

H-3-M

Roll No.....

Total No. of Questions : 24]

[Total No. of Printed Pages : 8

XPJN16

11703-M

SCIENCE

(Physics, Chemistry and Life Science)

Time : 3 Hours]

[Maximum Marks : 84

Section-A

(PHYSICS)

(Long Answer Type Questions)

1. Draw the ray diagram and find position, nature and size of image formed by a convex lens when the object is placed between focus and twice the focus (f and $2f$).

Or

An object 5 cm in length is held 25 cm away from a converging lens of focal length 10 cm. Draw the ray diagram and find the position, size and the nature of image formed.

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Turn Over

(Short Answer Type Questions)

4 each

2. Define magnification of a spherical mirror. What will be the magnification in case of a plane mirror ?

Or

What are the Cartesian sign conventions used in spherical mirror ?

3. Explain in brief dispersion of light.

Or

Explain why the Sun appears red at sunrise and sunset ?

4. What is electric energy ? What is its commercial unit ?

Or

Why are coils of electric toasters and electric irons made of an alloy rather than that of a pure metal ?

(Very Short Answer Type Questions)

2 each

5. What is the principle of electric motor ?
6. What are the advantages of nuclear energy ?
7. Define Fleming's right hand rule.

(Multiple Choice Questions)

1 each

8. (i) Defect of eye which can not be corrected by using spectacles

is :

- (a) Myopia
(b) Presbyopia
(c) Cataract
(d) Hypermetropia

(Choose the correct one)

(ii) Which of the following source is not derived from the sun ?

(a) Biomass

(b) Wind

(c) Hydroelectricity

(d) Geothermal

(iii) The commercial unit of electric energy is

(a) watt

(b) kilowatt

(c) kilowatt-hour

(d) kilo-volt

(iv) At the time of short circuit, the current in the circuit

(a) reduces substantially

(b) does not change

(c) increases rapidly

(d) varies continuously

Section-B

(CHEMISTRY)

(Long Answer Type Questions)

9. Describe the important chemical properties of carbon compounds. Illustrate answer with examples.

Or

Describe briefly the Physical and Chemical properties of Ethanoic acid.

(Short Answer Type Questions)

4 each

10. What do you understand by displacement reaction ? Explain with two examples.

Or

What is Corrosion ? Give two ways to prevent corrosion of metals.

11. Write down any three chemical properties of non-metals.

Or

Why are decomposition reactions called opposite of combination reactions ? Write equations for these reactions.

12. What are the limitations in Mandeleef's periodic table ?

Or

How does the reactivity of the metals vary in a group ?

(Very Short Answer Type Questions)

2 each

13. Explain in brief the cleansing action of soaps and detergents.
14. Why do acids not show acidic behaviour in the absence of water ?
15. Why does distilled water not conduct electricity, whereas rain water does ?

(Multiple Choice Questions)

1 each

16. (i) Burning of coal is :
- (a) Exothermic reaction
 - (b) Oxidation reaction
 - (c) Endothermic reaction
 - (d) Both (a) and (b)
- (ii) pH of pure water is :
- (a) 7
 - (b) 6
 - (c) 8
 - (d) 9
- (iii) Acid rain has pH :
- (a) more than 5.6
 - (b) less than 5.6
 - (c) 7
 - (d) 14
- (iv) The chemical formula of bleaching powder is :
- (a) CaCl_2
 - (b) CaSO_4
 - (c) CaOCl_2
 - (d) CaSO_3

Turn Over

Section-C

(LIFE SCIENCE)

(Long Answer Type Questions)

17. Explain in brief the exchange of gases in Lungs.

Or

Describe in brief human alimentary canal with the help of a suitable diagram.

6

(Short Answer Type Questions)

4 each

18. Explain the following :

(i) Hydrotropism

(ii) Chemotropism

Or

What are the functions of Auxins ?

19. What are the different methods of contraception ?

Or

How does reproduction help in providing stability to population of species ?

20. What evidence do we have for origin of life from inanimate ?

Or

How is equal genetic contribution of male and female parents ensured in the progeny ?

(Very Short Answer Type Questions)

2 each

21. What is vegetative propagation ?

22. What is ozone layer ?

23. What is water harvesting ?

(Multiple Choice Questions)

1 each

24. (i) Biotic components include :

(a) producers only

(b) consumers only

(c) producers and consumers only

(d) producers, consumers and decomposers

(ii) Which one is a primary consumer in a pond ecosystem ?

(a) Green algae

(b) Zooplankton

(c) Snake

(d) Bacteria

Turn Over

(iii) Loss of biological diversity is the result of :

- (a) Deforestation
- (b) Afforestation
- (c) Soil erosion
- (d) All of these

(iv) Greatest problem for water conservation is to reduce the amount of :

- (a) Run-off-water
- (b) Evaporation
- (c) Precipitation
- (d) Ground water