

GSEB
Batch :
10th Std.
Eng. Medium

MAHESH TUTORIALS
Subject : Science And Technology
Chapter : 1, 2, 3, 4, 7, 8, 9, 12, 13, 14
Question Paper

Test -
Date:
Marks : 100
Time: 3 Hrs.

PART - A

Select a proper option (a), (b), (c) or (d) from those given below each questions : 50

1. **Who coined the word 'nanotechnology' ?**
(a) Richard Smalley (b) Sumio Tijima
(c) Richard Feynman (d) K. Eric Drexler
2. **What is the approximate width of a DNA molecule?**
(a) 2 nm (b) 1 nm (c) 0.1 nm (d) 20 nm
3. **In which shape carbon atoms are arranged in a Bucky ball?**
(a) Soccer ball (b) Volleyball (c) Chain (d) Cylinder
4. **Which is the fundamental element in nanotechnology ?**
(a) Carbon (b) Hydrogen (c) Aluminium (d) Silicon
5. **What is the tensile strength of MWNT in Pascal (Pa)?**
(a) 6.3×10^9 (b) 6.03×10^9 (c) 63×10^9 (d) 0.63×10^9
6. **Which type of an image cannot be obtained on the screen ?**
(a) Virtual image (b) Real image
(c) Both of these (d) None of these
7. **In which mirror, is image laterally inverted?**
(a) concave (b) convex (c) plane (d) none
8. **No matter how far is an object from the mirror, the image of the object appears erect. The mirror is.....**
(a) Concave convex (b) Convex
(c) Either concave or convex (d) None of these
9. **If focal length of convex lens is 25 cm, find its power?**
(a) 4 D (b) 0.4 D (c) 40 D (d) 14 D
10. **Which colour of light has the least velocity in the prism?**
(a) Red (b) Yellow (c) Indigo (d) Violet
11. **Which is the complementary colour of green colour?**
(a) Magenta (b) Cyan (c) Green (d) Red
12. **Blue and Yellow are examples of colours.**
(a) Primary (b) Secondary (c) Complementary (d) Composite
13. **The eye lens remains..... in far-sightedness.**
(a) thick (b) thin
(c) can become thick or thin (d) thin and then it becomes thick.
14. **Which colour of light scatters maximum due to atmosphere ?**
(a) Blue (b) Yellow (c) Green (d) Red

15. lens is used to correct the defect of vision termed as presbyopia.
 (a) Convex (b) Concave (c) Bifocal (d) Contact
16. of the light determines the colour of the object.
 (a) Reflection (b) Refraction
 (c) Dispersion (d) Total internal reflection
17. What is the taste of acid?
 (a) Sour (b) Bitter (c) Sweet (d) Salty
18. Which scientist gave operational or old definition of acids and bases?
 (a) Robert Boyle (b) Arrhenius
 (c) Lewis (d) Lowry and Bronsted
19. Solution of oxide of lithium and water is _____.
 (a) Acidic (b) Basic (c) Neutral (d) All
20. Which of the following is a strong acid ?
 (a) Acetic acid (b) Tartaric acid (c) Lactic acid (d) Sulphuric acid
21. What is the pH of coffee?
 (a) 4.5 to 5.5 (b) 4.6 to 5.6 (c) 4 to 5 (d) 5 to 6
22. In which form are ores generally available in nature ?
 (a) Free state (b) Sulphides and oxides
 (c) Sulphates and fluorides (d) Nitrates and iodides
23. In the vessel for froth floatation _____ mixture is used for the powdered ore.
 (a) Turpentine and water (b) Turpentine and oil
 (c) Turpentine and coke (d) Water and coke
24. $2 \text{ZnS} + \text{O}_2 \rightarrow \text{ZnO} + \text{SO}_2$ (Balance the equation)
 (a) 3,2,2 (b) 2,3,2 (c) 2,3,3 (d) 3,3,3
25. Metals in _____ state are used in the electrochemical cell.
 (a) Solid (b) Liquid (c) Molten (d) Gaseous
26. In electrolysis of copper _____ solution can be used as an electrolyte.
 (a) Copper sulphate (b) Ferrous sulphate (c) Silver nitrate (d) Calcium carbonate
27. Which of the following substances is hygroscopic ?
 (a) Cryolite (b) Feldspar
 (c) Anhydrous calcium chloride (d) Slag
28. Arrange Au, Ag, Al and Na according to reactivity series of metals.
 (a) Na>Au>Ag>Al (b) Na>Ag>Au>Al
 (c) Na>Al>Ag>Au (d) Na>Ag>Al>Au
29. With which of the following element carbon does not give reaction ?
 (a) Dichlorine gas (b) Dioxygen gas
 (c) Dihydrogen (d) Dilute hydrochloric acid
30. Carbon dioxide reacts with water to form _____.
 (a) Ozone gas (b) Carbonic acid (c) Hydrochloric acid (d) Sulphuric acid
31. Water gas is a mixture of _____.
 (a) Methane and water (b) Carbon Monoxide and dihydrogen
 (c) Hydrogen and Carbon (d) Carbon monoxide and carbon dioxide

