
λ  
=  
h  
3  
k  
T  
m  
"

57. Kinetic energy with which the electrons are emitted from the metal surface due to photoelectric effect is

- Independent of the intensity of illumination

- Independent of the frequency of light

- Inversely proportional to the intensity of illumination

- Directly proportional to the intensity of illumination

Correct Answer: Independent of the intensity of illumination

58. Energy of photon whose frequency is 1012MHz, will be

- 4.14×103keV

- 4.14×102eV

- 4.14×103MeV

- 4.14×103eV

Correct Answer: 4.14×103eV

59. Potassium cathode in photocell emit electrons for a light:

- visible

- ultra violet

- infra-red

- x-rays

Correct Answer: visible

60. When light falls on the metal surface, the energies of the emitted electrons vary with

- speed of light

- intensity of light

- frequency of light

- remain unchanged

Correct Answer: frequency of light

# 10-Atomic Spectra & Nuclear Physics

1. The particles that experience the strong nuclear force are

- Quarks

- Hadrons

- Leptons

- Positrons

Correct Answer: Hadrons

2. The half-life of a certain element is 3.5 days at S.T.P. If the temperature is doubled and pressure is reduced to half then half life of the same element will be

- 1.75 days

- 3.5 days

- 7 days

- 14 days

Correct Answer: 3.5 days

3. Bottom quark carries charge:

- "  
2  
3  
e  
"

- "  
+  
1  
3  
e  
"

- "  
−  
2  
3  
e  
"

- "  
−  
1  
3  
e  
"

Correct Answer: "  
−  
1  
3  
e  
"

4. The source of energy in sun is

- Fission

- Fusion

- Chemical reaction

- Combustion

Correct Answer: Fusion

5. Three quarks make up a

- Lepton

- Meson

- Baryon

- Quark

Correct Answer: Baryon

6. A radioactive nucleus is formed by “  
β  
” editorid=”QuestionBody” class=”k-editor-image-auto”>-decay. This nucleus then decays by “  
α  
” editorid=”QuestionBody” class=”k-editor-image-auto”>-emission. Which graph of proton number Z plotted against nucleon number N shown the “  
β  
” editorid=”QuestionBody” class=”k-editor-image-auto”>-decay followed by the “  
α  
” editorid=”QuestionBody” class=”k-editor-image-auto”>-emission?

- >

- >

- >

- >

Correct Answer: >

7. In nuclear fission reaction, when the products are “  
54  
140  
X  
e  
” and “  
38  
94  
S  
r  
,  
” the number of neutrons emitted is:

- 4

- 2

- 3

- 1

Correct Answer: 2

8. One eight of the initial mass of certain radioactive isotope remains un-decayed after one hour. The half-life of the isotope in minutes is

- 8

- 30

- 20

- 45

Correct Answer: 20

9. The activity from a radioactive source is found to full by 0.875 of its initial activity in 210 s. What is the half-life of the source?

- 30 s

- 60 s

- 70 s

- 105 s

Correct Answer: 70 s

10. Range of γ-ray in air obey.

- Square law

- Cube law

- Linear law

- Inverse square law

Correct Answer: Inverse square law

11. Half-life of sample A is 2 hour and that of sample B is 1 hour. If they have same No. of atoms at t = 0 what is ratio of atoms in A to B after 2 hours NA : NB

- 1 : 2

- 2 : 1

- 3 : 2

- 2 : 3

Correct Answer: 2 : 1

12. The binding energy per nucleon is maximum in case of

- "  
2  
He  
4  
"

- "  
56  
Ba  
141  
"

- "  
26  
Fe  
56  
"

- "  
92  
U  
235  
"

Correct Answer: "  
26  
Fe  
56  
"

13. Unit of decay constant λ is

- m s

- m

- m-1

- s-1

Correct Answer: s-1

14. In the reaction “  
H  
1  
2  
+  
H  
1  
3  
→  
H  
2  
4  
e  
+  
n  
0  
1  
” , if the binding energies of “  
H  
1  
2  
+  
H  
1  
3  
” and “  
H  
2  
4  
e  
” are respectively a, b and c (in MeV) then the energy (in MeV) released is

- a+b+c

- a+b–c

- c–a–b

- c+a–b

Correct Answer: a+b–c

15. What is the charge on a-particles emitted during the phenomena of radioactivity?

- –e

- –2e

- +e

- +2e

Correct Answer: +2e

16. In which sequence the radioactive radiations are emitted in the following nuclear reaction?  
>

- >

- >

- >

- >

Correct Answer: >

17. Nuclear fission experiments show that the neutrons split the uranium nuclei into two fragments of about the same size. This process is accompanied by the emission of several

- Protons and positrons

- "  
α  
" - particles

- Neutrons

- Protons and "  
α  
" - particles

Correct Answer: Neutrons

18. One reaction which might be used for controlled nuclear fusion is shown. “  
3  
7  
L  
i  
+  
1  
2  
H  
→  
2  
2  
4  
H  
e  
+  
X  
”  
What is particle X?

