

N-11 (E)

(MARCH, 2011)

Set No. Of Question Paper	
1	5

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.
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- 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.
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1. From which kind of Steel is the permanent magnet prepared ?
(A) Silica steel (B) Stainless steel
(C) Cobalt steel (D) Manganese steel
2. What is the pH of pure water at 25°C temperature ?
(A) 14 (B) 7
(C) 10 (D) 1
3. What is the chemical formula of Borax ?
(A) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ (B) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
(C) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (D) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 7\text{H}_2\text{O}$
4. What is used in Endoscope ?
(A) Photochromic Glass (B) Optical Glass
(C) Pyrex Glass (D) Optical Fibres
5. What percentage of Gypsum is added in the preparation of Cement ?
(A) 2% to 5% (B) 0.2% to 1.5%
(C) 6% to 8% (D) 8% to 10%

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6. What is the excretion structure in Amoeba ?
(A) Contractile Vacuole (B) Flame Cells
(C) Nephridia (D) Osculum
7. In angiospermic plants, what structures are present for the transport of Water ?
(A) Tracheid (B) Trachea
(C) Sieve tube (D) Companion cell
8. Which of the following tropism is responsible for the germination of pollen grains and the development of pollen tubes ?
(A) Chemotropism (B) Thigmotropism
(C) Phototropism (D) Hydrotropism
9. Which of the following is a growth hormone in plants ?
(A) Auxin (B) Ethylene
(C) Absciscic acid (D) Auxitocin
10. Which pigment is responsible for the Photoperiodic stimulus in plants ?
(A) Phytochrome (B) Chloroplast
(C) Carotene (D) Cytochrome
11. What is the IUPAC name of Acetic acid ?
(A) Methanoic acid (B) Ethanoic acid
(C) Propanoic acid (D) Butanoic acid
12. What is the reaction between Carboxylic acid and Ethanol in the presence of H_2SO_4 known as ?
(A) Saponification (B) Esterification
(C) Polymerisation (D) Dissociation of water
13. Which functional group is connected to Hydrocarbon in Soap ?
(A) $-COONa$ (B) $-CONH_2$
(C) $-COOH$ (D) $-SO_3Na$
14. Which of the following mode of nutrition does a Rat have ?
(A) Herbivorous (B) Carnivorous
(C) Omnivorous (D) Grazing
15. Where are the antigens for the blood group located ?
(A) Lymphocyte (B) W.B.C.
(C) Blood Platelets (D) R.B.C.



16. Which disease is caused by the bacteria named *Treponema pallidum* ?
 (A) AIDS (B) Gonorrhoea
 (C) Syphilis (D) Hepatitis
17. Which of the following protects the embryo during its development ?
 (A) Amnion (B) Liver
 (C) Umbilical cord (D) Uterus
18. The plant in which grafting is done, is called
 (A) Scion (B) Root
 (C) Stock (D) Root-tip
19. What is the period from the development of foetus till the birth, called ?
 (A) Gestation (B) Embryonic development
 (C) Lactation (D) Fertilisation
20. Which of the following alloys is used in making Currency coins ?
 (A) Brass (B) Steel
 (C) Solder (D) Magnalium
21. Which chemical is obtained, when Carbon-dioxide is dissolved in Water ?
 (A) Carbonic acid (B) Carboxylic acid
 (C) Carbon-di-sulphide (D) Acetic acid
22. Which gas has a pungent smell and irritates the eyes and nose ?
 (A) Carbon-monoxide (B) Ammonia
 (C) Nitrogen (D) Carbon-dioxide
23. What is the shape of monoclinic Sulphur ?
 (A) Triangular pyramid (B) Needle shaped
 (C) Quadrangular (D) Octahedral
24. Which enzyme converts milk into curd ?
 (A) Lactase (B) Invertase
 (C) Zymase (D) Cellulose

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25. The magnitude of a Quantum dot is
(A) 10 \AA° (B) 100 \AA°
(C) 5 nm (D) 50 nm
26. What is the angle of incidence called when the angle of refraction is 90° ?
(A) Angle of Refraction (B) Angle of Deviation
(C) Critical Angle (D) Angle of Incidence
27. In the dispersion of light through a prism, which coloured ray deviates the most ?
(A) Red (B) Yellow
(C) Blue (D) Violet
28. Which of the following lens is used by the person having Far-sighted defect ?
(A) Convex lens (B) Concave lens
(C) Cylindrical lens (D) Bi-focal lens
29. In an Astronomical Telescope, what is the focal length of objective as compared to the focal length of its eye-piece ?
(A) Large (longer) (B) Shorter
(C) Equal (D) Infinity
30. Which of the following scientists discovered the Phonograph ?
(A) Michael Faraday (B) Thomas Alva Edison
(C) Einstein (D) Humphry Davy
31. State the value of one unit of electricity used for household purpose (domestic use).
(A) 1 Joule (B) 1 Watt second
(C) $3.6 \times 10^6 \text{ Joule}$ (D) $3.6 \times 10^6 \text{ kWh}$
32. Which of the following shows Ohm's law ?
(A) $R = \frac{I}{V}$ (B) $I = \frac{R}{V}$
(C) $V = IR$ (D) $R = \frac{P}{I^2}$

