

❖ Question 1 to 50 are multiple choice type questions. Darken the circle of correct option with pen in sheet. Each carries one mark.

Pa

Model Paper

1. Nanoparticles have which important property?

- (A) Friction (B) Pressure (C) Temperature (D) Force

2. 10 nanometer = _____ meter.

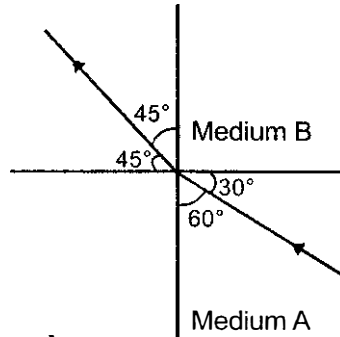
- (A) 10^{-8} (B) 10^{-7} (C) 10^{-9} (D) 10^{-10}

3. Which type of reflection will be represented by a light reflected from a book ?

- (A) Regular (B) Irregular (C) Both type (D) None of these

4. As shown in the following figure a light ray enters from medium A to medium B, then the refractive index of medium B relative to medium A would be _____ .

- (A) $\frac{\sqrt{3}}{\sqrt{2}}$ (B) $\frac{\sqrt{2}}{\sqrt{3}}$
(C) $\frac{1}{\sqrt{2}}$ (D) $\sqrt{2}$



5. Which of the following are primary colours.

- (A) Red, Green, Blue (B) Green, Red, Yellow
(C) Blue, Yellow, Red (D) Red, Yellow, Cyan

6. In A person suffering from Myopia (Near-sightedness) image of object formed at _____ .

- (A) At retina (B) Before the retina
(C) Behind the retina (D) Very far, before the retina

7. Which phenomenon is responsible for the twinkling of stars?

- (A) Total internal reflection (B) Reflection (C) Dispersion (D) Refraction

8. Pure water is _____ for electrolytes.

- (A) Insulator (B) Conductor (C) Super conductor (D) Semiconductor

9. Which of the following is correct as per ohm's law?

- (A) The resistance increases with the increase in current.
(B) $V \rightarrow I$ graph is straight line.
(C) The resistance increases with the increase in voltage.
(D) The current increases with the increase in resistance.

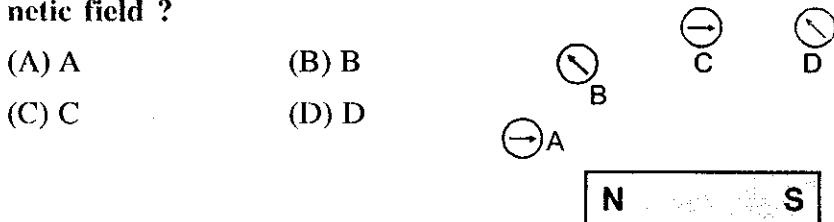
10. If the five equal pieces of a resistance wire having 5Ω resistance are connected in parallel, then their equivalent resistance will be _____ .

- (A) $1/5 \Omega$ (B) 1Ω (C) 5Ω (D) 25Ω

11. kWh is unit of which physical quantity?

- (A) Work (B) Electric power
(C) Electric current (D) Electric potential

12. In figure, magnetic needle is placed at different positions nearby bar magnet. Which position of the magnetic needle represents the correct direction of magnetic field ?



13. Which device is used to convert electrical energy into mechanical energy?

- (A) Electric generator (B) Solenoid
(C) Electric motor (D) Electric iron

14. How many times an AC current, having frequency 50 Hz, changes its direction in one second ?

- (A) 25 (B) 50 (C) 100 (D) 200

15. Which of the following is a star ?

- (A) Sun (B) Comet (C) Asteroids (D) Phobos

16. Poles of Mars are covered by _____ .

- (A) Dry ice (B) Water ice (C) Nitrogen (D) Iron

17. Asteroids are found between _____ .

- (A) Mars and Jupiter (B) Around the Earth
(C) Jupiter and Saturn (D) Beyond the Pluto

18. What is the periodic time of Halley's comet ?

- (A) 86 yrs (B) 76 yrs (C) 24 yrs (D) 55 yrs

19. Acid + Metal-oxide \rightarrow ?

- (A) Base + Water (B) Salt + Water (C) Base + Salt (D) Metal + Salt

20. _____ is formed by the reaction of non-metal oxide with water.

