SCIENCE

TOTAL MARKS: 75

DURATION: 2.5 hr   **Class:10**

I   Choose the most suitable answer and write the code with the corresponding answer: 12x1=12

1. Plotting a graph for momentum on the Yaxis and the time on X axis. Slope of momentum time graph gives_____
   a) Impulsive force   c) Acceleration
   b) Force   d) Rate of force

2. The mass of a body is measured on planet Earth as M kg. When it is taken to a planet of radius half that of the earth then its value will be _____ kg.
   a) 4 M   c) 2 M
   b) M/4   d) M

3. To project the rockets which of the following principles is/are required?
   a) Newton's third law of motion c) Newton's law of gravitation
   b) Both a and c   d) law of conservation of linear momentum

4. The refractive index of four substances A,B,C and D are 1.31,1.43,1.33,2.4 respectively. The speed of light is maximum in
   a) A   c) B
   b) C   d) D

5. In a myopic eye, the image of the object is formed_____
   a) Behind the retina   c) on the retina
   b) In front of the retina   d) on the blind spot

6. Which of the following lens would you prefer to use while reading small letters found in a dictionary?
   a) A convex lens of focal length 5 cm   c) A convex lens of focal length 10 cm
   b) A concave lens of focal length 5 cm   d) A concave lens of focal length 10 cm

7. The volume occupied by 4.4 g of CO_2 at S.T.P ?
   a) 22.4 litre   c) 2.24 litre
   b) 0.24 litre   d) 0.1 litre

8. The gram molecular mass of oxygen molecule is
   a) 16 g   c) 18 g
   b) 32 g   d) 17 g

9. Which of the following has the smallest mass?
   a) 6.023×10^{23} atoms of He   c) 1 atom of He
   b) 2 g of He   d) 1 mole atoms of He

10. The xylem and phloem arranged side by side on same radius is called_____.
    a) Radial   c) amphivasal
    b) Conjoint   d) None of these

11. Which is formed during anaerobic respiration _____
    a) Carbohydrate   c) Ethyl Alchol
    b) Acetyl CoA   d) Pyruvate

12. The endarch condition is the characteristic feature of

a) Root   c) stem
b) Leaves   d) flower

II   **Answer any 7 questions (Q.No.22 is compulsory)**   **7X2=14**

13. What is collateral vascular bundle?
14. Differentiate aerobic and anaerobic respiration?
15. Where do the light dependent reaction and Calvin cycle occur in the chloroplast?
16. Answer the following questions using the data given below:
    i)   A and R are correct, R explains the A
    ii)   A is correct , R is wrong
    iii)   A is wrong , R is correct
    iv)   A and R are correct , R doesn't explains A
17. Define atomicity?
18. Calculate the number of water molecule present in one drop of water which weighs 0.18 g?
19. Define inertia. Give its classification?
20. State Newton's second law?
21. Differentiate mass and weight?
22. A heavy truck and bike are moving with the same kinetic energy. If the mass of the truck is four times that of the bike, then calculate the ratio of their momenta. (Ratio of momenta= 2:1)

III   **Answer any 7 questions (Q.No.32 is compulsory)**   **7X4=28**

23. Classify the types of force based on their application? Give an example for each type.
24. Two bodies have a mass ratio 3:4.The force applied on the bigger mass produces an acceleration of $12ms^{-2}$.What could be the acceleration of the other body, if the same force acts on it?
25. Explain the rules for obtaining images formed by a convex lens with the help of a ray diagram?
26. What are casparian strips and Rhizodermis?
27. Write the different types of isotopes of oxygen and its percentage abundance?
28. Draw the structure of dicot stem?
29. Define relative atomic mass?
30. What is photosynthesis and where in a cell does it occur?
31. Differentiate aerobic and anaerobic respiration ?
32. State snell's law?

IV   **Answer all the questions. Draw diagram wherever necessary**   **7X3=21**

1. State newton's law of gravitation and deduce the universal law of gravitation?

                                   OR

    An object is placed at a distance 20 cm from a convex lens of focal length 10 cm. Find the image distance and nature of the image.

2. Give the salient features of modern atomic theory and differentiate atoms and molecules?

                                     OR

    How many grams are there in the following?
   i)   2 moles of hydrogen molecule, H_2

      ii)   3 moles of chlorine molecule, Cl_2

      iii)   5 moles of sulphur molecules, S_8

      iv)   4 moles of phosphorous molecule, P_4

3. Explain tissue and tissue system in detail?

<div align="center">OR</div>

Describe and name three stages of cellular respiration the aerobic organisms use to obtain energy from glucose ?

Prepared by Mary Jerine