



Standard 10

SCIENCE

Time: 1.30 Hrs.

Marks: 50

I. Choose the correct option:

8×1=8

- 1) The frequency, which is audible to the human ear is
 - a) 50 KHz
 - b) 20 KHz
 - c) 15000 KHz
 - d) 10000 KHz
- 2) Unit of radioactivity is _____.
 - a) Roentgen
 - b) Curie
 - c) Becquerel
 - d) All the above
- 3) Photolysis is a decomposition reaction caused by _____.
 - a) Heat
 - b) Electricity
 - c) Light
 - d) Mechanical energy
- 4) Which of the following is not an "element + element → compound" type reaction?
 - a) $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)}$
 - b) $2K_{(s)} + Br_{2(l)} \rightarrow 2KBr_{(s)}$
 - c) $2CO_{(s)} + O_{2(g)} \rightarrow 2CO_{2(g)}$
 - d) $4Fe_{(s)} + 3O_{2(g)} \rightarrow 2Fe_2O_{3(s)}$
- 5) Which of the following are used as anesthetics?
 - a) Carbon di oxide
 - b) Ethers
 - c) Esters
 - d) Aldehydes
- 6) The 'use and disuse theory' was proposed by _____.
 - a) Charles Darwin
 - b) Ernst Haeckel
 - c) Jean Baptiste Lamarck
 - d) Gregor Mendal
- 7) Which method of crop improvement can be practised by a farmer if he is inexperienced?
 - a) Clonal selection
 - b) Mass selection
 - c) Pureline selection
 - d) Hybridisation
- 8) We can cent the DNA with the help of _____.
 - a) Scissors
 - b) Restriction endonucleases
 - c) Knife
 - d) RNA ase

II. Answer ANY SIX questions only:

6×2=12

Question No. 16 is compulsory.

- 9) Mention two cases in which is no Doppler effect in sound.
- 10) Write any three features of natural and artificial radio activity.
- 11) Name the simplest Ketone and give its structural formula.
- 12) The degenerated wing of a Kiwi is an acquired character. Why is it an acquired character?
- 13) Name two maize hybrids rich in amino acid lysine.
- 14) Define Ethnobotany and write its importance.
- 15) State and applications of DNA finger printing technique.
- 16) Calculate the pH of 1.0×10^{-4} molar solution of HNO_3 .

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III. Write any four questions only:**4×4=16****Question No. 22 is compulsory.**

- 17) What are the factors that affect the speed of sound in gases?
- 18) Compare the properties of alpha, beta and gamma radiations.
- 19) What is called Homologous series? Give any three of its characteristics.
- 20) Natural selection is a driving force for evolution. How?
- 21) What are the effects of hybrid vigour in animals?
- 22) a) Air temperature in the Rajasthan desert can reach 46°C. What is the velocity of sound in air at that temperature? ($V_0 = 331 \text{ ms}^{-1}$)
b) Calculate the amount of energy released when a radio active substance undergoes fusi and results in a mass defect of 2kg.

IV. Answer the questions in detail:**2×7=14**

- 23) What is an echo?
 - a) State two conditions necessary for hearing an echo.
 - b) What are the medical applications of echo?
 - c) How can you calculate the speed of sound using echo?

(OR)

Explain the types of double displacement reactions with examples.

- 24) a) How do you differentiate homologous organs from analagous organs?
b) Why is Archaeopteryx considered to be a connecting link?

(OR)

Discuss the importance of biotechnology in the field of medicine.