- an "  
α  
" -particle

- an electron

- a neutron

- a proton

Correct Answer: a neutron

19. The emission of β-particle from polonium-218 results in the formation of

- Protactinium-143

- Radon -222 gas

- Astatine-218

- Thorium-234

Correct Answer: Astatine-218

20. The particles equal in mass or greater than mass of protons are called

- Leptons

- Mesons

- Baryons

- Quarks

Correct Answer: Baryons

21. Sum of the charge of two up and one down quark is equal to

- "  
+  
2  
3  
e  
"

- "  
−  
1  
3  
e  
"

- Zero

- e

Correct Answer: e

22. Which of the following pairs is an isobar?

- 1H1 and 1H2

- 1H2 and 1H3

- 6C12 and 6C13

- 15P30 and 14Si30

Correct Answer: 15P30 and 14Si30

23. X-rays are not used in RADAR, because

- X-rays are not reflected by target

- X-rays are completely absorbed by air

- X-rays damage the target

- All of these

Correct Answer: X-rays are not reflected by target

24. The penetrating power of X-rays increases with the

- Increase in its velocity

- Increase in its frequency

- Increase in its intensity

- Decrease in its velocity

Correct Answer: Increase in its frequency

25. Which of the following has lower energy quanta?

- X-rays

- radio waves

- ultra-violet

- "  
γ  
" -rays

Correct Answer: radio waves

26. The absorption transitions between the first and the fourth energy states of hydrogen atom are 3. The emission transitions between these states will be

- 3

- 4

- 5

- 6

Correct Answer: 6

27. Which of the following wavelength falls in X-ray region?

- 10000 Å

- 1000 Å

- 1 Å

- 102 Å

Correct Answer: 1 Å

28. If potential difference applied becomes doubled then frequency of x-rays photon would become

- 0.5 times

- 4 times

- 2 times

- 1.41 times

Correct Answer: 2 times

29. The voltage applied across an X-rays tube is nearly

- 10 V

- 100 V

- 10000 V

- 106 V

Correct Answer: 10000 V

30. X – rays and γ−rays of the same energies may be distinguished by

- Their velocity

- Their ionizing power

- Their intensity

- Method of production

Correct Answer: Method of production

31. Lβ x-rays is produced by transition from

- n=4 to n=1

- n=4 to n=2

- n=3 to n=1

- n=3 to n=2

Correct Answer: n=4 to n=2

32. Which of given equation represent the energy of “  
K  
α  
−  
” rays photon?

- "  
h  
f  
=  
E  
L  
−  
E  
K  
" editorid="OptionA" class="k-editor-image-auto">

- "  
h  
f  
=  
E  
M  
−  
E  
K  
" editorid="OptionB" class="k-editor-image-auto">

- "  
h  
f  
=  
E  
N  
−  
E  
K  
" editorid="OptionC" class="k-editor-image-auto">

- "  
h  
f  
=  
E  
∞  
−  
E  
K  
" editorid="OptionD" class="k-editor-image-auto">

Correct Answer: "  
h  
f  
=  
E  
M  
−  
E  
K  
" editorid="OptionB" class="k-editor-image-auto">

33. Energy of photon is E and planck’s constant is h the angular frequency of electromagnetic wave is

- "  
E  
h  
"

- "  
2  
E  
h  
"

- "  
E  
2  
π  
h  
"

- "  
2  
π  
E  
h  
"

Correct Answer: "  
2  
π  
E  
h  
"

34. The ratio of the longest and shortest wavelengths of the Lyman series is approximately

- 4/3

- 9/4

- 9/5

- 16/7

Correct Answer: 4/3

35. An electron makes a transition from orbit n = 4 to the orbit n = 2 of a hydrogen atom. The wave number of the emitted radiations (R = Rydberg's constant) will be