32. _____ is used in the preparation of explosive.
 (a) Phosphorus (b) Sulphur (c) Carbon (d) Nitrogen
33. Which of the following will not form metal hydride?
 (a) Na (b) K (c) Cu (d) Ca
34. What is obtained by oxidation of ammonia ?
 (a) NO₂ (b) NO (c) NO₃ (d) N₂O
35. Hydrogen can be prepared by reaction of metals with _____.
 (a) Sodium (b) Vapour (c) Water (d) Ice
36. Autotrophs utilize energy.
 (a) Chemical (b) Solar (c) Thermal (d) Geothermal
37. The length of small intestine in a adult human being is about :
 (a) 4.5 m (b) 1.5 m (c) 3.5 m (d) 6.5 m
38. In which of the following organisms, the gaseous exchange during respiration does not take place through cell membrane or skin.
 (a) Electric ray (b) Leech (c) Earthworm (d) Amoeba
39. The process of respiration takes place in the
 (a) Mitochondria (b) Vacuoles (c) Lysosomes (d) None
40. Lungs are located in the _____ cavity.
 (a) Pelvic (b) Abdominal (c) Thoracic (d) Buccal
41. In plants, food and other substances are transported through _____.
 (a) Tracheids (b) Vessels (c) Sieve tubes (d) Companion cell
42. _____ helps in regulation of temperature in plants.
 (a) Evaporation (b) Transpiration (c) Both (d) None
43. Transport of photosynthetic product is _____.
 (a) Transportation (b) Translocation (c) Transpiration (d) None
44. The walls of the heart are made up of which muscles?
 (a) Pulmonary Muscles (b) Cardiac muscles
 (c) Sieve cells (d) Septa
45. Semilunar valves are present in
 (a) arteries (b) veins (c) capillaries (d) none of these
46. The blood vessels which carry blood from organ to heart in the body are known as
 (a) arteries (b) veins (c) capillaries (d) none of these
47. Which part helps amoeba in the process of excretion?
 (a) Nephridium (b) General body surface
 (c) Osculum (d) Contractile vacuole
48. The growth of a pollen tube towards the ovule is caused by _____.
 (a) Phototropism (b) Hydrotropism (c) Geotropism (d) Chemotropism
49. Which kind of response does the flower of Sunflower show?
 (a) Thigmonastic (b) Phototropic (c) Photonastic (d) Geotropic

50. Which of the following prepares our body for action in emergency situations ?
(a) Testosterone (b) Growth hormone (c) Adrenaline (d) Insulin

PART - B
SECTION - A

Answer the following questions : [2 marks]

10

1. Explain the meaning of Nanotechnology?
OR
1. Discuss the structure and configuration of a Bucky ball.
2. Which type of mirror is used to see the traffic behind the vehicle and why?
3. How will you prepare 500 ml aqueous solution of 0.2 M H_2SO_4 ($H_2SO_4 = 98 \text{ gm/mole}$)
OR
3. Give definitions.
(i) Arrhenius acid (ii) Arrhenius base
4. If object of 4 cm height is placed at distance of 12 cm from concave mirror of focal length 24 cm, find the position, nature and height of image.
5. Explain alloying of gold.

SECTION - B

Answer the following questions : [2 marks]

10

6. How is sulphur dioxide gas responsible for acid rain ?
7. How can you group the animals on the basis of their food eating habits.
8. Differentiate between arteries and veins.
9. Mention types of tropisms. Define each type of tropism. Write the name of stimulus in each case.
OR
9. Write a brief note on Spinal Cord.
10. Explain the functions of main parts of an eye by drawing a simple sketch of it.

SECTION - C

Answer the following questions : [3 marks]

15

11. Why is acidity caused and how it is cured?
12. Distinguish between Near-sightedness and Far-sightedness
OR
12. What is looming? How is it formed ?
13. How is sulphur available from nature ? State its atomic number and electronic configuration.
14. Name and explain types of blood vessels.
OR
14. What is blood ? State the main components.
15. Explain the detail structure of nerve cells.

SECTION - D

Answer the following questions : [5 marks]

15

16. Explain the whole digestion of food in the body of Human with diagram.
17. Draw a neat diagram of compound microscope and explain its principle. Also explain its constructions and working.
OR
17. Obtain the lens formula for spherical lens.
18. Explain extraction of iron from haematite.
OR
18. Explain liquefaction and zone refining method for refining of metals.

★★★★ Best of Luck ★★★★★