SET - A

E 906 - Ph

SAMAGRA SHIKSHA, KERALA

ANNUAL EVALUATION 2024 - 25

PHYSICS

Standard: IX

Time : 1½ hour
Total Score : 40

Instructions

- First 15 minute is given as cool off time. This time is to be spent for reading and understanding the questions.
- Answer the questions based on instructions.
- Answer the questions considering score and time.

Answer any four questions from 1 to 5. (1 score each) **(4 x 1 = 4)**

1. In which of the following does sound travel with more speed? (1)

   (Pure water, Helium, Sea water, Copper)

2. Using the relation from the first word pair complete the second. (1)

   Resistance : ohm

   Electromotive force : .....

3. What is the main source of energy on the Earth? (1)

   (Green plants, Petroleum, Electricity, The Sun)

4. Forces of 5 N, 10 N and 15 N are acting on a body. What is the resultant force if the forces acting on the body are balanced? (1)

   (30 N, 15 N, 0 N, 25 N)

5. Which of the following is incorrect about the physical quantity work? (1)

   a) Scalar quantity

   b) Always positive

   c) Its SI unit is joule

   d) Product of force and displacement

Answer any four questions from 6 to 10. (2 scores each) **(4 x 2 = 8)**

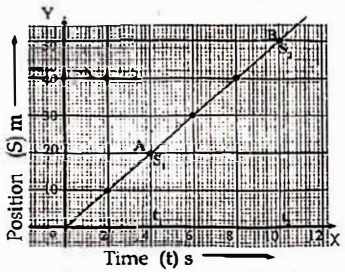
6. Write down any two challenges faced by hearing impaired people. (2)

7. An object has a weight of 500 N in air. If it floats on water,

   a) what is its weight? (1)

   b) calculate the weight of water displaced by it when it is placed on water? (1)

8. The position - time graph relating to the motion of an object is given below. Analyse it and answer the questions.



a) What is the nature of the velocity of the object? (1)

b) What is its acceleration? (1)

9. Classify the following observations and tabulate them in the given table. (2)

Refraction	Total internal reflection

a) Stars appear twinkling

b) During summer season there seems to be water logging on roads when viewed from a distance.

c) The sun can be seen just before it reaches the eastern horizon.

d) The bottom of a pond appears elevated when viewed from a distance.

10. Complete the following table appropriately. (2)

Musical instrument	The main part that vibrates and produces sound	Associated vibrating parts
Veena	(a)	The wooden board, the surrounding air
Chenda	Leather diaphragm	(b) ....., the air column inside the chenda

Answer any four questions from 11 to 15. (3 scores each) **(4 x 3 = 12)**

11. Write down whether the following statements are correct or not. If there is any error, correct the incorrect statements by making changes in the underlined portions. (3)

a) As we go deeper and deeper into the Earth, the value of R decreases but the value of g increases.

b) A body in uniform circular motion possesses non uniform velocity

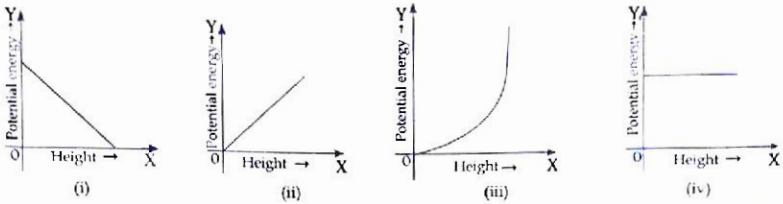
c) When the distance between two bodies is doubled, the gravitational force between them is also doubled.

12. Consider a body which is thrown vertically upwards.

a) Identify the type of mechanical energy which decreases as it moves up. (1)

b) What is its velocity when the body attains the maximum potential energy? (1)

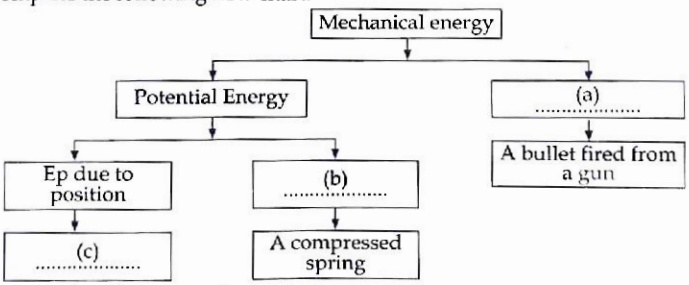
c) Which of the following is the correct graph about this motion? (1)



13. Match the terms in column A with those in column B and C. (3)

A	B	C
Potential difference	$\frac{V}{I}$	Ω
Current	$\frac{W}{Q}$	Ω
Resistance	$\frac{Q}{t}$	V

14. Complete the following flow chart. (3)



15. A wire of uniform area of cross section has a length of 18 cm. It has a resistance of 18 Ω.

a) What is the resistance of 1 cm length of this wire? (1)

b) The 18 cm long wire is cut into three parts of equal length. Calculate the effective resistance when these parts are connected

(i) in parallel (1)

(ii) in series (1)

Answer any four questions from 16 to 20. (4 scores each) **(4 x 4 = 16)**

16. The velocity of a body of mass 20 kg changes from 2 m/s to 10 m/s in 8 s.
    a) What is its rate of change of momentum? (1)
    b) Calculate the force applied on it. (1)
    c) What is the acceleration produced by this force? (1)
    d) What will be its velocity if this force is continued for 2 more seconds? (1)

17. It is energy that is transformed into work when we do different activities.
    a) What do you mean by the term energy? What is its SI unit? (1)
    b) Write down any two similarities between work and energy. (2)
    c) The quantity of energy in 100 mL of grape juice is approximatery 64 calorie. Express this quantity in joule. (1)

18. a) The intensity of electric current through a conductor is directly proportional to the ..... between its ends. (1)

    (difference in height, pressure difference, potential difference, All of these)

    b) Name and state the law related to this. (1)
    c) The data obtained from an experiment done using a nichrome wire are tabulated below. The first reading was taken at the instant of switching on. The second is taken after some time. Complete the following table. (1)

	V	I	R
Initial reading	12 V	2 A	.....
Second reading	12 V	1.8 A	.....

    d) Why did the current decrease during second reading? (1)

19. Noise affects not only physical health but also our mental and emotional health.
    a) How do noise differ from music? (1)
    b) Write down any two causes of sound pollution. (1)
    c) Suggest any four means to reduce the effect of sound pollution. (2)

20. A bulb of 6 Ω and another bulb of 12 Ω, a 9 V battery, a switch and connecting wires are provided.
    a) Draw a circuit diagram using all the above components in such a way that a potential difference of 3 V is obtained across 6 Ω bulb and 6 V across 12 Ω bulb. (1)
    b) The current passing through the bulb of resistance 12 Ω is more than the current through the bulb of resistance 6 Ω. Do you agree with this statement? Justify. (2)
    c) A student rearranged the bulbs in the above circuit to obtain the minimum effective resistance. Calculate the effective resistance in this new circuit. (1)