- 16/3R

- 2R/16

- 3R/16

- 3R/16

Correct Answer: 3R/16

36. The atom is excited to an energy level E1 from its ground state energy level Eo, the wavelength of the radiations emitted is

- "  
E  
o  
−  
E  
1  
h  
c  
" editorid="OptionA" class="k-editor-image-auto">

- "  
E  
1  
−  
E  
o  
h  
c  
" editorid="OptionB" class="k-editor-image-auto">

- "  
h  
c  
E  
1  
−  
E  
o  
" editorid="OptionC" class="k-editor-image-auto">

- "  
E  
1  
h  
c  
−  
E  
o  
h  
c  
" editorid="OptionD" class="k-editor-image-auto">

Correct Answer: "  
h  
c  
E  
1  
−  
E  
o  
" editorid="OptionC" class="k-editor-image-auto">

37. In Bohr's model of hydrogen atom, let PE represents potential energy and TE the total energy. In going to a higher level

- PE decreases, TE increases

- PE increases, TE increases

- PE decreases, TE decreases

- PE increases, TE decreases

Correct Answer: PE increases, TE increases

38. X-rays region lies between

- Short radio wave and visible region

- Visible and ultraviolet region

- Gamma rays and ultraviolet region

- Short radio waves and long radio waves

Correct Answer: Gamma rays and ultraviolet region

39. Continuous spectrum of X–rays is due to an effect known as:

- Photoelectric effect

- Compton effect

- Heisenberg effect

- Bremsstrahlung

Correct Answer: Bremsstrahlung

40. Which of given correctly shown intensity wavelength graph for X-rays

- class="k-editor-image-auto">

- class="k-editor-image-auto img-eq-selected">

- class="k-editor-image-auto">

- class="k-editor-image-auto">

Correct Answer: class="k-editor-image-auto img-eq-selected">

41. Energy order of characteristics x-rays

- "  
K  
γ  
>  
 K  
β  
>  
K  
α  
"

- "  
K  
γ  
=  
 K  
β  
=  
K  
α  
"

- "  
K  
γ  
<  
 K  
β  
<  
K  
α  
"

- "  
K  
γ  
>  
 K  
β  
<  
K  
α  
"

Correct Answer: "  
K  
γ  
>  
 K  
β  
>  
K  
α  
"

42. For X– rays which of the following is not correct:

- Cause of ionization in air when they pass through it

- Can be deflected by electric and magnetic fields

- Can be used to detect flaws in metal castings

- Travel with the speed of light

Correct Answer: Can be deflected by electric and magnetic fields

43. In Bohr’s model, the atomic radius of the first orbit is “  
r  
o  
” editorid=”QuestionBody” class=”k-editor-image-auto”> ; then the radius of the third orbit is:

- "  
r  
o  
9  
" editorid="OptionA" class="k-editor-image-auto">

- "  
r  
o  
" editorid="OptionB" class="k-editor-image-auto">

- "  
9  
r  
o  
" editorid="OptionC" class="k-editor-image-auto">

- "  
3  
r  
o  
" editorid="OptionD" class="k-editor-image-auto">

Correct Answer: "  
9  
r  
o  
" editorid="OptionC" class="k-editor-image-auto">

44. Density difference is measured in CAT scanner. We can detect density difference upto \_\_\_\_\_\_\_% with it.

- 10%

- 20%

- 0.1%

- 1%

Correct Answer: 1%

45. A potential difference of 42,000 volt is used in an X – rays tube to accelerate electron. The speed of x – rays

- 2 × 108 m/s

- 3 × 1010 m/s

- 3 × 108 m/s

- None of these

Correct Answer: 3 × 108 m/s

46. Paschen series is obtained when all the transitions of electron terminate on.

- 2nd orbit

- 4th orbit

- 3rd orbit

- 5th orbit

Correct Answer: 3rd orbit

47. What will be the energy of accelerated electron used to produce x-rays if accelerating potential is 2KV?

- 2×1010

- 1.6×1019

- 3.2×10–16

- 3.2×1018

Correct Answer: 3.2×10–16

48. X-rays penetrate …………… into solids

- few meters

- few centimeters

- several meters

- several centimeters

Correct Answer: several centimeters

49. X-rays cannot be deflected by means of an ordinary grating due to

- Large wavelength

- High speed

- Short wavelength

- None of these

Correct Answer: Short wavelength

50. To find longest wavelength radiation in Balmer series, the value of n used is

- 2

- 3

- 4

- ∞

Correct Answer: 3

51. Protons are accelerated from rest by a potential difference 4 KV and strike a metal target. If a proton produces one photon on impact of minimum wavelength λ1 and similarly an electron accelerated to 4 kV strikes the target and produces a minimum wavelength λ2 then

