

SECOND MID TERM TEST - 2023**STD - X****SCIENCE****MARKS : 50****TIME : 1.30 Hrs****YouTube/ Akwa Academy****I. Choose the correct answer.****10 x 1 = 10**

- The sound waves are reflected from an obstacle into the same medium from which they were incident. Which of the following changes?
 - speed
 - frequency
 - wavelength
 - none of these
- Unit of radioactivity is
 - roentgen
 - Curie
 - becquerel
 - all the above
- Proton - Proton chain reaction is an example of
 - Nuclear fission
 - α - decay
 - Nuclear fusion
 - β - decay
- The frequency which is audible to the human ear is
 - 50 KHz
 - 20 KHz
 - 15000 KHz
 - 10000 KHz
- $H_{2(g)} + Cl_{2(g)} \rightarrow 2HCl_{(g)}$ is a
 - Decomposition reaction
 - combination reaction
 - Single displacement reaction
 - Double displacement reaction
- Powdered $CaCO_3$ reacts more rapidly than flaky $CaCO_3$ because of
 - high surface area
 - high pressure
 - high concentration
 - high temperature
- The "use and disuse theory" was proposed by
 - Charles Darwin
 - Ernst Haeckel
 - Jean Baptiste Lamarck
 - Gregor Mendel
- Palaentologists deal with
 - Embryological evidences
 - Fossil evidences
 - Vestigial organ evidences
 - All the above
- We can cut the DNA with the help of
 - Scissors
 - Restriction endonuclease
 - Knife
 - RNAase
- In a hexaploid wheat ($2n = 6x = 42$) the haploid (n) and the basic (x) number of chromosomes respectively are
 - $n = 7$ and $x = 21$
 - $n = 21$ and $x = 21$
 - $n = 7$ and $x = 7$
 - $n = 21$ and $x = 7$

II. Answer any seven questions. Q.No. 20 compulsory.**7 x 2 = 14**

- Why does sound travel faster on a rainy day than on a dry day?
- Mention two cases in which there is no Doppler effect in sound?
- Match the following :

a) Fuel	-	lead
b) Moderator	-	heavy water
c) Control rods	-	Cadmium rods
d) Shield	-	Uranium
- Why does the reaction rate of a reaction increase on raising the temperature?

15. Fill in the blanks : a) The normal pH of a human blood is
- b) Chemical Volcano is an example for type of reaction.
16. Why is Archaeopteryx considered to be a connecting link?
17. Define Genetic Engineering.
18. Differentiate between outbreeding and inbreeding.
19. State the applications of DNA fingerprinting technique.
20. ${}_{88}\text{Ra}^{226}$ experiences three α -decay. Find the number of neutrons in the daughter element. **YouTube/ Akwa Academy**

III. Answer any 3 of the following in short. Q.No.25 is compulsory.

3 x 4 = 12

21. a) What is ultrasonic vibration?
- b) State any two uses of ultrasonic vibration.
22. State Soddy and Fajan's displacement law.
23. How can you determine the age of the fossils?
24. Describe mutation breeding with an example.
25. What is the pH of 1.0×10^{-5} molar solution of KOH?

IV. Answer in details for the following.

2 x 7 = 14

26. a) i) Compare the properties of alpha, beta and gamma radiations.
ii) Which isotope is used to cure Anemia? (OR)
- b) Explain the factors influencing the rate of a reaction.
27. a) Natural selection is a driving force for evolution. How? (OR)
- b) i) What are transgenic organisms?
ii) With a neat labelled diagram explain the techniques involved in Gene cloning.