GENERAL PAPER

INSTRUCTION: From the words lettered A – D choose the appropriate answer .

1. Which of the following, best describes viruses?
   A. They grow only inside living cells B. they posses only characteristics of living things
   C. they can grow on dead cells. D. they cannot be crystallized.

2. Loss of nitrogen in the soil is caused by a process known as
   A. putrefaction B. nitrogen fixation C. denitrification D. nitrification.

3. Which of the following represents the Watson-Crick DNA base pair model?
   A. G-T. B. T-C. C. T-A D. G-A

4. The liver performs all the following functions EXCEPT
   A. regulation of heat B. formation of cholesterol C. removal of red blood cells
   D. synthesis of vitamins.

5. All but ONE of the following are atmospheric pollutants.
   A diesel B. carbon II oxide C. sulphur (IV) oxide D. hydrogen sulphide

6. On what part of the tongue do we perceive salty taste?
   A. front B. sides C. back D. sides and front

7. Maintenance of homeostasis in mammals is a function of all the following EXCEPT
   A. ovaries B. skin C. lungs D. kidneys

8. Biotechnology has helped to produce plants and animals of these desirable features, EXCEPT
   A. greater resistance to pests and diseases B. higher susceptibility to infections
   C. better nutritional value D. early yielding varieties.

9. Insects which undergo complete metamorphosis are those that
   A. have the four distinct stages in their life cycle B. do not have the larval stage
   C. have larva and pupa which resemble the adult D. their eggs hatch to produce nymphs.

10. The type of storage organ found in ginger is called
    A. Bulb B. Cutting C. Tuber D. Rhizome.

11. The geotropic response of a seedling is detected with
    A. a clinostat B. a thermostat C. a Seechi disc D. an auxanometer

12. The substrate in cellular respiration is
    A. sucrose B. glucose C. glycogen D. adenosine diphosphate.

13. A good example of roughage-containing food material is:
    A. orange juice B. corn flour C. Carrot D. egg yolk

14. The World Health Organization defines good health as
    A. a state of physical and mental well-being B. the absence of deformities
    C. absence of disease D. a state of physical, mental and social well-being.

15. The stage at which chromosomes move towards to opposite poles during mitosis poles during mitosis is
    A. prophase B. metaphase C. telophase D. anaphase.

16. Which of the following can sublime
    A water B. ink C. iodine D. hydrogen

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17. A certain compound on analysis gave 2.02g of carbon, 0.35g of hydrogen and 2.68g of oxygen. If the molecular mass is 90, calculate the molecular formula.
A CH_2O B. $C_2H_4O_2$ C. $C_3H_6O_3$ D. $C_4H_8O_4$

18. Isotopy is due to differences in the number of
A. atomic mass B. molecular mass C. protons D. neutrons

19. Chlorine is.....
A. colourless gas B. greenish liquid C. yellow gas D. greenish yellow gas.

20. Calcium carbide reacts with water to form ethyne. What mass of calcium carbide (grams) would react to give $1.12dm^3$ of ethyne at STP? [Ca = 40, C = 12, H = 1]
A. 60g B. 64g C.32g D. 3.2g.

21. 5.3g of silver trioxonitrate (V) was dissolved in $50cm^3$ of water at 25°C. Calculate the solubility of the salt in mol dm^3 [Ag = 108, N = 14, O = 16]
A. 0.312 mol dm^3 B. 0.031moldm^3 C. 0.062 mol dm^{-3} D. 0.623 mol dm^3

22. Which of the following decomposition equations are correct?
A. $Ag_2CO_{3(s)} \rightarrow Ag_2O_{(s)} + CO_{2(g)}$
B. $2PbCO_{3(s)} \rightarrow 2Pb_{(s)} + 2CO_{2(g)} + O_{2(g)}$
C. $2NaNO_{3(s)} \rightarrow 2NaNO_{2(s)} + O_{2(g)}$
D. $Ag_2CO_{3(s)} \rightarrow AgO_{(s)} + CO_{2(g)}$

23. In the reaction of aqueous solution of HCI and NaOH the heat change is heat of
A. solution B. neutralization C. formation D. displacement

24. Which of the following gas is colourless and odourless?
A. NO_2 B. N_2O C. O_2 D. b and c

25. The two hydrocarbons used as lower and upper standards for petrol are
A. isooctane and benzene B. heptane and 2,2,6-trimethylpentane C. heptane and 2,2,4-trimethylpentane D. heptanes and neopentane

26. Benzene commonly undergoes.....reactions
A. addition B. elimination C. substitution D. amendment

27. Under high pressure, real gases, deviate from compliance with gas laws because their molecules
A. experience repulsive forces B. have become more energetic C. have become less energetic D. collide inelastically.