- λ1=λ2

- λ1>λ2

- λ1<λ2

- no such relation can be established

Correct Answer: λ1=λ2

52. X-rays were discovered by

- Becquerel

- Roentgen

- Marie Curie

- Von Laue

Correct Answer: Roentgen

53. When boron-11 (5B11)is bombarded with -particle, a new nucleus is formed and a neutron is released. Which nuclear equation could represent this reaction?

- class="k-editor-image-auto img-eq-selected">

- class="k-editor-image-auto img-eq-selected">

- class="k-editor-image-auto">

- class="k-editor-image-auto">

Correct Answer: class="k-editor-image-auto">

54. A zirconium nucleus “  
Z  
40  
100  
r  
” emits “  
β  
” -particle. The product nucleus is also emits “  
β  
” -particle. What is the final resulting nucleus of these two decays?

- "  
S  
38  
100  
r  
"

- "  
M  
42  
100  
o  
"

- "  
Z  
40  
98  
r  
"

- "  
Z  
40  
102  
r  
"

Correct Answer: "  
M  
42  
100  
o  
"

55. Magnetic field does not cause deflection in

- "  
α  
" -rays

- beta-minus rays

- beta-plus rays

- gamma rays

Correct Answer: gamma rays

56. Possible units for the disintegration constant λ are:

- kg/s

- s/kg

- hour

- day−1

Correct Answer: day−1

57. Plutonium decay with a half-life of 24000 Year. If plutonium is stored for 72000 years, the fraction of it that remains is

- "  
1  
2  
"

- "  
1  
4  
"

- "  
1  
3  
"

- "  
1  
8  
"

Correct Answer: "  
1  
8  
"

58. Binding energy for deuteron nucleus is given by:

- 2.8 MeV

- 2.23 MeV

- 2.28 MeV

- 2.25 MeV

Correct Answer: 2.23 MeV

59. The following represents a sequence of radioactive decays involving two “  
α  
” -particles and one “  
β  
” -particle.  
“  
A  
85  
217  
t  
→  
α  
V  
→  
α  
W  
→  
β  
X  
”

- "  
A  
85  
213  
t  
"

- "  
l  
77  
215  
r  
"

- "  
P  
82  
209  
b  
"

- "  
T  
81  
217  
l  
"

Correct Answer: "  
P  
82  
209  
b  
"

60. The uranium Nucleus “  
U  
92  
238  
” undergoes successive decays, emitting respectively “  
α  
−  
r  
a  
y  
” , “  
β  
−  
r  
a  
y  
” and “  
γ  
−  
r  
a  
y  
s  
” What is the atomic number and atomic mass of the resulting Nucleus

- 90, 238

- 91, 234

- 92, 236

- 92, 238

Correct Answer: 91, 234

# 1-Letters and Symbol Series(CTS)

1. Directions: Find the missing term in each of the following series:

-

-

-

-

Correct Answer:

2. Directions: Find the missing term in each of the following series:

- H9R

- H10Q

- H10R

- I10R

Correct Answer: H10R

3. Directions: Find the missing term in each of the following series:

-

-

-

-

Correct Answer:

4. Directions: Find the missing term in each of the following series:

- W

- X

- D

- V

Correct Answer: X

5. Directions: Find the missing term in each of the following series:

- JVF

- JTF

- JUF

- JPF

Correct Answer: JUF

6. Directions: Find the missing term in each of the following series:

- MNO

- LMNO

- MNOP

- NOPQ

Correct Answer: MNOP

7. Directions: Find the missing term in each of the following series:

- U

- X

- Y

- Z

Correct Answer: X

8. Directions: Find the missing term in each of the following series:

- O

- N

- G

- I

Correct Answer: I

9. Directions: Find the missing term in each of the following series:

-

-

-

-

Correct Answer:

