

Meghalaya Board Class 10 Science Previous Year Question paper

Total No. of Printed Pages—12

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SCIENCE AND TECHNOLOGY

(CANDIDATES WITH PRACTICAL/INTERNAL ASSESSMENT)

Full Marks : 80
Pass Marks : 24

(CANDIDATES WITHOUT PRACTICAL/INTERNAL ASSESSMENT)

Full Marks : 100
Pass Marks : 30

Time : 3 hours

(For Both Categories of Candidates)

The figures in the margin indicate full marks for the questions

General Instructions :

- (i) The question paper comprises of three Sections—A, B and C.
- (ii) The candidates are advised to attempt all the questions of Sections A, B and C separately.
- (iii) Marks allocated to every question are indicated against each.
- (iv) Question Nos. **1** to **39** are to be answered by both Regular and Private Candidates.
- (v) Question No. **40** is to be answered by Private Candidates (without Practicals) only.
- (vi) Regular Candidates should not answer Question No. **40**.

(2)

SECTION—A

(**PHYSICS**)

(Marks : 26)

Choose and write the correct answers from the following : 1×3=3

1. Refraction of light takes place due to the change in its

(a) speed

(b) wavelength

(c) nature

(d) None of the above

1

2. For a young adult with normal vision, the near point is

(a) 10 cm

(b) 20 cm

(c) 25 cm

(d) 35 cm

1

3. In an electric circuit, rheostat is used to change the

(a) potential difference

(b) potential

(c) current

(d) None of the above

1

(3)

Answer the following questions in one word or one sentence each :

1×3=3

4. State the relation between object distance(u), image distance(v) and focal length(f) of a mirror. 1
5. What is meant by dispersion of light? 1
6. What is 'rating of a fuse'? 1

Answer the following short-answer type questions in 30–40 words each :

2×3=6

7. *Either*

- (a) State the laws of reflection of light. 2

Or

- (b) The radius of curvature of a spherical mirror is 20 cm. What is its focal length? 2

8. Write any two advantages of alternating current over direct current. 2
9. Define one volt. Name the instruments used to measure (a) electric current and (b) potential difference in a circuit.

1+½+½=2

Answer the following short-answer type questions in 50–60 words each :

3×3=9

10. (a) Define the following terms : 1+1=2
- (i) Power of accommodation
- (ii) Least distance of distinct vision
- (b) Which defect of vision can be corrected by using (i) concave lens and (ii) convex lens? ½+½=1

(4)

11. (a) Define one kilowatt-hour. 1
- (b) An electric toaster has a resistance of 50 Ω and draws a current of 5 A. Calculate the power consumed. 2

12. *Either*

- (a) Without touching, how will you distinguish between plane, concave and convex mirrors? 3

Or

- (b) Give three reasons as to why nichrome wire is generally used as heating element in heating appliances. 3

Answer the following long-answer type question in 70–80 words : 5

13. *Either*

- (a) State Ohm's law. Write the mathematical expression of the law. 1+1=2

- (b) How does a solenoid carrying current behave like a bar magnet? 2

- (c) Define the resistance of a conductor. 1

Or

- (d) Define one dioptre. 1

- (e) Mention any two uses of concave mirror. 2

- (f) Light enters from air to glass having refractive index 1.50. What is the speed of light in glass? The speed of light in vacuum is 3×10^8 m/s. 2

(5)

SECTION—B

(CHEMISTRY)

(Marks : 26)

Choose and write the correct answers from the following : 1×3=3

14. Which of the following metals forms an amphoteric oxide? 1

(a) Potassium

(b) Zinc

(c) Calcium

(d) Copper

15. The elements on the right side of the periodic table are

(a) transition metals

(b) non-metals

(c) metals

(d) semi-metals 1

16. The organic compounds containing —COOH are called

(a) esters

(b) carboxylic acid

(c) alcohols

(d) aldehyde 1

(6)

Answer the following questions in one word or one sentence each :

1×2=2

17. Define the term 'mineral'. 1

18. What is meant by functional group? 1

Answer the following short-answer type questions in 30–40 words each :

2×2=4

19. What are alcohols? Give the common names of methanoic acid and ethanoic acid. 1+1=2

20. *Either*

(a) What is a decomposition reaction? Give an example. [Write the chemical reaction involved.] 1+1=2

Or

(b) Define corrosion. Mention two methods used for the prevention of corrosion. 2

Answer the following short-answer type questions in 50–60 words each :

