

## Ramanujam Tuition Centre - Patteeswararam

Thiruvannamalai District Question Paper  
SECOND MID TERM TEST - 2024

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Standard X

Reg.No. 

## SCIENCE

Time : 1.30 hrs

Part - I

Marks : 50

10 x 1 = 10

## I. Choose the correct answer:

- When a sound wave travels through air, the air particles
  - vibrate along the direction of the wave motion
  - vibrate but not in any fixed direction
  - vibrate perpendicular to the direction of the wave motion
  - do not vibrate
- The frequency, which is audible to the human ear is
  - 50 kHz
  - 20 kHz
  - 15000 kHz
  - 10000 kHz
- Artificial radioactivity was discovered by
  - Bequerel
  - Irene Curie
  - Roentgen
  - Niels Bohr
- \_\_\_\_\_ isotope is used for the treatment of cancer.
  - Radio Iodine
  - Radio Cobalt
  - Radio Carbon
  - Radio Nickel
- Photolysis is a decomposition reaction caused by \_\_\_\_\_.
  - heat
  - electricity
  - light
  - mechanical energy
- The pH of a solution is 3. Its  $[OH^-]$  concentration is
  - $1 \times 10^{-3} M$
  - 3 M
  - $1 \times 10^{-11} M$
  - 11 M
- The 'use and disuse theory' was proposed by \_\_\_\_\_.
  - Charles Darwin
  - Ernst Haeckel
  - Jean Baptiste Lamarck
  - Gregor Mendel
- Paleontologists deal with
  - Embryological evidences
  - Fossil evidences
  - Vestigial organ evidences
  - All the above
- DNA fingerprinting is based on the principle of identifying \_\_\_\_\_ sequences of DNA
  - single stranded
  - mutated
  - polymorphic
  - repetitive
- Pusa Komal is a disease resistant variety of \_\_\_\_\_.
  - sugarcane
  - rice
  - cow pea
  - maize

## Part - II

## II. Answer any 5 questions. (Q.No.18 is compulsory)

5 x 2 = 10

11. What is a longitudinal wave?

12. Match:

1. Infrasonic	a) Compressions
2. Echo	b) 22 kHz
3. Ultrasonic	c) 10 Hz
4. High pressure region	d) Ultrasonography

13. In Japan, some of the new born children are having congenital diseases. Why?
14. Define combination reaction. Give example.
15. a) Which organism is considered to be the fossil bird?  
b) What is the study of fossils called?
16. What are transgenic organisms?
17. Name the types of stem cells.
18. Two observers are stationed in two boats 4.5 km apart. A sound signal sent by one, under water, reaches the other after 3 seconds. What is the speed of sound in the water?

### Part - III

III. Answer any 4 questions. (Q.No.25 is compulsory)

4 x 4 = 16

19. a) Why does sound travel faster on a rainy day than on a dry day?  
b) Name three animals, which can hear ultrasonic vibrations.
20. a) Give the function of control rods in a nuclear reactor.  
b) What is stellar energy?
21. Explain a) Precipitation Reactions      b) Neutralization Reactions
22. a) Why is Archaeopteryx considered to be a connecting link?  
b) How can you determine the age of the fossils?
23. a) Differentiate between Outbreeding and Inbreeding.  
b) Undifferentiated cells and Differentiated cells
24. What are the effects of hybrid vigour in animals.
25. a) A solution has a pOH of 11.76. What is the pH of this solution?  
b) Calculate the pH of  $1.0 \times 10^{-4}$  molar solution of  $\text{HNO}_3$ ?

### Part - IV

IV. Answer all the questions in detail.

2 x 7 = 14

26. a) Compare the properties of alpha, beta and gamma radiations.  
(OR)  
b) What is a chemical equilibrium? What are its characteristics?
27. a) i) How do you differentiate homologous organs from analogous organs?  
ii) Natural selection is a driving force for evolution-How?  
(OR)  
b) i) Differentiate : Somatic gene therapy and Germ line gene therapy  
ii) Biofortification may help in removing hidden hunger. How?

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