10. Directions: Find the missing term in each of the following series:

- 2042

- 2046

- 2048

- 2056

Correct Answer: 2048

11. Directions: Find the missing term in each of the following series:

- 400

- 410

- 420

- 430

Correct Answer: 430

12. Directions: Find the missing term in each of the following series:

- 27

- 35

- 45

- 56

Correct Answer: 35

13. Directions: Find the missing term in each of the following series:

- 23

- 38

- 39

- 40

Correct Answer: 39

14. Find out the wrong term.

- 3

- 4

- 10

- 27

Correct Answer: 10

15. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 3

16. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 4

17. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 4

18. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 4

19. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 1

20. Directions: Look carefully at the sequence of symbols to find the pattern. Select correct pattern.

- 1

- 2

- 3

- 4

Correct Answer: 2

# 3-Logical Deductions(CTS)

1. M, N, O, P, Q and R are six members of a family. There are two married couples among them. O is the mother of M and R. Q is the father of P. M is the grandson of N. The total number of female members in the family is three.  
Which of the following is a group of female members?

- PQR

- MNP

- MNO

- NOR

Correct Answer: NOR

2. A, B, C, D and E are five friends. B is elder to E, but not as tall as C. C is younger to A, and is taller to D and E. A is taller to D, but younger than E. D is elder to A but is shortest in the group.Which of the following statements is correct about B?  
(i) B is not the tallest.  
(ii) B is shorter to E.  
(iii) When they are asked to stand in ascending order with respect to their heights, B is in the middle.

- Only (i) is correct

- Only (i) and (ii) are correct

- All are correct

- All are incorrect

Correct Answer: Only (i) is correct

3. (i) Kashif, Gulfam and Haider are intelligent.  
(ii) Kashif, Rameez and Javaid are hard-working.  
(iii) Rameez, Haider and Javaid are honest.  
(iv) Kashif, Gulfam and Javaid are ambitious.  
Which of the following persons is neither hard-working nor ambitious?

- Kashif

- Gulfam

- Haider

- Rameez

Correct Answer: Haider

4. (i) Kashif, Gulfam and Haider are intelligent.  
(ii) Kashif, Rameez and Javaid are hard-working.  
(iii) Rameez, Haider and Javaid are honest.  
(iv) Kashif, Gulfam and Javaid are ambitious.  
Which of the following persons is neither honest nor hard-working but is ambitious?

- Kashif

- Gulfam

- Rameez

- Haider

Correct Answer: Gulfam

5. Six student A, B, C, D, E and F are sitting in the field. A and B are from ALNOOR SCHOOL and the rest belong to ALNOOR COLLEGE. D and F are tall while the others are short. A, C and D are wearing glasses while the others are not.  
Which two students, who are not wearing glasses, are short?

- A and F

- C and F

- B and E

- E and F

Correct Answer: B and E

6. Six student A, B, C, D, E and F are sitting in the field. A and B are from ALNOOR SCHOOL and the rest belong to ALNOOR COLLEGE. D and F are tall while the others are short. A, C and D are wearing glasses while the others are not.  
Which short student of ALNOOR COLLEGE is not wearing glasses?

- F

- E

- B

- Data industries

Correct Answer: E

7. Six student A, B, C, D, E and F are sitting in the field. A and B are from ALNOOR SCHOOL and the rest belong to ALNOOR COLLEGE. D and F are tall while the others are short. A, C and D are wearing glasses while the others are not.  
Which tall student of ALNOOR COLLEGE is not wearing glasses?

- B

- C

- E

- F

Correct Answer: F

8. In a shop, there were 4 dolls of different heights A, B, C and D. D is neither as tall as A nor as short as C. B is shorter than D but taller than C. If Maniha wants to purchase the tallest doll, which one should she purchase?

- Only A

- Only D

- Either B or D

- None of these

Correct Answer: Only A

9. In an examination, Rehman got more marks than Mustafa but not as many as Saba. Saba got more marks than Ghafoor and Mehwish. Ghafoor got less marks than Mustafa but his marks are not the lowest in the group. Who is second in the descending order of marks?

- Saba

- Mehwish

- Rehman

- None of these

Correct Answer: Rehman

10. Five children are sitting in a row. S is sitting next to P but not T. K is sitting next to R who is sitting on the extreme left and T is not sitting next to K. Who are sitting adjacent to S?

