Final Examination - 2017-2018

PHYSICS

Std. : VIII

Time : 2 hrs. + 15 min.

F. M. : 80

SECTION A (40 Marks)

(Attempt all questions from this Section)

1. i. Define the term amplitude of a wave. State its S.I. unit

   ii. Name the sounds of frequencies given below

   a. 10 Hz b. 1000 Hz c. 100 Hz d. 40 KHz

   iii. State any two differences between a longitudinal wave and transverse wave

   iv. Flash of lighting reaches us earlier than the sound of thunder. Explain the reason.

   v. The wavelength of waves produced on the surface of water is 0.20 m. If the wave velocity is 24 m/s, calculate :

   a) the number of waves produced in 1 second

   b) the time required to produce 1 wave (2x5=10)

2. i. State Newton's second law of motion

   ii. Name the SI and CGS units of force. How are they related?

   iii. A boy pushes a wall with a force of 10 N towards south. What force is exerted by the wall on the boy?

   iv. Why do we jerk wet clothes before spreading them on line?

   v. If you are given four blocks of equal volume : wooden block, aluminium block, glass block, iron block, which has the maximum inertia and why? (2x5=10)

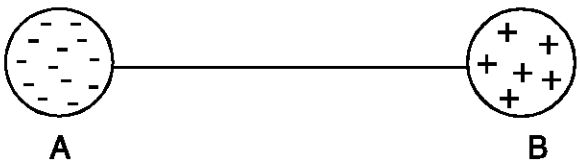
3. i. Define potential difference and state its unit.

   ii. State two differences between a primary cell and a secondary cell.

   iii. Two conductors are joined by a metal wire as shown in the figure below. Copy the diagram and show the

   a. direction of flow of electrons

   b. direction of flow of current.



iv. Calculate the potential differences across the ends of a wire of resistance 2Ω when a current 1.5A passes through it.

v. What transformation of energy takes place when current is drawn from a cell? (2x5=10)

4. i. State any two advantages of an electromagnet over a permanent magnet.

ii. Define induced magnetism

iii. Give any two uses of an electromagnet

iv. You are provided with two similar bars, one is a magnet and the other is a soft iron. How will you distinguish between them without the use of any other magnet or bar?

v. When two pins are hung by their heads from the same pole of a magnet, their pointed ends move apart. Why? (2x5=10)

SECTION B (40 Marks)

(Attempt any four questions from this Section)

5. i. Derive the relationship between the wavelength λ, wave velocity V and the frequency f of a wave. (3)

ii. How does the speed of sound in air affected when he following parameters change :

a. Pressure of air increases

b. Temperature of air falls (3)

c. Humidity in air increases

iii. How long will sound take to travel in an iron rail of length 3.3 km if the speed of sound in iron is 5280 m/s (2)

iv. Mention any two uses of ultrasound (2)

6. i. A force of 10N acts on a body of mass 2 kg for 3s, initially at rest. Calculate

a) the acceleration of the body

b) the velocity acquired by the body

c) Change in momentum of the body. (3)

ii. A stone is dropped freely from the top of a tower and it reaches the ground in 4s. Taking g = 10m/s², calculate the height of the tower. (2)

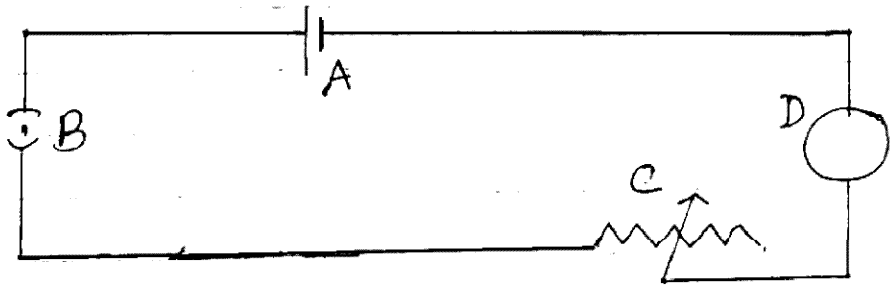
iii. A spring is compressed against a rigid wall. Draw a neat labelled diagram showing the forces acting on the spring. (3)

iv. State the value and unit of universal gravitational constant. (2)

7. i. Give 2 points of differences between

a. conductors and insulators b. d.c. and a.c. (4)

ii. In the electric circuit shown below, label the parts A, B, C and D. State the function of any parts.



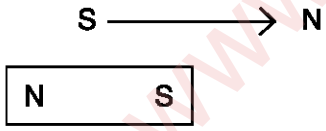
(4)

iii. Mention any two ways for the efficient use of energy. (2)

8. i. State three properties of the magnetic field lines (3)

ii. Explain the statement 'Induction proceeds attraction' (3)

iii. The diagram below shows a bar magnet placed on the table top with its north pole pointing towards south. The arrow shows the North-South direction. There are no other magnets or magnetic materials nearby.



Copy the diagram

a) Insert two magnetic field lines on either side of the magnet using arrow head to show the direction of each field line

b) Indicate by crosses, the likely positions of neutral points

c) What is the magnitude of the magnetic field at each neutral point? (3)

iv. Name a natural magnet and an artificial magnet. (1)

9. i. State the factors on which the resistance of a wire depends. Explain how does the resistance depend on the factors stated by you? (3)

ii. How can you increase the strength of an electromagnet? (2)

iii. State Ohm's law. (2)

iv. Draw a displacement time graph of a wave and show on it the amplitude and the time period of wave. (2)

v. Arrange the speed of sound in gases V_g, solids V_s and liquids v_e, in ascending order (1)