3×4=12

21. (a) How is bleaching powder prepared? Give the chemical equation involved. 2

(b) State the modern periodic law. 1

(7)

22. (a) Distinguish between roasting and calcination. (Mention any *two* points.) 2

(b) What chemical process is used for obtaining a metal from its oxide? 1

23. (a) What is soap? 1

(b) Write any two uses of ethanol. 2

24. *Either*

(a) Define the term pH. Mention two applications of pH. 1+2=3

Or

(b) What do you mean by valence shell? 1

(c) Write the electronic configuration and find the valency of magnesium with atomic number 12 and sulphur with atomic number 16. 1+1=2

Answer the following long-answer type question in 70–80 words : 5

25. *Either*

(a) What is esterification? Write a chemical equation showing the esterification of ethanol. 2

(b) What is meant by electron affinity? What are the factors that determine the magnitude of electron affinity? (Mention any *two* points.) 1+½+½=2

(c) Define efflorescence. 1

(8)

Or

(d) What would you observe when zinc is added to a solution of iron (II) sulphate? Write the chemical reaction that takes place. 2

(e) Give reasons why platinum, gold and silver are used to make jewellery. 3

(9)

SECTION—C

(**BIOLOGY**)

(Marks : 28)

Choose and write the correct answers from the following : 1×3=3

26. Glomerulus and Bowman's capsule constitute

- (a) blood vessels
- (b) Malpighian body
- (c) green gland
- (d) Malpighian tubule 1

27. Pollen sacs are present in

- (a) thalamus
- (b) anther
- (c) ovary
- (d) corolla 1

28. Lungs are covered by

- (a) pericardium
- (b) perichondrium
- (c) periosteum
- (d) pleura 1

(10)

Answer the following questions in one word or one sentence each :

1×3=3

29. Name two important lymphatic organs of the body. $\frac{1}{2}+\frac{1}{2}=1$

30. Name the functional units of lungs and nervous system. $\frac{1}{2}+\frac{1}{2}=1$

31. Define dialysis. 1

Answer the following short-answer type questions in 20–30 words each :

2×4=8

32. State Mendel's law of dominance. 2

33. Differentiate between phototropism and hydrotropism. 1+1=2

34. *Either*

(a) Name the four great blood vessels of the heart. $\frac{1}{2}\times 4=2$

Or

(b) State any two functions of plant hormones. 2

35. What are genes? Where are they located? 1+1=2

Answer the following short-answer type questions in 50–60 words each :

3×3=9

36. (a) Define respiration. 1

(b) Why is ATP considered as the energy currency of the cell? 2

37.

Either

(a) Mention any three modes of transmission of HIV. 3

Or

(b) What is the role of the following in the digestion of food? 1+1+1=3

(i) Pepsin

(ii) Lipase

(iii) Maltose

38. Write three differences between arteries and veins. 3

Answer the following long-answer type question in 70–80 words : 5

39.

Either

(a) What are the basic features of asexual reproduction? (Mention any *five* points.) 5

Or

(b) Describe the digestive functions of saliva. (Mention any *five* points.) 5

[For Private Candidates (without Practicals) only]

40. I. Answer any *three* of the following questions : 2×3=6

(a) Define 'refraction' of light. 2

(b) Distinguish between regular and irregular reflection of light. 2

(c) What is a solenoid? 2

(d) What is hypermetropia? How can it be corrected? 1+1=2

(e) Distinguish between concave and convex mirrors. (Mention any *two* points.) 2

(12)

II. Answer any *three* of the following questions : $2 \times 3 = 6$

(a) Give two uses of sodium carbonate. 2

(b) Define acid and base according to Arrhenius concept. 2

(c) Give an example of a metal which is (i) liquid at room temperature and (ii) poor conductor of heat. $1 + 1 = 2$

(d) Write any two uses of bleaching powder. 2

(e) What is an oxidizing agent? Give two examples. $1 + \frac{1}{2} + \frac{1}{2} = 2$

III. Answer any *four* of the following questions : $2 \times 4 = 8$

(a) What is nutrition? Name the two main modes of nutrition. $1 + \frac{1}{2} + \frac{1}{2} = 2$

(b) Differentiate between genotype and phenotype. $1 + 1 = 2$

(c) List the organs involved in the human urinary system. $\frac{1}{2} \times 4 = 2$

(d) Name the following : $1 + 1 = 2$

(i) Fission in which two organisms are formed from one parent cell

(ii) Female reproductive whorl of the flower

(e) State any two functions of blood. 2

(f) Differentiate between stock and scion. $1 + 1 = 2$
