

## SECOND MID TERM MODEL QUESTION 2022

STD: X.

MARKS: 50

SUB : SCIENCE.

TIME: 1.30 HRS

(PORTIONS CHAPTER: 5,6,10,11,19 &amp; 20)

## PART I

I CHOOSE THE CORRECT ANSWER:. 12 X 1 = 12

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) do not vibrate
2. The sound waves are reflected from an obstacle into the same medium from which they were incident. Which of the following changes?
  - a) speed b) frequency c) wavelength d) none of these
3. Unit of radioactivity is \_\_\_\_\_
  - a. roentgen b. curie c. becquerel d. all the above
4. Which of the following statements is/are correct?
  - i.  $\alpha$  particles are photons
  - ii. Penetrating power of  $\gamma$  radiation is very low
  - iii. Ionization power is maximum for  $\alpha$  rays
  - iv. Penetrating power of  $\gamma$  radiation is very high
  - a. (i) & (ii) are correct b. (ii) & (iii) are correct
  - c. (iv) only correct d. (iii) & (iv) are correct
5. Photolysis is a decomposition reaction caused by \_\_\_\_\_
  - a. heat. b. electricity c. light d. mechanical energy
6. Powdered  $\text{CaCO}_3$  reacts more rapidly than flaky  $\text{CaCO}_3$  because of \_\_\_\_\_.
  - a. large surface area
  - b. high pressure
  - c. high concentration
  - d. high temperature
7.  $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 3\text{H}_2\text{O}$  is a
  - a. Reduction of ethanol
  - b. Combustion of ethanol
  - c. Oxidation of ethanoic acid
  - d. Oxidation of ethanal
8. TFM in soaps represents \_\_\_\_\_ content in soap
  - a. mineral b. vitamin c. fatty acid d. carbohydrate
9. 9 : 3 : 3 : 1 ratio is due to
  - a) Segregation b) Crossing over c) Independent assortment d) Recessiveness
10. Okasaki fragments are joined together by \_\_\_\_\_.
  - a) Helicase b) DNA polymerase c) RNA primer d) DNA ligase
11. -----is the "Father of Indian Paleobotany"
  - a) Birbal Sahani b) Kaspar Maria Von Sternberg c) W.F. Libby d) Harshberger
12. The best way of direct dating fossils of recent origin is by

- a. Radio-carbon method
- b. Uranium lead method
- c. Potassium-argon method
- d. Both (a) and (c)

## PART B

ANSWER ANY FOUR OF THE FOLLOWING ( Q.NO 18 IS COMPULSORY)  $4 \times 2 = 8$

13. What will be the frequency sound having 0.20 m as its wavelength, when it travels with a speed of  $331 \text{ ms}^{-1}$ ?
14. State whether the following statements are true or false: If false, correct the statement
- i). Plutonium -239 is a fissionable material.
  - ii) If a moderator is not present, then a nuclear reactor will behave as an atom bomb.
15. Fill in the blanks: i) Electrolysis is type of \_\_\_\_\_ reaction  
ii) Chemical volcano is an example for \_\_\_\_\_ type of reaction
16. Why is Archaeopteryx considered to be a connecting link?
17. Name the types of stem cells.
18. The molecular formula of an alcohol is  $\text{C}_4\text{H}_{10}\text{O}$ . The locant number of its  $-\text{OH}$  group is 2.
- (i) Draw its structural formula.
  - (ii) Give its IUPAC name.

## PART III

ANSWER ANY FOUR QUESTIONS. QUESTION NUMBER 24 IS COMPULSORY.  $4 \times 4 = 16$

19. i) Match the following
- |                                    |                |
|------------------------------------|----------------|
| a. BARC.                           | Kalpakkam      |
| b. India's first atomic power      | Apsara station |
| c. IGCAR.                          | Mumbai         |
| d. First nuclear reactor in India. | Tarapur        |
- ii) .List important factors that affect rate of a chemical reaction.
20. Differentiate soaps and detergents.
21. i) State the applications of DNA fingerprinting technique.  
ii) Distinguish between
- a. somatic gene therapy and germ line gene therapy
22. Define Ethnobotany and write its importance.
23. Differentiate reversible and irreversible reactions
24. An ultrasonic wave is sent from a ship towards the bottom of the sea. It is found that the time interval between the transmission and reception of the wave is 1.6 seconds. What is the depth of the sea, if the velocity of sound in the seawater is  $1400 \text{ ms}^{-1}$ ?

## PART IV

ANSWER ALL THE QUESTIONS

$2 \times 7 = 14$

25. i) What are the factors that affect the speed of sound in gases?  
ii) State Soddy and Fajan's displacement law.

OR

- i) Explain the factors influencing the rate of a reaction.

ii) A solid compound 'A' decomposes on heating into 'B' and a gas 'C'. On passing the gas 'C' through water, it becomes acidic. Identify A, B and C.

26. i) How do you differentiate homologous organs from analogous organs?

ii) The degenerated wing of a kiwi is an acquired character. Why is it an acquired character?

OR

i) Biofortification may help in removing hidden hunger. How?

ii) With a neat labelled diagram explain the techniques involved in gene cloning.

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