

MP BOARD CLASS 10 EM SCIENCE MODEL PAPER SET 1 2020

म.प्र. बोर्ड कक्षा 10 EM विज्ञान मोडल पेपर सेट 1 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 : $5 \times 1 = 5$

(i) In the reaction $2\text{FeCl}_2 + \text{Cl}_2 \rightarrow 2\text{FeCl}_3$ chlorine is a

(a) Reducing agent (b) Oxidizing agent (c) Catalyst (d) Inert medium.

(ii) Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic table ? <http://www.mpboardonline.com>

(a) The elements become less metallic in nature (b) The number of valence electrons increases
(c) The atoms lose their electrons more easily (d) The oxides become more acidic.

(iii) The breakdown of pyruvate to give carbon dioxide, water and energy takes place in :

(a) cytoplasm (b) mitochondria (c) chloroplast (d) nucleus.

(iv) The gap between two neurons is called a/an :

(a) Dendrite (b) Synapse (c) Axon (d) Impulse.

(v) In evolutionary terms, we have more in common with

(a) an African school boy (b) a chimpanzee (c) a spider (d) a bacterium.

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

2. Fill in the blanks : $5 \times 1 = 5$

(i) is a liquid metal.

(ii) The S.I. unit of the power of a lens is

(iii) To see objects with both eyes is called the vision.

(iv) The layer protects against the UV radiations from the sun.

(v) One of the main aim of conservation is to try and preserve the we have inherited.

Ans. (i) Mercury, (ii) dioptre, (iii) binocular, (iv) ozone, (v) biodiversity.

3. Match the columns : $5 \times 1 = 5$

Column 'A'

- (i) Bleaching powder
- (ii) Rings. Of cartilage
- (iii) Rainbow
- (iv) Electric current !
- (v) CFC

Column 'B'

- (a) Ampere
- (b) Natural spectrum
- (c) Fire extinguisher
- (d) Wood pulp in paper industry
- (e) Throat

Ans. (1) → (d), (ii) → (e), (iii) → (b), (iv) → (a), (v) → (c):

4. Answer in one word/sentence : $5 \times 1 = 5$

(i) Which acid is produced in our stomach?

(ii) What is analogous to starch in human body to store food for longer term ?

(iii) Name two plants hormones that help in the stem growth.

(iv) Theory of Natural Selection was given by which scientist?

(v) What is the unit of power ?

Ans. (i) HCl, (ii) Glycogen, (iii) Gibberellin and Auxin, (iv) Charles Darwin, (v) Watt

5. Write one equation each for decomposition reactions where energy is supplied in the form of heat, light or electricity. <http://www.mpboardonline.com> 2

Or

Oil and fat containing items are flushed with nitrogen. Why ? :

6. Did Debereiner's triads also exist in the columns of Newland's octaves ? 2

Or

What were the criteria used by Mendeleev in creating his periodic table ?

7. Define grafting. 2

Or

What is the important of DNA copying in reproduction ?

8. What are homologous organs ? 2

Or

Define Genetic Drift.

9. Find the power of a concave lens of focal length 2 m. 2

Or

Why do we prefer a convex mirror as a rear view mirror in vehicles ?

10. Why are decomposition reactions called the opposite of combination reactions ? 3

Or

What do you mean by a precipitation reaction ? Explain by giving examples.

11. Why do stars twinkle ? 3

Or

What is the far point and near point of the human eye with normal vision ?

12. (a) What is the principle of an electric motor ? 3

(b) State the principle of an electric generator.

Or

What precautions should be taken to avoid the overloading of domestic electric circuits ?

13. Explain different ways to induce current in a coil. 3

Or

How does a solenoid behave like a magnet ? Can you determine the north and south poles of a current carrying solenoid with the help of a bar magnet ? Explain.'

14. What are the qualities of an ideal source of energy ? 3

Or

What are the advantages of nuclear energy ?

15. A milkman adds a very small amount of baking soda to fresh milk : 4

(a) Why does he shift the pH of the milk from 6 to slightly alkaline ?

(b) Why does this milk take a longer time to set as curd ?

Or

Which gas is usually liberated when an acid reacts with a metal ? Illustrate with an example. How will you test for the presence of this gas ?

16. (a) Why is the conversion of ethanol to ethanoic acid an oxidation reaction ? 4

(b) What will be the formula and electron dot structure of cyclopentane ?

Or

Explain the mechanism of the cleaning action of soaps.

17. What would be the consequences of deficiency of haemoglobin in our bodies ? 4

Or

What are the differences between aerobic and anaerobic respiration ? Name some organisms that use the anaerobic mode of respiration.

18. Write the names and two functions of hormones found in plants. 4

Or

How does phototropism occur in plants ?

19. An electric iron of resistance $20\ \Omega$ takes a current of 5 A. Calculate the heat developed in 30 s. 4

Or

Explain the following:

(a) Why is tungsten used almost exclusively for filament of electric lamps ?

(b) Why are the conductors of electric heating devices, such as bread toasters and electric irons, made of an alloy rather than a pure metal ?

20. Which gas is produced when dilute hydrochloric acid is added to a reactive metal ? Write the chemical equation when iron reacts with dilute H_2SO_4 . 5

Or

Give reasons : (a) Sodium, potassium and lithium are stored under oil.

(b) Aluminium is a highly reactive metal, yet it is used to make utensils for cooking.

21. "Reproduction is one of the most important characteristics of living beings". Give three reasons in support of the statement. <http://www.mpboardonline.com> 5

Or

Define reproduction. How does it help in providing stability to the population of species ?

22. Light enters from air to glass having refractive index 1.50. What is the speed of light in the glass? The speed of light in vacuum is 3×10^8 m/s. 5

Or

An object of height 2.5 cm is placed at a distance of 15 cm from the optical centre 'O' of a convex lens of focal length 10 cm. Draw a ray diagram to find the position and size of the image formed. Mark optical 'O', principal focus F and height of the image on the diagram.