SCIENCE QUESTION PAPER

CLASS-X
(JULY, 2012)
PART-A

Time : 75 minutes] ***[Maximum Marks : 50***

Instructions :

(1) There are **50** objective type questions in this part and **all** are **compulsory**.

(2) The questions are serially numbered from **1** to **50** and each carries **1** mark.

(3) You are supplied with separate OMR sheet with the alternatives (A) ○, (B)○, (C) ○, (D) ○ against each question number. For each question, select the correct alternative and darken the circle ○ as ● completely with the pen against the alphabet corresponding to that alternative in the given OMR sheet.

- From the following **1** to **50** questions, select the correct alternative from the given four answers and darken the circle with pen against the alphabet, against the number in OMR sheet.
- Each question carries **1** mark.

1. How much is the perimeter (magnitude) of the Integrated Circuit Transistor ?

(A) 60 nm (B) 90 A

(C) 50 nm (D) 90 nm

2. Which of the following has the smallest Refractive Index ?

(A) Glass (B) Pearl

(C) Water (D) Diamond

3. Which of the following adjusts the focal length of the eye lens to get a clear image of the object ?

(A) Pupil (B) Ciliary muscles

(C) Retina (D) Blind spot

4. What is the value of 1 unit of electricity used for household purpose (domestic energy) ?

(A) 3.6×10^6 Joule (B) 3.6×10^6 kwh.

(C) 1 Watt · second (D) 1 Joule

5. 1μA is equivalent to how many Ampere ?

(A) 10^3 A (B) 10^{-3} A

(C) 10^6 A (D) 10^{-6} A

6. What is the equivalent resistance of the resistors R_1 and R_2 in parallel connections ?

(A) $R_1.R_2$ (B) $R_1 + R_2$

(C) $\frac{R_1.R_2}{R_1 + R_2}$ (D) $\frac{R_1 + R_2}{R_1.R_2}$

7. The magnetic field due to an electrical current in a conductor is ...

(A) Circular around the conductor.

(B) Perpendicular to the direction of current.

(C) In the direction of the current.

(D) In the opposite direction of electric current.

