SET - II

ENGLISH

1. _____ refers to the comparison of one thing or person with the other without using comparative words.
    a) Metaphor
    b) Simile
    c) Circumlocution
    d) Personification

2. **The word 'epidemic' is antonymous with-**
    a) pandemic
    b) endemic
    c) academic
    d) none of them

3. **Hey! What's on _____ TV tonight?**
    a) a
    b) an
    c) the
    d) none

4. **Have you noticed if it rains heavily _____ the monsoons.**
    a) With
    b) in
    c) during
    d) for

5. **I don't think he will be successful. Neither of his plans _____ practical.**
    a) are
    b) were
    c) have been
    d) is

6. **She was made _____ all her clothes.**
    a) wash
    b) to wash
    c) washing
    d) none

7. **Unless you are careful, you _____ the test.**
    a) spoil
    b) will
    c) will spoil
    d) none

8. **We all insisted that she _____ the conference.**
    a) attend
    b) must attend
    c) had to attend
    d) attended

9. **No sooner had the plane taken off _____ it crashed.**

   a) when   b) before

   c) than   d) while

10. **The passive of 'People know that she was a thief." is:**

   a) It is known that she was a thief.

   b) She is known to have been a thief.

   c) She is known as a thief

   d) Both (a) and (b)

PHYSICS

11. **Which of the following pair of quantities has same unit?**

   a) Force and power   b) Work and power

   c) Velocity and acceleration   d) Work and energy

12. **A ball is thrown vertically upwards with 20m/s. Calculate the time taken by the ball to reach maximum height? (g = 10m/s^2)**

   a) 2 sec   b) 10 sec

   c) 2.5 sec   d) 3 sec

13. **An ice cube is floating in water. What will happen to the water level if the ice melts completely?**

   a) Increases   b) Decreases

   c) Remains same   d) Increases and then decreases

14. **At what height from earth, g becomes g/4 ?**

   a) R/2   b) 0.414 R

   c) 0.7 R   d) R

15. **The pressure of the liquid depends upon**

   a) Mass, force, density

   b) Height, mass, density

   c) Mass, density, acceleration due to gravity

   d) Height, density, acceleration due to gravity

16. **If two temperatures differ by 25 degrees on Celsius scale, what is the difference of Fahrenheit scale?**

   a) 25°F   b) 35°F

   c) 45°F   d) 77°F

17. **How much heat energy is required to rise 1°C temperature for l g pure water?**

    a) 1 Cal   b) 1 J

    c) 2 Cal   d) 2 J

18. **A convex lens form erect, magnified and virtual image of a real object when object is placed**

    a) Beyond 2F   b) Between F and 2F

    c) At F   d) Between F and optical center

19. **Ammeter is an instrument to measure**

    a) E.m.f.   b) Potential difference

    c) Current   d) Resistivity

20. **Sound waves are**

    a) Transverse wave   b) Longitudinal waves

    c) Both a and b   d) None

CHEMISTRY

21. **Which of the following has the maximum number of unpaired d – electrons?**

    a) Zn   b) Fe^{++}

    c) Ni^{++} d) Cu

22. **The elements of group VA are generally known as**

    a) Normal elements   b) Transition elements

    c) Halogens   d) Pnicogens

23. **Which of the following reaction is wrong?**

    a) $Mg + 2HCl \,(dil) \longrightarrow MgCl_2 + H_2$

    b) $Cu + 2H_2SO_4 \,(conc.) \longrightarrow CuSO_4 + SO_2 + 2H_2O$

    c) $Zn + 2\,HCl \longrightarrow ZnCl_2 + H_2$

    d) $Cu + 2\,HCl \longrightarrow CuCl_2 + H_2$

24. **Formula of hematite is**

    a) Fe_2O_3 b) Fe_3O_4

    c) Fe_2O_2 d) $FeSiO_3$

25. Which of the following is allotropes of carbon:

a) Diamond   b) Fullerene
c) Graphene   d) all of above

26. The ratio of lime stone and clay in cement is :

a) 1:1   b) 2:1
c) 1:3   d) 1:2

27. Porcelain is

a) Glass   b) Cement
c) Plastic   d) Ceramics

28. Tear gas is chemically

a) Acetyl salicylic   b) Chloropicrin
c) Phenyl isocyanide   d) Carbon monoxide

29. Which of the following has the highest pH value:

a) H_2SO_4 b) HCl
c) NH_4OH d) NaOH

30. Which of the following statement is correct for chemical change?

a) Mostly reversible
b) No new substance is formed
c) It is generally temporary change
d) None of above

MATHEMATICS

31. Let $n(\cup) = 10$, $n(A) = 5$, $n(B) = 7$ then the maximum value of $n(\overline{A \cap B})$ is

a) 8   b) 5
c) 7   d) 2

32. The arithmetic mean of 1, 2, 3, ... n is

a) $\dfrac{n}{2}$ b) $\dfrac{n(n+1)}{n}$
c) $\dfrac{n(n+1)}{2}$ d) $\dfrac{n+1}{2}$

– 12 –

33. **The acute angle between the lines $x - y = 0$ and $y = 0$ is**

   a) 30°
   b) 45°
   c) 60°
   d) 75°

34. **Which one of the following locus produces a straight line ?**

   a) Locus of a point which moves at equidistant from a fixed point.
   b) Locus of a point which moves at equidistant from two fixed points.
   c) Locus of a point which moves at equidistant from three fixed points
   d) All of these.

