

SECOND MID TERM TEST - 2024**Standard - X****Time : 1.30 hrs****SCIENCE****Marks: 50****Part - I****I. Choose the correct answers:-****9×1=9**

- 1) When a sound wave travels through air, the air particles _____
 - a) vibrate along the direction of the wave motion
 - b) vibrate but not in any fixed direction
 - c) vibrate perpendicular to the direction of the wave motion
 - d) None of the above
- 2) The frequency which is audible to the human ear is _____
 - a) 50 KHz
 - b) 20KHz
 - c) 15,000 KHz
 - d) 10,000 KHz
- 3) _____ isotope is used for the treatment of cancer
 - a) Radio Iodine
 - b) Radio Cobalt
 - c) Radio Carbon
 - d) Radio Nickel
- 4) Photolysis is a decomposition reaction caused by _____
 - a) heat
 - b) electricity
 - c) light
 - d) Mechanical energy
- 5) The ionic product of water at 25°C is _____
 - a) $1.00 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$
 - b) $1.00 \times 10^{14} \text{ mol}^2 \text{ dm}^{-6}$
 - c) $1.00 \times 10^{-14} \text{ mol}^2 \text{ dm}^{-6}$
 - d) $1.00 \times 10^{14} \text{ mol}^2 \text{ dm}^{-6}$
- 6) The 'use and disuse' theory was proposed by _____
 - a) Charles Darwin
 - b) Ernst Haeckel
 - c) Jean Boptiste lamarck
 - d) Gregor Mendel
- 7) The term Ethnobotany was coined by _____
 - a) Khorana
 - b) J.W. Harshberger
 - c) Ronald Ross
 - d) Hugo de vries
- 8) We can cut the DNA with the help of _____
 - a) Scissors
 - b) Restriction Endonucleases
 - c) Knife
 - d) RNAase
- 9) DNA fingerprinting is based on the principle of identifying _____ sequence of DNA
 - a) Single stranded
 - b) mutated
 - c) polymorphic
 - d) repetitive

Part - II**II. Answer any four questions. (Q.No.15 is compulsory)****4×2=8**

- 10) Why does sound travel faster on rainy days than on a dry day?
- 11) **Write true or false:**
 - a) On dipping a pH paper in a solution, it turns into yellow. Then the solution is basic.
 - b) Sound can travel through solids, liquids, gases and even vacuum.

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- 12) Why is Archaeopteryx considered to be a connecting link?
 13) Name the types of stem cells.
 14) i) When and where was the first nuclear reactor built?
 ii) Which radioactive material is present in the ore of pitchblende
 15) Calculate the p^H of 1×10^{-4} molar solution of NaOH.

Part - III**III. Answer any three questions. (Q.No.20 is compulsory) $3 \times 4 = 12$**

- 16) State Soddy and Fajan's displacement law.
 17) i) Differentiate reversible and irreversible reaction.
 ii) $2\text{NaCl}_{(aq)} + \text{F}_{2(g)} \rightarrow 2\text{NaF}_{(aq)} + \text{Cl}_2$
 $2\text{NaF}_{(aq)} + \text{Cl}_{2(g)} \rightarrow 2\text{NaCl}_{(aq)} + \text{F}_2$
 Among these two reactions, which one is feasible?
 18) Define Ethnobotany and write its importance.
 19) Match the following:
 i) Wood park - Age of fossil
 ii) Insulin - 7.35
 iii) p^H of human blood- Thiruvakkarai
 iv) C-14 - First hormone produced using rDNA technique
 20) ${}_{88}\text{Ra}^{238}$ experiences three α -decay. Find the number of neutrons in the daughter element.

Part - IV**IV. Answer in detail:** **$3 \times 7 = 21$**

- 21) a) i) What do you understand by the term ultrasonic vibration?
 ii) State three uses of ultrasonic vibration?
 iii) Name three animals which can hear ultrasonic vibration. [or]
 b) Compare the properties of alpha, beta and gamma radiation.
 22) a) Explain the factors influencing the rate of a reaction. [or]
 b) How does p^H play an important role in everyday life.
 23) a) i) How do you differentiate homologous organs from analogous organs.
 ii) a) _____ is often referred as Goldilock zone for life.
 b) The theory of natural selection for evolution was proposed by _____
 [or]
 b) i) Define genetic Engineering? (2)
 ii) Name two maize hybrids rich in amino acid lysine. (2)
 iii) Differentiate Somatic gene therapy and germ line gene therapy. (3)

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