

10th Mid term Examination

Date :

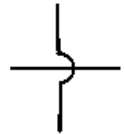
Subject : Science, Time: 3 hours, Total marks : 80

PART : A PHYSICS

I. Choose the correct alternative

3 x 1 = 3

- The SI unit of electric charges is :
A. volt B. ampere C. coulomb D. joule
- The symbol shown in the figure represents one of the following in an electric circuit,
A. wires crossing without joining B. a plug key
C. a wire joint D. an electric cell
- The magnetic field lines inside a solenoid are in the form of parallel straight lines. The reason for this is, the magnetic field inside the solenoid is :
A. very high B. uniform
C. zero D. produced by electricity



II. Answer the following questions.

2 x 1 = 2

- Why don't two magnetic field lines intersect each other?
- Draw the circuit diagram showing the combination of resistor R_1 and R_2 in series including Ammeter and voltmeter and mark the direction of current.

III. Answer the following questions.

3 x 2 = 6

- What are the advantages of connecting electrical devices in parallel with the battery instead of connecting them in series?
- Give Scientific reason:
 - the conductors of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal.
 - Electric bulbs are usually filled with chemically inactive gases such as Nitrogen or Argon.
- What is the function of an earth wire? Why is it necessary to earth metallic appliances?

IV. Answer the following questions.

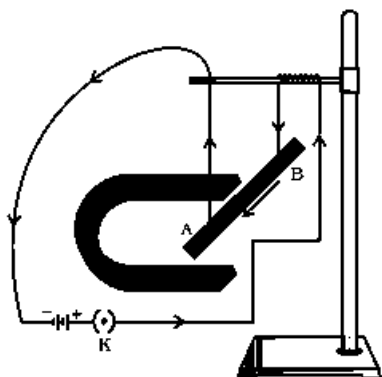
3 x 3 = 9

- Draw the diagram of an electric generator. Label the following parts.
(i) Carbon Brushes (ii) Rings
- The resistors R_1 , R_2 and R_3 have the values 5Ω , 10Ω and 30Ω respectively, which have been parallelly connected to a battery of 12 V in an electric circuit. Then calculate the following.
 - The current flowing through each resistor.
 - The total current in the circuit
 - The total resistance of the circuit.

OR

Two lamps, one rated 100 W at 220 V, and the other 60 W at 220 V, are connected in parallel to electric mains supply. What current is drawn from the line if the supply voltage is 220 V?

11. An aluminium rod AB is connected in series in an electric circuit and suspended freely between the poles of a strong horse shoe magnet as shown in the figure.



- What is your observation when i) current is passed in the aluminium rod in B to A direction.
 ii) current is passed in the aluminium rod in A to B direction. Give reasons for your observations.
 iii) State the law which gives relationship between the direction of the force on the conductor, direction of current and the direction of the magnetic field in the above experiment.

V. Answer the following questions.

2 x 4 = 8

12. What is electromagnetic induction? Explain the structure the device that works on this principle. Mention the frequency of the electric current produced in India.

OR

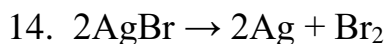
How does overload and short-circuit occur in an electric circuit ? Explain. What is the function of fuse during this situation ? How alternate current is different from direct current.

13. a) State Ohm's law. Mention the factors on which the resistance of a conductor depend.
 b) State Joule's law of heating and write the mathematical formula of this law.

PART : B CHEMISTRY

VI. Choose the correct alternative

3 x 1 = 3



The type of above chemical reaction is

- (A) combination reaction (B) double displacement reaction
 (C) decomposition reaction (D) displacement reaction.

15. The material used by the doctor for supporting fractured bones in the right position is

- A) bleaching powder B) plaster of Paris
 C) baking soda D) washing soda

16. Hydrogen gas is not liberated when copper reacts with concentrated nitric acid because,

- A) nitric acid is strong reducing agent B) nitric acid is strong oxidizing agent.
 C) copper is less reactive D) copper is more reactive

VII. Answer the following questions.

3 x 1 = 3

17. Manufacturers of chips, flush the packets of chips with nitrogen gas. Why ?

18. An aqueous solution of metal oxide is tested separately by using red and blue litmus papers. Which litmus paper will change its colour? Why?
19. Draw the diagram of the apparatus used to show that acid solution in water conducts electricity.