- K and P

- R and P

- Only P

- P and T

Correct Answer: P and T

# 4-Course of Action(CTS)

1. Statement: The ground water in the locality has been found to contain high level of arsenic making it dangerous to drink.  
Course of action:  
I. The people living in the area should be shifted to another area to avoid a catastrophic situation.  
II. The government should make arrangements for supply of safe drinking water.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If only II is most appropriate

2. Statement: A group of school students was reported to be enjoying at a picnic spot during school hours.  
Course of action:  
I. The principal of the school should contact the parents of those students and inform them.  
II. Some disciplinary action must be taken against those students for the awareness of all the other student.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If both I and II are most appropriate

3. Statement: On an average, about twenty people are run over by trains and die everyday while crossing the railway tracks through the level crossing.  
Course of action:  
I. The railway authorities should be instructed to close all the level crossings.  
II. Those who are found crossing the tracks, when the gates are closed, should be fined heavily.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If only II is most appropriate

4. Statement: There has been less than forty percent voter turnout in the recent assembly elections.  
Course of action:  
I. The election commission should cancel the entire election process as the votes cast are not adequate to represent people.  
II. The election commission should take away the voting rights of those who did not exercise their rights.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If neither I nor II is most appropriate

5. Statement: The cinema halls are incurring heavy losses these days as people prefer to watch movies in home on TV than to visit cinema halls.  
Course of action:  
I. The cinema halls should be demolished and residential multi-storey buildings should be constructed there.   
II. The cinema halls should be converted into shopping malls.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If neither I nor II is most appropriate

6. Statement: Footpaths of a busy road are crowded with vendors selling cheap items.  
Course of action:  
I. The help of police should be sought to drive them away.  
II. Some space should be provided to them where they can earn their bread without blocking footpaths.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If both I and II are most appropriate

7. Statement: The sale of a particular product has gone down considerably causing great concern to the company.  
Course of action:  
I. The company should make a proper study of rival products in the market.  
II. The price of the product should be reduced and quality improved.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If only I is most appropriate

8. Statement: Every year large number of devotees die due to severe cold on their way to the shrine located at the top of the mountain range.  
Course of action:  
I. The devotees should be discouraged to visit the shrine without having proper warm clothes and other amenities  
II. The government should provide warm clothes and shelter to all the devotes visiting the shrine.

- If only I is most appropriate

- If only II is most appropriate

- If either I or II is most appropriate

- If neither I nor II is most appropriate

- If both I and II are most appropriate

Correct Answer: If only I is most appropriate

9. Statement: Financial stringency prevented the Provincial Government from paying salaries to its employees since April this year.  
Course of action:I. The Provincial Government should immediately curtail the staff strength at least by 30%.  
II. The Provincial Government should reduce wasteful expenditure and arrange to pay the salaries of its employees.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If only II follows

10. Statement: The State Government has decided to declare Kala Azar as a notifiable disease under the Epidemics Act. Family members or neighbors of the patient are liable to be punished in case they did not inform the State authorities.  
Course of action:  
I. Efforts should be made to effectively implement the Act.  
II. The cases of punishment should be propagated through mass media so that more people become aware of the stern actions.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If both I and II follows

11. Statement: Some serious blunders were detected in the Accounts section of a factory.  
Course of action:  
I. An efficient team of auditors should be appointed to check the Accounts.  
II. A show cause notice should be issued to all the employees involved in the irregularity.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If both I and II follows

12. Statement: The police department has come under a cloud with recent revelations that at least two senior police officials are suspected to have been involved in the illegal sale of a large quantity of weapons from the Punjab police armory.  
Course of action:  
I. A thorough investigation should be ordered by the Punjab Government to bring out all those who are involved into the illegal sale of arms  
II. Punjab should be kept under Federal Government’s control.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If only I follows

13. Statement: The Finance Minister submits his resignation a month before the new budget is to be presented in the Parliament.  
Course of action:  
I. The resignation should be accepted and another person should be appointed as the Finance Minister.  
II. The resignation should not be accepted.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If only II follows

14. Statement: The killer entric fever has so far claimed 100 lives in some tribal villages during the past three weeks.  
Course of action:  
I. The residents of these villages should immediately be shifted to a non-infected area.  
II. The Government should immediately send a medical squad to this area to restrict spread of the killer disease.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If only II follows

15. Statement: The availability of imported fruits has increased in the indigenous market and so the demand for indigenous fruits has been decreased.  
Course of action:  
I. To help the indigenous producers of fruits, the Government should impose high import duty on these fruits, even if these are not of good quality.  
II. The fruit vendors should stop selling imported fruits. So that the demand for indigenous fruits would be increased.

- If only I follows

- If only II follows

- If either I or II follows

- If neither I nor II follows

- If both I and II follows

Correct Answer: If neither I nor II follows

# 5-Cause and Effect(CTS)

1. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. She wanted to catch a movie at the 7:30pm screening and reached the theatre at 7:45 pm.   
II. She bought tickets for the 8:30 pm screening of the movie she wanted to watch.

