

SUBJECT: SCIENCE**Time: 3 Hours****Max - Marks:100****PART – A****(Physics & Chemistry)**

I. Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its alphabet against each question. 10X1=10

1. An alternating current or voltage

A. fluctuates off and on

B. varies in magnitude alone

changes its magnitude continuously and reverses

C. changes its direction again and again

D. its direction of flow after regularly recurring intervals.

2. A.C cannot be used for

A. producing heat

B. producing light

C. magnetizing and electroplating

D. all the above

3. The magnitude of the photoelectric current increases on increasing the,

a) Frequency

b) Wavelength

c) Intensity

d) None of these.

4. Kiran who is reading in the classroom knows the entering of the teacher, even though the teacher is not visible. It is

because he,

a) Knows about SONAR

b) Knows about Ultrasonics

c) Is aware of Doppler effect

d) Knows about frequency and wavelength.

5. An astrophysics scientist observes that galaxy 'A' is more red shifted than galaxy 'B'. he concludes that,

a) the velocity of A is more than B

b) the velocity of B is more than B

c) both have equal velocities

d) both are at rest.

6. The chemical used to separate soap from glycerol is

a) Sodium chloride

b) Calcium sulphate

c) Mangesium oxide

d) Potassium nitrate

7. Which one of the following is not correct with respect to the use of hard water?

a) Clothe are easily washed when used with soap and hard water

b) Pulses are not cooked properly in hard water

c) Hard water used for bathing makes the skin dry and leaves whitish residue on skin

d) Boiler gets corroded when hard water is boiled inside.

8. The natural polymer is

a) Rayon

b) Nylon

c) Fat

d) Terylene

9. Calcium sulphate is also called as

a) Zeolite

b) Bakelite

c) Azurite

d) Gypsum

10. Water glass is chemically known as

a) Silicon carbide

b) Silicone

c) Sodium silicate

d) Sodium aluminium silicate

II. Fill in the blanks:**3X1=3**

11. A pn junction allows to pass the current in one direction this is called_____.
12. RADAR gun works on the principle of_____.
13. The device which converts light into electrical energy is_____.

III. Match the Following:**4X1=4**

14. Match the statements given in List-A with appropriate names given in List-B.

List - A

1. Cyclobutane
2. Cyclohexane
3. Ethene
4. Methane

List - B

- a. CH_4
- b. C_3H_6
- c. C_4H_{10}
- d. C_4H_8
- e. C_2H_4
- f. C_6H_{12}
- g. C_6H_6

IV. Answer the following:**6X1=6**

15. Why does a cyclist going round a curve leans towards the center of curve?
16. What is a centrifugal governor?
17. What is the color of the star Betelgeuse?
18. What is the reason for enormous energy output of the sun?
19. Calcium bicarbonate is dissolved in water. Write the equation that takes place when it is boiled?
20. What is transmutation?

V. Answer the following:**9X2=18**

21. Sketch a neat diagram of DC dynamo.
22. What is electromagnetic spectrum?
23. Draw a neat sketch to show exhaust stroke of an external combustion engine.
24. State Faraday's laws of electromagnetic induction.
25. Write the difference between addition polymers and condensation polymers.
26. During the α -decay of radioactive element what changes takes place in the nucleus?
27. What happens when copper reacts with dilute Sulphuric acid? Write the balanced equation of the chemical reaction.
28. How is crystalline silicon is obtained?
29. Draw the circuit symbol of each of the following:
 - a) Forward biased diode.
 - b) Transistors of n - p - n.

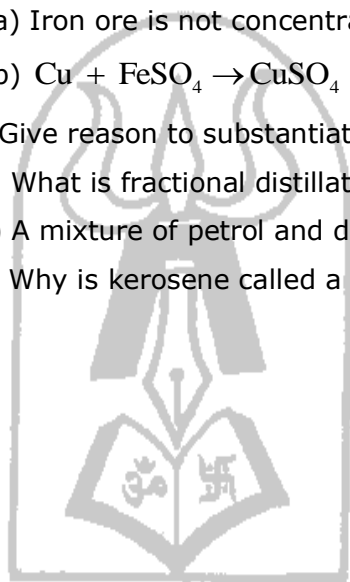
VI. Answer the following:**4x3=12**

30. What is the orbital time period of geostationary satellite? What is the direction of motion of geostationary satellite? What is the height of geostationary satellite?
31. Draw a neat diagram of the apparatus used in the preparation of soap
32. What are the differences between soaps and detergents?
33. Assume that after 4 half-life periods 5 g of radium is remaining. Find its mass before the four half life period.

VII. Answer the following:

3X4=12

34. Define impure spectrum. Which are the two types of scattering? Write one difference each between them.
35. Give scientific reasons:
- a) Iron ore is not concentrated by froath floatation method.
 - b) $\text{Cu} + \text{FeSO}_4 \rightarrow \text{CuSO}_4 + \text{Fe}$ is this reaction true.
36. Give reason to substantiate your answer
- a) What is fractional distillation of petrol?
 - b) A mixture of petrol and diesel is separated at a lower temperature. Why?
 - c) Why is kerosene called a hydrocarbon?



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PART – B

(Biology)

VIII. Four alternatives are given for each of the following questions / incomplete statements. Only one of them is correct or most appropriate. Choose the correct alternative and write the complete answer along with its alphabet in the space provided against each question. 5X1 = 5

37. Which one of the following is a blue pigment?

- (A) Phycocyanin (B) Xanthophyll (C) Phycoerythrin (D) both A and C

38. Cloning is the technique to produce

- (A) Genetically similar organisms (B) Similar type of genes
(C) Genetically similar cells (D) All the above

39. High metabolic rate is the symptom of the following disorder.

- (A) Simple Goitre (B) Myxedima (C) Cretinism (D) Hyperthyroidism

40. Which of the following element is present in Lithosphere reservoir?

- (A) Carbon (B) Oxygen (C) Hydrogen (D) Sulphur

41. This is responsible for the maintenance of equilibrium and posture of the body.

- (A) thallamus (B) hypothalamus (C) cerebellum (D) cerebrum.

42. List any two differences amphibia and mammalia.

4 marks

IX. Answer the following in a sentence each :

4 X 1 = 4

43. What is Tissue culture?

44. Define food adulteration?

45. In which region of the eye the aqueous humour is found?

46. What is responsible for Diabetes mellitus?

X. Answer the following questions in two to three sentences :

6 X 2 = 12

47. Which are the positions of four taste buds in tongue?

48. List out the common food items adulterated by the following adulterants:

- a) talcum powder b) metanil yellow c) argemone oil d) Kesaridhal

49. Mention one function each of the secretion of gonads.

50. Define the two main types of biogeochemical cycles?

51. Differentiate poikilotherms and homeotherms?

52. List any four control measures of air pollution.

X. Answer the following questions:

2 X 3 = 6

53. a) Chlorenchyma is a photosynthetic tissue. Why?

b) To which kind of soil condition the *Drosera* is adapted??

54. Draw a diagram showing the structure of typical flower and label any two parts.

55. Draw a diagram of structure of human eye and label the following parts:

4 marks

- a) Pupil b) Lens c) Sclera d) Retina

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