35. **tan 1°. tan 2°. tan 3°………. tan 88°. tan 89° =**

   a) –1
   b) 0
   c) 1
   d) ∞

36. **A solid cylinder with radius of base 'r' and height 'h' is melted in to identical cones of radius 'r' and height 'h'. Then maximum number of cones so formed is**

   a) 1
   b) 2
   c) 3
   d) 4

37. **A chord of length 16 cm is drawn in a circle of radius 10 cm the distance of the chord from the centre of the circle is**

   a) 6 cm
   b) 9 cm
   c) 12 cm
   d) 8 cm

38. **The mean of five numbers is 18. If one number is excluded, their mean is 16. The excluded number is**

   a) 25
   b) 26
   c) 27
   d) 30

39. **If $a + b + c = 13$, $a^2 + b^2 + c^2 = 69$ then $ab + bc + ca =$**

   a) 50
   b) 40
   c) 30
   d) 10

40. **If a and b are the roots of the equation $x^2 - 6x + 6 = 0$ then the value of $a^2 + b^2$ is**

   a) 6
   b) 12
   c) 24
   d) 36

BIOLOGY

41. **Naked seeded plants are called -------**
    a) Gymnosperms
    b) Spermatophytes
    c) Dictotyledons
    d) Angiosperms

42. **Which is the stored food in fungi ?**
    a) glycogen
    b) fat
    c) starch
    d) none

43. **Arrangement of leaves on axix is called**
    a) Anthotaxy
    b) Aestivation
    c) Phyllotaxy
    d) None of above

44. **Who proposed the idea of cellular totipotency ?**
    a) Steward
    b) Huxley
    c) Habertlandt
    d) Purkinjee

45. **Single membrane cell organelle is**
    a) Chromosome
    b) Ribosome
    c) Golgi bodies
    d) Nucleus

46. **COVID-19 is due to**
    a. Virus
    b. Bacteria
    c. Influenza
    d. Pneumonia

47. **Oxytocin is secreted by**
    a. Thyroid
    b. Thymus
    c. Pituitary
    d. Parathyroid

48. **The lens in human eye is**
    a. Concave
    b. Biconvex
    c. Plano convex
    d. Convex

49. **Whale is a:**
    a. Fish
    b. Amphibia
    c. Reptile
    d. Mammal

50. **Snake has no ear, it perceives sound through**
    a. Jaw bone
    b. Tongue
    c. Eye
    d. None

SET – II

1. a	2. b	3. d	4. c	5. d	6. b	7. c	8. a	9. c	10. d
11. d	12. a	13. c	14. d	15. d	16. c	17. a	18. d	19. c	20. b
21. b	22. d	23. d	24. a	25. d	26. b	27. d	28. b	29. d	30. d
31. a	32. d	33. b	34. b	35. c	36. c	37. a	38. b	39. a	40. c
41. a	42. a	43. c	44. c	45. b	46. a	47. c	48. b	49. d	50. a

|| PHYSICS ||

11. d) Both work and energy have same unit Joule in SI.

12. a) $v = u - gt$ ($v = 0$ m/s at maximum height) so, $t = 2$ sec

13. c) Remains same

14. d) Since, mass remains constant, variation in g alters its height.

g at height h, $g_h = \dfrac{g}{\left(1+\frac{h}{R}\right)^2}$

or, $\dfrac{g}{4} = \dfrac{g}{\left(1+\dfrac{h}{R}\right)^2}$

or, $\dfrac{1}{2} = \dfrac{1}{\left(1+\frac{h}{R}\right)}$

$1 + \dfrac{h}{R} = 2$

$h = R$

15. d) Pressure (P) = density(ρ)×acceleration due to gravity(g) × Height (h)

16. c) Here,

$$\frac{F_1 - F_2}{180} = \frac{C_1 - C_2}{100}$$

$$\therefore \quad F_1 - F_2 = \frac{C_1 - C_2}{5} \times 9, \qquad \text{since } C_1 - C_2 = 25°C$$

$$= \frac{25}{5} \times 9 = 45° F$$

17. a) $Q = ms\Delta\theta = 1 \times 10^{-3} \times 4200 \times 1 = 4.2 \text{ J} = 1 \text{ Cal}$

18. d) Between F and optical center

Table showing the formation of image by lenses:

Lens	Position of object	Position of image	Nature of image	Size of image
Convex Lens	i) At infinity	At focus	Real and inverted	extremely small, $m \approx 0$
	ii) Beyond and 2F	Between F and 2F	Real and inverted	diminished, $m < 1$
	iii) at 2F	At 2F	Real and inverted	same size, $m = 1$
	iv) between 2F and F	Beyond 2F	Real and inverted	magnified, $m > 1$
	v) At F	At infinity	Real and inverted	extremely large, $m = \infty$
	vi) Between F and C	On the side of object	Virtual and erect	large, $m > 1$
Concave Lens	i) At infinity	at focus F	Virtual and erect	extremely small, $m \approx 0$
	ii) Between infinity and C	between F and C	Virtual and erect	diminished, $m < 1$

19. c) Current is measured by ammeter.