28. Which of the 3d, 4s, 4p, 4d has the lowest energy?
A. 3d B. 4s C. 4p D. 4d.

29. One of the causes of algae growth in rivers is the present of
A. heavy metals B. pesticides C. Phosphates from detergents D. High particulate loading

30. Phenolphthalein solution at pH 2.5 is
A. yellow B. pink C. red D. colourless

31. Which of the following is a vector quantity?
A. Distance B. Speed C. Energy D. Weight

32. Calculate the work done by a bricklayer who lifted a cement block of mass 10kg from the floor to a height of 2.5m (acceleration due to gravity = $9.8ms^{-2}$).
A. 294.0J B 245.0J C. 30.0J D. 25.0J

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33. Find the potential energy of a diver of mass 75kg at a height of 10m above a swimming pool (acceleration due to gravity of 9.8ms^{-2}).
A. 7.35KJ B. 9.41KJ C. 8.82KJ D. 0.75KJ

34. Determine the wavelength of fundamental note of a guitar string of length 65cm long.
A. 65cm B. 260cm C. 195cm D. 130cm

35 Find, the combined resistance of two wires each of resistance 8-ohms when they are connected in parallel
A. 16-ohnms B. 4-ohms C. 20-ohms D. 12-ohms.

36. A force of 300N was used to pull a load of mass 40kg at a steady speed up an inclined of length 6.2m and vertical height 3.5m. Determine the velocity ratio
A. 0.57 B. 1.31 C. 1.57 D. 1.77

37. Which of the following is NOT TRUE about pressure
A. Unit of pressure is Nm^{-1} B. Pressure in a liquid increases with depth
C. Pressure at any point in a liquid acts in all directions D. Pressure is the ratio of force acting normally per unit area.

38. 120cm^3 of gas was collected at 20°C and 745mm of mercury pressure. Find the volume of gas at standard temperature and pressure
A. 1605.7cm^3 B. 917.8cm^3 C. 305.1cm^3 D. 109.6cm^3.

39. A metal of length 30cm is heated until its temperature rises by 60°C to a new length of 30.04cm. Calculate its linear expansively.
A. $4.44 \times 10^{-5}K^{-4}$ B. $2.22 \times 10^{-5}K^{-1}$ C. $3.33 \times 10^{-5}K^{-4}$ D. $1.53 \times 10^{-5}K^{-4}$

40 Which of the following statements is NOT correct?
A. Molecules of a liquid are stationary. B. Atoms combine to form molecules
C. The molecules of matter are in constant motion D. Brownian motion is an evidence of particle nature of matter.

41. Determine the elastic constant of a spring if a force of 1N stretches it by 2.7cm
A. 0.4Nm^{-1} B. 40.4Nm^{-1} C. 37.0Nm^{-1} D. 40.0Nm^{-4}

42. Which of the following objects is NOT in stable equilibrium?
A. A car with wide base and low centre of gravity B. A ball in the middle of a bowl.
C. A car with narrow base and high centre of gravity D. A cone resting on its base.

43. Which of the following is not true of boiling?
A. Temperature is constant during boiling B. Occurs throughout the entire volume of the liquid
C. Takes place at all temperatures. D. It is change from liquid to vapour at the boiling point.

44. A swimming pool viewed directly from above its surface appears to be 12m deep. Find the real depth. (Refractive index of water = $4/3$).
A. 16m B. 20m C. 10m D. 24m

45. A transformer has 500 turns in the primary coil and 400 turns in the secondary coil. Find the voltage in the secondary coil when the primary coil is connected to a 220V main.
A. 132V B. 160V C. 176V D. 182V.

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