- A

- B

- C

- D

- E

Correct Answer: A

2. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Rise in foreign investments is increasing value of rupee.   
II. Foreign banks are establishing branches and ameliorating investment plans in South Asia especially in Pakistan

- A

- B

- C

- D

- E

Correct Answer: B

3. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Cash is not acceptable at many places after demonetization. II. Many online wallets are tying up with banks so that it is possible for people to go cashless.

- A

- B

- C

- D

- E

Correct Answer: A

4. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The rate of pulses has been increased substantially in the open market.   
II. The government is aiming to import pulses from neighbour countries.

- A

- B

- C

- D

- E

Correct Answer: A

5. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The prices of petrol and diesel in the domestic market have remained unchanged for the past few months. II. The crude oil prices in the international market have gone up substantially in the last few months.

- A

- B

- C

- D

- E

Correct Answer: D

6. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The government has decided to make all the information related to primary education available to the general public.   
II. In the past, the general public did not have access to all these information related to primary education.

- A

- B

- C

- D

- E

Correct Answer: B

7. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Majority of the citizens in the locality belong to higher income group.   
II. The sales in the local super market are comparatively much higher than in other localities.

- A

- B

- C

- D

- E

Correct Answer: B

8. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The literacy rate in the district has been increasing for the last four years.II.The district administration has conducted extensive training programme for the workers involved in the literacy drive.

- A

- B

- C

- D

- E

Correct Answer: B

9. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Most of the steel producing companies in the country X has made considerable profit.   
II. Many Asian-countries have been importing huge quantities of steel from X.

- A

- B

- C

- D

- E

Correct Answer: B

10. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Large number of people living in the low-lying areas have been evacuated during that last few days to safer places.   
II. The Government has rushed in relief supplies to the people living in the affected areas.

- A

- B

- C

- D

- E

Correct Answer: E

11. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The prices of vegetables have been increased considerably during this summer.  
 II. There is tremendous increase in the temperature during this summer thereby damaging crops greatly.

- A

- B

- C

- D

- E

Correct Answer: B

12. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The number of children joining primary government school is decreasing.   
II. Education quality has declined in government primary schools.

- A

- B

- C

- D

- E

Correct Answer: B

13. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The school authority has asked the X student to attend special classes to be conducted on Sundays.  
II. The parents of the X student have withdrawn their wards from attending private tuitions conducted on Sundays.

- A

- B

- C

- D

- E

Correct Answer: A

14. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. The flood destroyed many homes.   
II.The rainwater provided refuge from the drought condition.

- A

- B

- C

- D

- E

Correct Answer: D

15. In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as:  
A. If statement I is the cause and statement II is its effect;   
B. If statement II is the cause and statement I is its effect;  
C. If both the statements I and II are independent causes;  
D. If both the statements I and II are effects of independent causes;  
E. If both the statements I and II are effects of some common cause;  
 I. Asad performed badly in office.  
II. Asad lost his job.

- A

- B

- C

- D

- E

Correct Answer: A

# 6-Critical Thinking(CTS)

1. Dryland farming is the only way to not only combat recurring drought but also meet the increasing food requirements of Pakistan. About 45% of Pakistan’s total crop production now comes from drylands. By the end of this century, this will have to increase to 60% if Pakistan is to provide adequate food for projected population of one billion by the turn of the century.  
Dryland farming is important for Pakistan.

- Data inadequate

- Definitely true

- Probably true

- Probably false

- Definitely false

Correct Answer: Definitely true

2. Dryland farming is the only way to not only combat recurring drought but also meet the increasing food requirements of Pakistan. About 45% of Pakistan’s total crop production now comes from drylands. By the end of this century, this will have to increase to 60% if Pakistan is to provide adequate food for projected population of one billion by the turn of the century.  
The per acre crop production is more in drylands then others.

- Definitely false

- Definitely true

- Probably false

- Probably true

- Data inadequate

Correct Answer: Data inadequate

3. Dryland farming is the only way to not only combat recurring drought but also meet the increasing food requirements of Pakistan. About 45% of Pakistan’s total crop production now comes from drylands. By the end of this century, this will have to increase to 60% if Pakistan is to provide adequate food for projected population of one billion by the turn of the century.  
At present Pakistan gets larger food production from wetlands.