8. Which of the following works on the heating effect of electricity ?

(A) Electrical Iron (B) Tube Light

(C) T.V. (D) Electric Bell

9. Who gave the Law of Electric Induction ?

(A) Oersted (B) Faraday

(C) Ampere (D) Volta

10. What is the colour of the Earthing wire used ?

(A) Red (B) Black

(C) Green (D) Yellow

11. Which of the source of energy is not associated with Solar Energy ?

(A) Fossil fuel (B) Geo-thermal Energy

(C) Hydral Energy (D) Wind Energy

12. How many Joules are equivalent to 1e V ?

(A) 1.6×10^{-19} J (B) 1.6×10^{19} J

(C) 1.66×10^{-27} J (D) 6.25×10^{18} J

13. What is the temperature recorded in the Solar furnace at Mount Louis in France ?

(A) 2000°C (B) 3000°C

(C) 3500°C (D) 4000°C

14. Who was the first scientist to prepare Isotopes artificially ?

(A) Fermi (B) Hann

(C) Strassman (D) Rutherford

15. Which of the following is not an artificial satellite ?

(A) Insat (B) Sross

(C) Phobos (D) Rohini

16. How many number of satellites does planet Mercury has ?

(A) Zero (B) Three

(C) Two (D) Eight

17. Information regarding the weather can be obtained using which Artificial Satellite ?

(A) CARTOSAT (B) METSAT

(C) RESOURCESAT (D) INSAT

18. What is the pH value of blood ?

(A) 7 (B) Zero

(C) Less than 7 (D) Greater than 7

19. The decaying of Uranium is what type of activity ?

(A) Slow (B) Very slow

(C) Fast (D) Very fast

20. Which of the following scientist proved that acid and base neutralise to form salt and water ?

(A) Sorensen (B) Arrhenius

(C) Louis (D) Robert Boyle

21. What is the unit of rate of reaction ?

(A) Mole / Litre (B) Second

(C) Molar / Second (D) Minute

22. To obtain brown coloured glass, the oxide of which metal is used ?

(A) Chromic oxide

(B) Manganese oxide

(C) Cobalt oxide

(D) Ferric oxide

23. During efflorescence which of the following substance is formed ?

(A) $Na_2CO_3 \cdot H_2O$

(B) $Na_2CO_3 \cdot 10H_2O$

(C) $Na_2CO_3 \cdot 9H_2O$

(D) $NaHCO_3$

24. What is manufactured by the Hasenclever method ?

(A) $Ca(OH)_2$

(B) Na_2CO_3

(C) $CaSO_4 \cdot H_2O$

(D) $CaOCl_2$

25. What is the chemical formula of Bauxite ?

(A) Al_2O_3

(B) $Al_2O_3 \cdot H_2O$

(C) $Al_2O_3 \cdot 2H_2O$

(D) Fe_2O_3

26. Which of the following alloy is used for making musical instruments ?

(A) Steel (B) Stainless steel

(C) Brass (D) Magnalium

27. What substance is added in Hall-Heroult process to decrease the melting-point ?

(A) Copper Sulphate (B) Cryolite

(C) Bauxite (D) Limonite

28. On which physical property of Sulphur is the Frasch process based ?

(A) High melting point (B) Low melting point

(C) Solubility in water (D) Insoluble in water

29. Which of the following is not a neutral oxide ?

(A) CO (B) N_2O

(C) SO_3 (D) H_2O

30. Which compound is formed by the reaction between SO_3 and H_2SO_4 (conc.) ?

(A) H_2SO_3 (B) H_2SO_4

(C) HNO_3 (D) $H_2S_2O_7$

31. Which of the following non-metal is a liquid ?

(A) Bromine (B) Mercury

(C) Chlorine (D) Sulphur

32. The aqueous solution of which of the following compound is an antiseptic ?

(A) Methanal (Formaldehyde) (B) Methanol

(C) Formic Acid (D) Ethanol

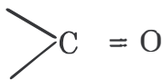
33. Which of the following is a condensation polymer ?

(A) PVC (B) Natural Rubber

(C) Nylon (D) Teflon

34. Which compound has Anal suffix ?

(A) — OH (B) — CHO

(C)  (D) C — C

35. By the process of Fermentation reaction, which gas is released ?

(A) CO_2 (B) O_2

(C) H_2 (D) NO_2

36. The process which releases energy from nutrients is called ?

(A) Photosynthesis (B) Respiration

(C) Nutrition (D) Absorption

37. Which part of the plant absorbs mostly the red and violet part of the spectrum ?

(A) Mitochondria (B) Cellulose

(C) Zenthophyll (D) Chlorophyll

38. Cockroach shows which mode of nutrition ?

(A) Grass Eaters (grazing)

(B) Omnivorous

(C) Non-vegetarian (Carnivorous)

(D) Vegetarian (Herbivorous)

39. Which cells produce Immunoglobulins ?

(A) Erythrocytes (B) Blood platelets

(C) Lymphocyte (D) Blood Corpuscles

40. Which type of blood always flows through all arteries ?

(A) Pure (B) Impure

(C) Under pressure (D) With Nitrogenous waste

41. What is the excretion organ of an Earthworm ?

(A) Contractile vacuole (B) Kidneys

(C) Nephridia (D) Flame cells

42. The transverse wall between which cells disintegrate to form a continuous passage ?

(A) Sieve tubes (B) Trachea

(C) Tracheid (D) Companion cell

43. In which animal is the nerve net found ?

(A) Sponge (B) Earthworm

(C) Cockroach (D) Hydra

44. Which enzyme is found in growth hormone ?

(A) Auxin (B) Ethylene

(C) Abscisic Acid (D) B and C

45. How many pairs of spinal nerves arise from the spinal cord of a human being ?

(A) 7 pairs (B) 17 pairs

(C) 21 pairs (D) 31 pairs

46. The name of the pigment present in plants due to which it shows Photoperiodic stimulation is .....

(A) Cytochrome (B) Phytochrome

(C) Carotene (D) Chlorophyll

47. By which method, the desirable characters of different plants can be brought together ?

(A) Cutting (B) Layering

(C) Grafting (D) Testosterone

48. Which one of the following is an example of retrovirus ?

(A) Virus of AIDS (B) T.M.V.