- (A) Acid (B) Base (C) Salt (D) Hydrogen gas

21. Which of the following is correct for acidic aqueous solution.

- (A) $[H_3O^+] = 10^{-7}M$ (B) $[H_3O^+] < 10^{-7}M$
(C) $[H_3O^+] > 10^{-7}M$ (D) $[H_3O^+] < [OH^-]$

22. Which of the following substance is known as antacid ?

- (A) $CaCO_3$ (B) $Al(OH)_3$ (C) A or B (D) Both A & B

23. What is the molecular formula of Alumina.

- (A) Al_3O_2 (B) Al_2O_3 (C) $Al_2O_3 \cdot 2H_2O$ (D) None of these

24. Which of the following is an alloy ?

- (A) Silver (B) Galium (C) 22 carat gold (D) 24 carat gold

25. Which of the following is dehydrating agent ?
(A) Cryolite (B) Feldspar
(C) Anhydrous Calcium Chloride (D) Slag
26. _____ acid is called king of chemicals ?
(A) Carboxylic acid (B) Hydrochloric (C) Sulphuric (D) Phosphoric
27. Which of the following gases is combustible ?
(A) CO₂ (B) H₂ (C) SO₂ (D) NH₃
28. Which of the following acts as catalyst in production of ammonia by Haber's process?
(A) Al₂O₃ (B) K₂O (C) V₂O₅ (D) Fe
29. Which of the following is used in production of water gas.
(A) Coke (B) Coaltar (C) Coal-gas (D) Ammonia
30. Major component of natural gas is _____ .
(A) Methane (B) Ethane (C) Propane (D) Butane
31. Which of the following is used in petromax to obtain light ?
(A) Petrol (B) Diesel (C) Kerosene (D) Butane
32. Which of the following component obtained from refining of petroleum is used as solvent in petrochemicals ?
(A) Naphtha (B) Kerosene (C) Tar (D) Petroleum coke
33. Compounds having functional group -CHO, are called ?
(A) Amide (B) Aldehyde (C) Ketone (D) All of these
34. Ethanol solution having 5% water is called _____ .
(A) Rectified spirit (B) Lactic spirit
(C) Acidic spirit (D) Propanoic spirit
35. Which polymer is used to prepare conveyor belts ?
(A) Neoprene (B) PVC (C) Isoprene (D) Teflon
36. By which of the following organs, bile is secreted in human digestive system ?
(A) Pancreas (B) Liver (C) Kidney (D) Stomach
37. In human body which of the following carries O₂, CO₂, etc.
(A) Respiration (B) Blood (C) Lymph (D) B and C
38. What is excretory unit in human being?
(A) Bowman's capsule (B) Glomerulus
(C) Nephron (D) Henle's loop
39. In Human being kidneys are a part of the _____ system.
(A) Respiration (B) Transportation (C) Excretion (D) Digestion
40. Which of the following process occurs in Bowman's capsule ?
(A) Filtration (B) Transportation (C) Assimilation (D) Reabsorption

41. The plant movement towards gravity is called _____ .
 (A) Geotropism (B) Chemotropism (C) Hydrotropism (D) Thigmotropism
42. _____ is the structural and functional unit of nervous system.
 (A) Thalamus (B) Pons
 (C) Nerve cell (D) Medulla oblongata
43. In which of the following show spore formation?
 (A) Rhizopus (B) Mucor (C) Yeast (D) A and B both
44. One of the following organism does not reproduce by binary fission. It is _____.
 (A) Amoeba (B) Plasmodium (C) Euglena (D) Paramecium
45. In human being sex is determined by :
 (A) Cell (B) Tissues (C) Genes (D) Organelles
46. The organs which perform different functions but have the same basic structure are known as :
 (A) Homologous organs (B) Excretory organs
 (C) Analogous organs (D) Analytic organs
47. Which of the following is an example of biodegradable waste.
 (A) Vegetables (B) Glass (C) Plastic (D) Metal
48. First order consumers are
 (A) Carnivorous (B) Herbivores (C) Decomposers (D) Omnivores
49. Making use of solar energy to reduce the use of LPG is an example of ?
 (A) Recycling (B) Reduction (C) Reuse (D) None of these
50. In Gujarat, how much area is covered by the forests.
 (A) 18998 km² (B) 17887 km² (C) 18999 km² (D) 16567 km²

Time : 2 Hours]

PART-B

[Total Marks : 50

Instructions : As per Question-1.

SECTION-A

❖ Answer the following questions in short : (30 words). Each question carries 2 marks. 10

1. How nanotechnology is useful for us ?

OR

1. Give the name of the areas which will improve greatly due to nanotechnology brief detail for two.

2. Give advantages and disadvantages of series and parallel connections of resistors.

3. Differentiate between : LPG and CNG.

OR

3. Which is called homologous series ? Write its characteristics.

4. Draw the structure of excretory system of human being and name the organs included.

5. Explain in short : Biodiversity.

SECTION-B

- ❖ Answer in short (30 words). Each carries 2 marks. 10
6. Write a short note on Nakshatra.
 7. Explain the properties of Hormones.
 8. Explain the role of pH in digestion of food.
 9. Name five varieties of vegetables which have been produced from 'wild cabbage' by the process of artificial selection.

OR

9. In which way homologous organs give evidence for evolution ?
10. Explain the importance of water.

SECTION-C

- ❖ Answer the questions in brief (50 words). Each question carries 3 marks. 15
11. Explain the dispersion of light through glass prism.
 12. What do you mean by "short circuit". Which type of accidents can be caused by it ?

OR

12. (A) On which factors magnetic field due to a current carrying straight conductor depends ?
(B) On which factors magnetic field produced by a current carrying circular ring depends ?
13. Explain the laboratory method for production of Dihydrogen gas with diagram.
14. Give the preparation method for ethanoic acid.

OR

14. Write down the Fisher-Tropsch process with equation and properties of Acetone.
15. Give a detailed account for Menstrual cycle in female.

SECTION-D

- ❖ Answer the Questions in detail (100 words). Each Qu. carries 5 marks. 15
16. What is reflection ? Discuss its types and define angle of incidence and angle of reflection.
 17. Explain the reason for corrosion and describe the preventing methods for corrosion.

OR

17. Discuss the chemical properties of metals.
18. What is holozoic nutrition ? Explain the types of animals basis on their food eating habits.

OR

18. Describe the enzymes and their work which are used in digestion of food in human digestive system.

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