   Potential difference is measured by voltmeter

20. b) Sound waves are longitudinal waves.

|| CHEMISTRY ||

21. b) Fe^{++} : No of unpaired d – electrons in Fe^{++} is 4:
   Electronic configuration of Fe^{++}
   $1S^2, 2S^2, 2P^6, 3S^2, 3P^6, 4S^0, 3d^6$
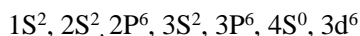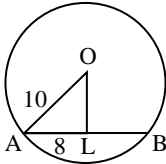
There are total 5 d orbitals and 1 is paired but 4 are unpaired

22. d) Pnicogens

23. d) $Cu + 2\ HCl \rightarrow CuCl_2 + H_2$: Copper can't displace the hydrogen from mineral acid because copper has higher standard reduction potential than hydrogen.

24. a) Fe_2O_3 : It is the ore of Iron.

25. d) all of above : Diamond, Fullerene and graphene all are allotropes of carbon. If elements exists in more than one form which are chemically identical but physically different such different forms are known as allotropes.

26. b) 2:1

27. d) Ceramics

28. b) Chloropicrin: Molecular formula of chloropicrin is $CCl_3 - NO_2$. It is used in tear gas.

29. d) NaOH : pH of acid is below 7 and pH of base is above 7. But NaOH is strong base and is completely ionize in aqueous medium to give excess of OH^- ion so pH of NaOH is higher.

30. d) None of above : In chemical change, new chemical substance is formed and is irreversible process.

|| MATHEMATICS ||

31. a) max . n $(\overline{A \cap B})$ = n($\cup$) – min n(A∩B)

    = 10 – 2

    = 8

32. d) $AM = \dfrac{1 + 2 + 3 + ...\ n}{n} = \dfrac{1}{n}\dfrac{n(n+1)}{2} = \dfrac{n+1}{2}$

33. b) The line $x - y = 0$ i.e. y = x bisects the angle between the coordinate axes, therefore, the required angle between this line and y = 0 (i.e. x–axis) is 45.

34. b) Locus of a point which moves at equidistant two fixed points form a straight line.

35. c) tan 1°. tan 2°. tan 3°…….. tan 88°. tan 89°

    = tan 1°. tan 2°. tan 3°…….. tan (90° – 2°). tan (90° – 1°)

    = tan 1°. tan 2°. tan 3°…tan 45° ….. cot 2°. cot 1°

    = 1

36. c) Volume of cone is $\frac{1}{3}\pi r^2 h$ and volume of cylinder is $\pi r^2 h$. So

    maximum number of cones formed is 3

37. a) OL = $\sqrt{(10)^2 - (8)^2}$

    = $\sqrt{36}$

    = 6

38. b) Sum of 5 numbers   = $18 \times 5 = 90$

    Sum of 4 numbers   = $16 \times 4 = 64$

    The excluded number = $90 - 64$

    = 26

39. a) $(a + b + c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ca)$

    $169 = 69 + 2(ab + bc + ca)$

    $(ab + bc + ca) = 50$

40. c) $a + b = 6$, $ab = 6$

    $a^2 + b^2 = (a + b)^2 - 2ab$

    = $6^2 - 2.6$

    = 24

|| BIOLOGY ||

41. a) • Spermatophytes – seed bearing plants

    • Dicotyledons - plants having two cotyledons

    • Angiosperms- flowering plants

42. a) • Glycogen are stored foods of fungi.

43. c)
    • Anthotaxy is the arrangement of flowers on the stem.
    • Aestivation is the arrangement of petals and sepals in a flower before it opens.
    • Phyllotaxy is the arrangement of leaves on the axis.

44. c)
    • Cellular totipotency is the ability of a cell to grow into a complete plant under suitable conditions.
    • Haberlandt, a German botanist gave the concept of cellular totipotency
    • Steward and his coworkers gave the experimental proof for cellular totipotency

45. b)
    • Membrane less cell organelles : Microtubule, Microfilament
    • Double membrane cell organelles: Mitochondria, Chloroplast, Nucleus
    • Ribosome is called protein factory of cell.

46. a)
    • Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.

47. c)
    • Oxytocin is a hormone secreted by the posterior lobe of the pituitary gland.

48. b)
    • Biconvex lens are the simple lenses which comprises of two convex surfaces in spherical form. A human eye lens is an best example of an Biconvex lens.

49. d)
    • Whale is mammal having secondary aquatic adaptation.

50. a)
    • The apparatus for is attached to their jaw bones, so they feel vibrations very well and may hear low-frequency airborne sounds.

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