33. Which instrument is used to determine the presence of electric current ?
 (A) Electric Generator (B) Galvanometer
 (C) Fuse (D) Voltmeter
34. Which reaction takes place at positive electrode (anode) during Electrolysis process ?
 (A) Oxidation (B) Reduction
 (C) Oxidation-Reduction (D) Equilibrium
35. Which of the following metals exists in liquid state ?
 (A) Aluminium (B) Gallium
 (C) Potassium (D) Radium
36. What is the colour of the wire used for Earthing ?
 (A) Red (B) Black
 (C) Green (D) Yellow
37. What kind of current is obtained from a Battery ?
 (A) DC current (B) AC current
 (C) AC and DC both (D) Depends on the type of battery
38. How many small mirrors are used in the Solar furnace installed at Mount Louis in France ?
 (A) 4500 (B) 3500
 (C) 3000 (D) 2500
39. Which of the following is the best quality Coal ?
 (A) Lignite (B) Bitumen
 (C) Anthracite (D) Peat
40. How many satellites does the planet Mercury has ?
 (A) 30 (B) 21
 (C) 8 (D) 0
41. Which planet is totally made up of Hydrogen ?
 (A) Mars (B) Venus
 (C) Saturn (D) Pluto

42. Which of the following satellite gives information regarding the life in Oceans and the environment around it ?
 (A) INSAT - 4A (B) METSAT
 (C) RESOURCESAT (D) EDUSAT
43. Which of the following Rockets is not a Space-Shuttle ?
 (A) Columbia (B) Challenger
 (C) Polar Satellite Launch Vehicle (D) Discovery
44. What is the unit of the rate of reaction ?
 (A) Molar (B) Second
 (C) Molar / Second (D) Second / Molar
45. What is the helical length of each DNA molecule ?
 (A) 10 Å (B) 20 Å
 (C) 3.4 Å (D) 34 Å
46. What is the continuity of features from one generation to another called ?
 (A) Variation (B) Evolution
 (C) Heredity (D) Migration
47. In which of the following does the embryo become male animal at higher temperature ?
 (A) Tortoise (B) Lizard
 (C) Grasshopper (D) Rabbit
48. Which gas in the atmosphere is responsible for Acid-rain ?
 (A) Nitrous oxide (B) Carbon-monoxide
 (C) Sulphur-dioxide (D) Methane
49. By which method is the particulate pollutants controlled ?
 (A) Combustion (B) Absorption
 (C) Electrostatic precipitator (D) Sedimentation
50. How many pairs of Spinal nerves arise from the human Spinal Cord ?
 (A) 11 (B) 21
 (C) 23 (D) 31

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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 diagram as per instructions.
- (iv) There are internal options in some questions. Pay attention to them.
- (v) Figures to the right indicate marks.

SECTION - A

Questions from 1 to 5 are Short answer type questions. Write answer to each using maximum 30 words. Each question carries 2 marks.

- 1. State the benefits of Nano technology to mankind. 2
- 2. Write short notes on Bio-gas. 2
- 3. What do you understand by Fossil Fuel ? Name some fossil fuels. 2

OR

- 3. Name the Atomic energy research centre in India. State the places in India, where the Nuclear Power plants are situated.
- 4. State the characteristics of Terrestrial Planets. 2
- 5. 49 gm of H_2SO_4 is dissolved in 5 litres solvent. Find the Molarity of the solution. (Molecular weight of H_2SO_4 is 98 gm/mole) 2

OR

- 5. What do you understand by Forward and Reverse reaction ? Explain.

SECTION - B

Questions from 6 to 10 are Short answer type questions. Use maximum 30 words to answer them. Each question carries 2 marks.

- 6. State the criteria for Chemical Equilibrium. 2

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7. State the uses of Bleaching Powder. 2
8. Write the preparation of Methanal. (Formaldehyde - HCHO) 2

OR

8. Explain the industrial preparation of Propanone. 2
9. Explain the Reflex Arc. 2
10. Name the environmental problems. 2

SECTION - C

Questions from 11 to 15 are Short answer type questions. Use maximum 50 words to answer them. Each question carries 3 marks.

11. Describe the construction of Voltaic cell with a neat diagram. 3

OR

11. Explain Electrolysis. Write Faraday's laws of Electrolysis. 3
12. Discuss in detail the precautions to be taken while using electricity. 3
- What is the work of Fuse ?

13. Describe in short, Frasch method to obtain Sulphur. 3

OR

13. Write the uses of Non-metals. 3
14. Explain the phenomenon of Blood-clotting. 3
15. Explain how vestigial organs support the theory of Evolution. 3

SECTION - D

Questions from 16 to 18 are to be answered in detail using nearly 100 words. Each question carries 5 marks.

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

17. Describe Hall-Heroult method to get pure Aluminium from Alumina. (Diagram necessary) 5

OR

17. State the different stages of Metallurgy and give information about each in short. 5

18. Describe the "Light Phase" of Photosynthesis process. 5

OR

18. Describe the human respiratory system in detail.