- Probably true

- Data inadequate

- Probably false

- Definitely false

- Definitely true

Correct Answer: Definitely true

4. Dryland farming is the only way to not only combat recurring drought but also meet the increasing food requirements of Pakistan. About 45% of Pakistan’s total crop production now comes from drylands. By the end of this century, this will have to increase to 60% if Pakistan is to provide adequate food for projected population of one billion by the turn of the century.  
In Pakistan, the rate of growth of population is 15 percent per year.

- Data inadequate

- Probably true

- Definitely true

- Probably false

- Definitely false

Correct Answer: Data inadequate

5. The explosive growth in demand for castor oil abroad is bringing about a silent change in the castor seed economy of Gujrat. The State is well on its way to emerge as a strong manufacturing centre for castor oil relegating to background its current status as a big trading centre. The business prospects for export of castor oil which is converted into value added derivatives are so good that a number of castor seed crushing units have already come up and others are on the anvil.  
Gujrat used to supply castor seeds to the manufacturing units in the past.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Definitely true

6. The explosive growth in demand for castor oil abroad is bringing about a silent change in the castor seed economy of Gujrat. The State is well on its way to emerge as a strong manufacturing centre for castor oil relegating to background its current status as a big trading centre. The business prospects for export of castor oil which is converted into value added derivatives are so good that a number of castor seed crushing units have already come up and others are on the anvil.  
Gujrat is the only State in Pakistan which produces castor seed.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Data inadequate

7. The explosive growth in demand for castor oil abroad is bringing about a silent change in the castor seed economy of Gujrat. The State is well on its way to emerge as a strong manufacturing centre for castor oil relegating to background its current status as a big trading centre. The business prospects for export of castor oil which is converted into value added derivatives are so good that a number of castor seed crushing units have already come up and others are on the anvil.  
The production of castor oil has become a profitable business proposition.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Definitely true

8. The explosive growth in demand for castor oil abroad is bringing about a silent change in the castor seed economy of Gujrat. The State is well on its way to emerge as a strong manufacturing centre for castor oil relegating to background its current status as a big trading centre. The business prospects for export of castor oil which is converted into value added derivatives are so good that a number of castor seed crushing units have already come up and others are on the anvil.  
Manufacturing castor oil guarantees more surplus than selling castor seeds.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Definitely true

9. Of the roughly 4, 40,000 children who currently languish in America’s foster-care system, 20,000 are available for adoption, most of them are older children between the ages of 6 and 12. Among the adoptable children, 44% are white and 43% are black. But 67% of all families waiting to adopt are white, and many of them are eager to take a black child. The hurdles, however, are often formidable. Though only three US states: Arkansas, California and Minnesota, have laws promoting race matching in adoptions, 40 other favor the practice.  
Children beyond 12 years of age are less suitable for adoption.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Data inadequate

10. Of the roughly 4, 40,000 children who currently languish in America’s foster-care system, 20,000 are available for adoption, most of them are older children between the ages of 6 and 12. Among the adoptable children, 44% are white and 43% are black. But 67% of all families waiting to adopt are white, and many of them are eager to take a black child. The hurdles, however, are often formidable. Though only three US states: Arkansas, California and Minnesota, have laws promoting race matching in adoptions, 40 other favor the practice.  
White children are being preferred for adoption by majority of black families.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Data inadequate

11. Of the roughly 4, 40,000 children who currently languish in America’s foster-care system, 20,000 are available for adoption, most of them are older children between the ages of 6 and 12. Among the adoptable children, 44% are white and 43% are black. But 67% of all families waiting to adopt are white, and many of them are eager to take a black child. The hurdles, however, are often formidable. Though only three US states: Arkansas, California and Minnesota, have laws promoting race matching in adoptions, 40 other favor the practice.  
Majority of the US states have laws that discourage the practice of adoption.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Definitely false

12. Of the roughly 4, 40,000 children who currently languish in America’s foster-care system, 20,000 are available for adoption, most of them are older children between the ages of 6 and 12. Among the adoptable children, 44% are white and 43% are black. But 67% of all families waiting to adopt are white, and many of them are eager to take a black child. The hurdles, however, are often formidable. Though only three US states: Arkansas, California and Minnesota, have laws promoting race matching in adoptions, 40 other favor the practice.  
Among the adoptable children at least 10 percent are neither black nor white.

- Definitely true

- Probably true

- Data inadequate

- Probably false

- Definitely false

Correct Answer: Definitely true