(C) Bacteriophage Virus (D) None of the above.

49. Adenine and Thymine are which types of Nitrogen bases ?

(A) Pyrimidine and Purine

(B) Purine and Pyrimidine

(C) Purine and Purine

(D) Pyrimidine and Pyrimidine

50. Which of the following is not an environmental problem ?

(A) Storage of water

(B) Wastage of water

(C) Deforestation

(D) Soil Erosion

PART-B

Time : 2.00 Hours] ***[Maximum Marks : 50***

Instructions :-

(i) There are total **four** sections in this part.

(ii) **All** questions are **compulsory.**

(iii) Draw neat labelled diagrams wherever required.

(iv) There are internal options in some questions. Pay attention to them.

(v) Figures to the right indicate marks.

SECTION - A

*Question numbers **1** to **5** are short answer type questions. Answer in maximum 30 words. (**2** marks each)*

1. Explain the importance of Nano Technology on Energy and Water Resources. **2**

2. Draw neat and labelled diagrams, showing the defects of Near sightedness and Far sightedness. **2**

3. State the Right-hand Thumb Rule. On what factors does the magnetic field due to a current carrying straight (linear) wire depend ? **2**

OR

3. State the principle of Electric Generator. How is the loop rotated in the generator ?

4. Discuss the limitations of Solar cell. **2**

OR

4. Describe the working of OTEC.

5. 49 gm H_2SO_4 is dissolved in 5 litres solvent. Find the Molarity of the solution. (Molecular weight of H_2SO_4 is 98) **2**

SECTION - B

*Question Nos. **6** to **10** are short answer type questions. Use maximum 30 words for your answer. (each carries **2** marks)*

6. Write the physical properties of Ammonia and also state its uses.
(Four points each).

7. Describe the process of formation of Polyester molecules. **2**

8. Describe the structure of Red Blood Corpuscles. **2**

9. Differentiate between Hydrotropism and Chemotropism. **2**

10. Write full-form of AIDS. Name the agencies that give guidance for AIDS. **2**

OR

10. Explain Vasectomy. Draw a labelled diagram showing Vasectomy.

SECTION - C

*Question No. **11** to **15** are short answer type questions. Use maximum 50 words to answer them. (**Three** marks each)*

11. Explain parallel connections of Resistors and derive the equation for equivalent resistance. **3**

12. Discuss the importance of the Earth's atmosphere. **3**

OR

12. Write the differences between Equatorial orbit and Polar orbit.

13. State the types of steel on the basis of the percentage of Carbon in it.
Write the uses of Steel. **3**

14. Describe the Light phase (Light part). **3**

OR

14. Describe the digestive process in the alimentary canal of Grasshopper.

15. What is meant by "Pollutants" ? State its different classes and explain each in short. **3**

SECTION - D

*Questions **16** to **18** are to be answered pointwise in detail in about 100 words. (Each carries **5** marks)*

16. Describe the Refraction of light through a rectangular slab of glass. Explain the Lateral Shift. **5**

17. Explain the chemical reaction of metals with

(1) Acid (HCl)

(2) Chlorine (Cl_2)

(3) Water (H_2O)

Give one equation for each. **5**

OR

17. Describe the extraction of Iron.

18. Who gave forth the model of DNA ? Describe the structure of DNA in detail. **5**

OR

18. Discuss "Sex Determination" in detail.