

MP BOARD CLASS 10 EM SCIENCE MODEL PAPER SET 3 2020

म.प्र. बोर्ड कक्षा 10 EM विज्ञान मोडल पेपर सेट 3 2020

Time : 3 Hours)

(Max. Marks : 80

Instructions :

- (1) All questions are compulsory.
- (2) There are four types of objective questions from Q. No. 1 to 4.
- (3) Internal choices are given in question No. 5 to 22.
- (4) Marks of each question are indicated against it.
- (5) Draw neat and labelled diagram where necessary.

1. Choose and write the correct alternative : 5 x 1 = 5

(i) What happens when dilute hydrochloric acid is added to iron fillings?

Tick the correct answer :

- (a) Hydrogen gas and iron chloride are produced
- (b) Chlorine gas and iron hydroxide are produced
- (c) No reaction takes place
- (d) Iron salt and water are produced.

(ii) As we move from top to bottom in a group in modern periodic table, generally atomic size of elements : <http://www.mpboardonline.com>

(a) increases (b) decreases (c) remains same (d) approaches zero.

(iii) The xylem in plants is responsible for :

(a) transport of water' (b) transport of food (c) transport of amino acids (d) transport of oxygen.

(iv) Which of the following is a plant hormone ?

(a) Insulin (b) Thyroxin (c) Oestrogen (d) Cytokinin.

(v) Mendel did his experiments on which plant?

(a) Pea (b) Wheat (c) Barley (d) Rice.

Ans. (i) (d), (ii) (a), (iii) (a), (iv) (d), (v) (a).

2. Fill in the blanks : 5 x 1 = 5

(i) The ability of metals to be drawn into thin wires is called

(ii) The radius of curvature of a spherical mirror is of its focal length.

(iii) is the surface, which acts as screen and image is formed on it.

(iv) The various components of an ecosystem are.....

(v) The movement called was started in Reni in Garhwal in early 1970s to save trees from being cut.

Ans. (i) ductility, (ii) twice, (iii) Retina, (iv) interdependent, (v) Chipko Andolan.

3. Match the columns : 5×1=5

Column 'A'

Column 'B'

(i) Moisture proof container

(a) Cellular vacuoles

- | | |
|-------------------|--------------------------|
| (ii) Plant waste | (b) Fourth trophic level |
| (iii) Myopia | (c) Direction of current |
| (iv) Galvanometer | (d) Plaster of Paris |
| (v) Lion | (e) Near-sightedness |

Ans. (i) → (d), (ii) → (a), (iii) → (e), (iv) → (c), (v) → (b).

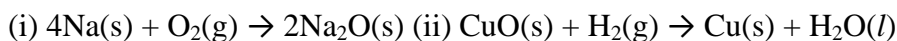
4. Answer in one word/sentence : 5x1 = 5

- (i) What is the pH value of pure water ?
 (ii) Name the respiratory organ in fishes.
 (iii) Name the hormone responsible for puberty in males and females.
 (iv) On crossing tall plants with dwarf plants what percentage of dwarf plants in F₂ generation was found by Mendel.
 (v) On what factors, the resistance of a wire depends?

Ans. (i) 7, (ii) Gills, (iii) Testosterone and oestrogen respectively, (iv) 40% dwarf plants,

(v) Resistance of a wire depends on material, length and area of cross section of wire, $R \propto \frac{l}{A}$.

5. Identify the substances that are oxidised and the substances that are reduced in the following reactions : <http://www.mpboardonline.com> 2



Or

In the refining of silver, the recovery of silver from silver nitrate solutions involved displacement by copper metal. Write down the reaction involved.

6. What were the limitations of Dobereiner's classification ? 2

Or

What are the salient features of Modern Periodic Table ? (any two)

7. What is cross pollination or allogamy ? 2

Or

Why are testes in male located outside the abdominal cavity ?

8. Define speciation. 2

Or

Can the wing of butterfly and the wing of a bat be considered homologous organs? Why or why not?

9. The radius of a curvature of a spherical mirror is 20 cm. What is its focal length ? 2

Or

A doctor has prescribed a corrective lens of power + 1.5 D. Find the focal length of the lens. Is the prescribed lens diverging or converging ?

10. What is a balanced chemical equation ? Why should chemical equations be balanced ? 3

Or

Define exothermic and endothermic reaction with examples.

11. Explain why the planets do not twinkle ? 3

Or

Write the importance of ciliary muscles in the human eye. Name the defect of vision that arises due to gradual weakening of the ciliary muscles in old age. What type of lenses are required by the persons suffering from this defect, to see the objects clearly ?

12. List three sources of magnetic fields. 3

Or

What is the function of an earth wire ? Why is it necessary to earth metallic appliances ?

13. An electric oven of 2 kW is operated in a domestic electric circuit (220 V) that has a current rating of 5 A. What result do you expect ? Explain. 3

Or

A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is (i) pushed into the coil, (ii) withdrawn from inside the coil, (iii) held stationary inside the coil ?

14. Why should we look for alternate sources of energy ? 3

Or

Hydrogen has been used as a rocket fuel. Would you consider it a cleaner fuel than CNG ? Why or why not?

15. While diluting an acid, why is it recommended that the acid should be added to water and not water to the acid ? 4

Or

What is the chemical name of Bleaching powder ? How is it prepared ? List its uses.

16. Write chemical equation of the reaction of ethanoic acid with the following— 4

(a) Sodium, (b) Sodium hydroxide, (c) Ethanol.

Write the name of one main product of each reaction.

Or

What is hydrogenation ? What is its industrial application ?

17. What are the components of the transport system in human beings ? What are the functions of these components ? 4

Or

How are water and minerals transported in plants ?

18. Write the main functions of auxins. 4

Or

What is a synapse ? What happens at the synapse between two neurons ?

19. Compute the heat generated while transferring 96000 coulomb of charge in one hour through a potential difference of 50 V. 4

Or

Explain the following –

(a) How does the resistance of a wire vary with its area of cross-section ?

(b) Why are copper and aluminium wires usually employed for electricity transmission ?

20. (a) What would you observe when zinc is added to a solution of iron II sulphate ? Write the chemical reaction that takes place. 5

(b) Give reasons why copper is used to make hot water tanks and not steel (an alloy of iron).

Or

Differentiate between metals and non-metals on the basis of their chemical properties.

21. What is vegetative propagation ? State two advantages and two disadvantages of this method. 5

Or

Draw a labelled diagram of the longitudinal section of a flower.

22. A ray of light travelling in air enters obliquely into water. Does the light ray bent towards the normal or away from the normal ? Why ? 5

Or

An object is placed at a distance of 30 cm from a concave lens of focal length 15 cm. List four characteristics (nature, position etc.) of the image formed by the lens.