ANNUAL EXAMINATION: 2024

IX:PHYSICS

Max. Score:40 **Time: 1½ hrs**

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1. Aluminium **1**

2. volt **1**

3. $F= Gxy/z^2$ **1**

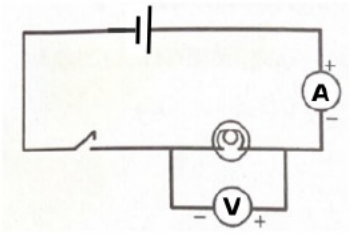
4. 0 **1**

5. i.move to a higher plane **1**
   ii. Obey the direction of the authorities.

6. a. total emf = 4x1.5 = 6 V **2**
   b. 1.5 V

7. Speed of sound depends on temperature. In the morning, the temperature is low, and hence the speed of sound is comparatively smaller. But at noon, sound travels with a higher speed, and hence the echo will be heard sooner.

8. **2**



9. **2**

Mass	Weight
Scalar quantity	Unit is kgwt
Quantity of matter	Measured using spring balance

10. time taken to reach the rock= 1 s 2
    Speed of sound,v = 1522 m/s
    distance to the rock, s = vt = 1522x1 = 1522 m

11. u = 8 m/s 2
    t = 4 s
    v = 0
    $a = (v-u)/t = -8/4= -2\ m/s^2$
    $S = ut + ½at^2 = 8x4+½x-2x4^2 = 32 – 16 = 16$ m

12. a. The resistance of a conductor increases as its area of cross section decreases: True **3**
    b. Rheostat is a device used to **regulate** the current in a circuit.

13. i. Used in medical field (Echo cardiography) **3**
    ii. Used in SONAR

14. a. Longitudinal wave **3**
    b. C_1: Compression & R_1: Rarefaction.
    c.C_1C_2

15. a. Ammeter 3
    b. Intensity of Electric current, Unit: ampere
    c. Intensity of Electric current is the rate of flow of charge.

Laymans

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16. a. Kinetic energy and potential energy 3
b. i. Kinetic energy
ii. Potential energy

17. a. Inertia/ inertia of rest **4**
b. Inertia increases with the increase of mass.
c. We can pluck fruits from a tree by shaking its branches.

18. **4**

A	B	C
Surface tension	Cohesive force	Small drops of mercury assume spherical shape
Capillary rise	Adhesion is greater than cohesion	Farmers make the top soil loose
Viscosity	Frictional force in liquids	Affects the speed of motion of liquid

19. a. 2m **4**
b. X Ωm
c. variation in temperature.

20. a. 2 m **4**
b. v = s/t = 12/0.5 = 24 m/s
c. f = n/t = 6/0.5 = 12 Hz OR f = v/λ = 24/2 = 12 Hz
d. Since f & λ are inverse proportional, wavelength decreases when frequency incrases.

21. a.Weight of 1000 L water = mg = 1000x10 = 10000 N
b.Work done = mgh = 1000x10x30 = 300000 J
c. Power = W/t = 300000/2x60 = 2500 W

22. a.i.0.5
ii. 6 V
b. Ohm's Law: When temperature remains constant, the current through a conductor is directly proportional to the potential difference between its ends.
c. When temperature is not a constant.

Layman's