

COMMON SECOND MID-TERM TEST - 2019

V

Standard X

Reg.No. 10303

Time: 2.30 hours.

SCIENCE

Marks: 75

Part - A

I. Choose the correct answer:

12 x 1 = 12

- Velocity of sound in a gaseous medium is 330 ms^{-1} . If the pressure is increased by 4 times without causing a change in the temperature, the velocity of sound in the gas is
a) 330 ms^{-1} b) 660 ms^{-1} c) 156 ms^{-1} d) 990 ms^{-1}
- The frequency, which is audible to the human ear is
a) 50 KHz b) 20 KHz c) 15000 KHz d) 10000 KHz
- Both source and listener move away from each other than Expression for apparent frequency is _____
a) $n' = \left(\frac{V+V_L}{V-V_S} \right) n$ b) $n' = \left(\frac{V-V_L}{V+V_S} \right) n$ c) $n' = \left(\frac{V-V_L}{V-V_S} \right) n$ d) $n' = \left(\frac{V+V_L}{V+V_S} \right) n$
- The chemical equation $\text{Na}_2\text{SO}_{4(aq)} + \text{BaCl}_{2(aq)} \rightarrow \text{BaSO}_{4(s)} \downarrow + 2\text{NaCl}_{(aq)}$ represents which of the following types of reaction?
a) neutralisation b) combustion
c) precipitation d) single displacement
- The pH of a solution is 3. Its $[\text{OH}^-]$ concentration is
a) $1 \times 10^{-3} \text{ M}$ b) 3 M c) $1 \times 10^{-11} \text{ M}$ d) 11 M
- _____ is poured on a wound, it decomposes into water and oxygen.
a) hydrogen peroxide b) calcium hydroxide
c) ammonium hydroxide d) magnesium hydroxide
- Biogenetic law states that _____
a) ontogeny and phylogeny together b) ontogeny recapitulates phylogeny
c) phylogeny recapitulates ontogeny d) There is no relationship between phylogeny and ontogeny
- The 'use and disuse theory' was proposed by _____
a) Charles Darwin b) Ernst Haeckel
c) Jean Baptiste Lamarck d) Gregor Mendel
- The term Ethnobotany was coined by
a) Khorana b) J.W.Harsbberger
c) Ronald Ross d) Hugo de Vries
- Pusa Komal is a disease resistant variety of _____
a) sugarcane b) rice c) cow pea d) maize
- The miracle rice which saved millions of lives and celebrated its 50th birthday is _____
a) IR 8 b) IR 24 c) Atomita 2 d) Ponni
- TV-29 (triploid variety of tea) with larger shoots and drought tolerance are achieved by _____
a) introduction of new varieties of plants
b) polyploidy breeding c) mutation breeding d) hybridization

Part - B

II. Answer any 7 questions: (Ques.No.22 is compulsory)

7 x 2 = 14

- a) Name three animals, which can hear ultrasonic vibrations.
b) What is the minimum distance needed for an echo?

(2)

X Science

14. Write the difference between sound and light.
15. When an aqueous solution of potassium chloride is added to an aqueous solution of silver nitrate, a white precipitate is formed. Give the chemical equation of this reaction.
16. Why does the reaction rate of a reaction increase on raising the temperature?
17. Define ionic product of water.
18. The degenerated wing of a kiwi is an acquired character. Why is it an acquired character?
19. What is Atavism?
20. Define genetic engineering.
21. Differentiate between outbreeding and inbreeding.
22. The thunder of cloud is heard 9.8 seconds later than the flash of lightning. If the speed of sound in air is 330 ms^{-1} , what will be the height of the cloud?

Part - III**III. Answer any 7 questions: (Ques.No.32 is compulsory)**

7 x 4 = 28

23. Write the application of Doppler effect.
24. What are the factors that affect the speed of sound in gases?
25. a) Why does sound travel faster on a rainy day than on a dry day?
b) Why does an empty vessel produce more sound than a filled one?
26. Explain the types of double displacement reactions with examples.
27. What is a chemical equilibrium? What are its characteristics?
28. How do you differentiate homologous organs from analogous organs?
29. How can you determine the age of the fossils?
30. Describe the mutation breeding.
31. a) Distinguish between a.somatic gene therapy and germ line gene therapy
b) State the applications of DNA fingerprinting technique.
32. a) Calculate the pH of 1×10^{-4} molar solution of NaOH.
b) Air temperature in the Rajasthan desert can reach 46°C . What is the velocity of sound in air at that temperature? ($V_0 = 331 \text{ ms}^{-1}$)

Part - IV**IV. Answer all the questions:**

3 x 7 = 21

(Draw diagrams wherever necessary)

33. a) i) What is an echo?
ii) State two conditions necessary for hearing an echo
iii) What are the medical applications of echo?
iv) How can you calculate the speed of sound using echo? **(or)**
b) i) What is meant by reflection of sound?
ii) Explain the following:
a) reflection at the boundary of a rarer medium
b) reflection at the boundary of a denser medium
c) reflection at curved surfaces.
34. a) Explain the factors influencing the rate of a reaction. **(or)**
b) How does pH play an important role in everyday life?
35. a) Write with a neat labelled diagram, explain the techniques involved in gene cloning.
(or)
b) Natural selection is a driving force for evolution - How?