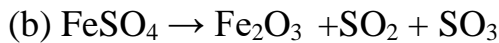
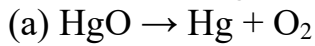
VIII. Answer the following questions.

3 x 2 = 6

20. In the reaction $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$ identify the product i) that is oxidised ii) that is reduced

OR

Balance the following chemical equations.



21. Write chemical name, formulae and two uses of baking soda.
22. The pH values of four solutions A, B, C and D are 5, 12, 8 and 9 respectively. Arrange them in the Increasing order of their hydronium ion concentration. Which solution among them has strong acidic property?

IX. Answer the following questions.

3 x 3 = 9

23. Give reason:

- a) ionic compounds have high melting points.
- b) sodium is kept immersed in kerosene oil.
- c) chemical reaction does not take place when copper is added to iron sulphate solution.

OR

Explain the formation ionic compound magnesium chloride(MgCl_2) with the help of electron dot structure

24. Explain how tooth decay is caused. How can it be prevented ?
25. Draw the diagram of the arrangement of the apparatus showing the reaction of steam on metal. Label the following.
- (i) Metal Sample
 - (ii) Delivery tube

X. Answer the following question.

1 x 4 = 4

26. The reaction of Barium chloride with Aluminium sulphate solution is an example for which type of chemical reaction ? Why ? Write the balanced chemical equation for this reaction.

PART : C BIOLOGY

XI. Choose the correct alternative

2 x 1 = 2

27. Observe the food chain given below :
- Grass \rightarrow Grass hopper \rightarrow Frog \rightarrow Snake \rightarrow Eagle.
- Which organisms are disturbed more due to bio magnification in this food chain?
- A) Grass hopper
 - B) Frog
 - C) Snake
 - D) Eagle
28. The downward growth of roots is called
- A) geotropism
 - B) phototropism
 - C) hydrotropism
 - D) chemotropism.

XII. Answer the following questions.

3 x 1 = 3

29. How plants get rid of their excretory products?
30. "We withdraw our hand immediately on touching a hot plate ." Which part of human nervous system controls this action ?
31. Differentiate between biodegradable and non biodegradable substance with examples.

XIII. Answer the following questions.

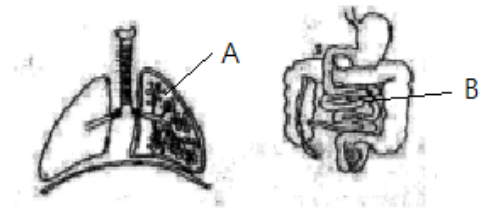
2 x 2 = 4

32. The tendrils of pea plants appear to move in a particular direction as they grow. How is this response caused?

OR

How does adrenal gland bring the chemical coordination in our body? Explain briefly.

33. Observe the given figure. What similarity is observed in the structure of 'A' and 'B' with respect to their structure and function?



XIV. Answer the following questions.

3 x 3 = 9

34. How is the end product of Nutrition glucose breakdown among all the organisms under the conditions given below
(i) in the presence of atmospheric oxygen
(ii) in the absence of atmospheric oxygen
(iii) in muscle cells due to lack of oxygen

OR

Explain the digestion that takes place in the stomach.

35. How does nervous system differ from the endocrine system in forming control and co-ordination in animals?

OR

What is the difference between the manner in which movement takes place in a sensitive plant and movement in our legs?

36. Give reason:
a) Food chains generally consist of only three or four steps.
b) Decomposers play vital role in an ecosystem.
c) Use of CFC free refrigerators is considered as eco-friendly.

XV . Answer the following question.

1 x 4 = 4

37. Draw the diagram showing the longitudinal section of the human brain. Label the following parts.

- i) Cerebellum ii) Medulla

XV . Answer the following question.

1 x 5 = 5

38. Name the process by which autotrophs prepare their food ? List the events that occur during this process. How autotrophs obtain raw materials required for this process? What is the role of stomata in this process?