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E1006-Ph

FIRST TERMINAL EVALUATION 2018-19

PHYSICS

Standard: X

Time : 1½ Hour
Total Score : 40

Instructions

- First 15 minutes 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 according to score and time

Answer any Four questions from 1 to 5. Each question carries 1 score. (4 x 1 = 4)

1. Find the odd one and give reason. 1

   (Shehanai, Stethoscope, Tuning Fork, Trumpet)

2. Analyse the first pair and complete the second pair.

   Electric heater :: Heating effect

   Electric fan :: 1

3. The time taken by the armature coil for a full rotation is....

   (period, frequency, intensity of electric current, voltage) 1

4. Find the frequency of a wave if it completes 2560 vibrations in 10s while propagating through a media. 1

5. The substance with which the heating coil of a fluorescent lamp is coated.

   (Molybdinum, Fluorescent material, Thorium Oxide, Mercury) 1

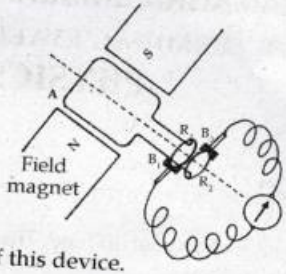
Answer any FOUR questions from 6 to 10. Each question carries 2 score. (4 x 2 = 8)

6. Match the items in column A with those in Column B. (2)

A	B
Sound Board	Echo
Sonometer	Multiple reflection
SONAR	Richter Scale
Seismograph	Resonance

7. "Safety fuses that are not connected properly cannot ensure safety". What are the precautions to be taken while connecting a fuse wire? (2)

8. Observe the diagram.



a) Identify the device. (1)

b) Write the working principle of this device. (1)

9. Choose the most appropriate term from the box, that is suited for each of the following statements.

Echo, Forced vibration, Natural frequency

a) Vibration produced when a steel spoon strikes the ground. (1)

b) Vibration produced when the stem of an excited tuning fork is pressed on a table. (1)

10. Which among the following statements are correct in the case of field magnet in power generators. (2)

a) They are electromagnets.

b) Used as stator.

c) They are permanent magnets.

d) Used as rotor.

Answer any FOUR questions from 11 to 15. Each question carries 3 score. (4 x 3 = 12)

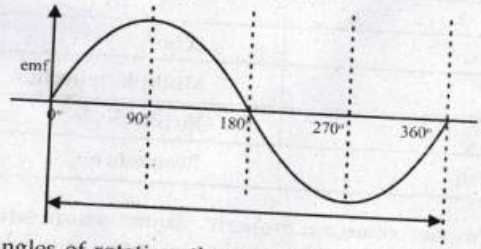
11. Give reason for the following statements.

a) During huge explosions the window panes of nearby buildings get cracked. (1)

b) The ceilings of halls are given a curvature. (1)

c) We can hear sounds from a longer distance during monsoon. (1)

12. Given below is the graphical representation of the emf produced by the armature while completing one rotation in a magnetic field.



a) At which angles of rotation, the emf produced will be maximum? Substantiate your answer. (2)

b) Write the situations, where emf will be zero. (1)

13. In which of the following situations echo is heard. (3)

a) Open space having no obstacles.

b) A smooth reflecting surface at a distance of more than 17 m

c) The reflected sound reaches the listener after 0.1 s

d) The interior of a hall having length and breadth less than 17m

e) The reflected sound reaches the listener after 10 s

14. The following statements are related to two types of lamps. Classify them and give suitable titles. (3)

a) Bright light is produced when high voltage is applied.

b) Requires only a small quantity of power.

c) Least energy loss in the form of heat.

d) Used for rescue operations/film projectors.

15. The following figure shows a person receiving sound produced from an excited tuning fork.

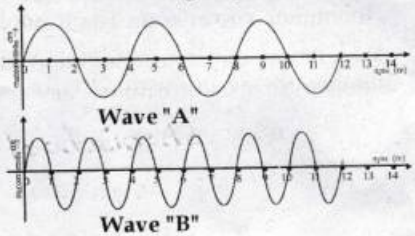
a) In which form sound waves are propagated through air? (1)

b) Which physical quantity is depicted along Y- axis when it is represented graphically? (1)

c) Write the procedure of an experiment which shows the propagation of this type of wave. (1)

Answer any <u>FOUR</u> questions from 16 to 20. Each question carries 4 score. (4 x 4 = 16)

16. The graphical representation of two waves of same amplitude is given below. Wave "A" needs 1 s and "B" needs 4s to travel 12 m along its path.



a) Find the wavelength of wave A? (1)

b) What is the speed of Wave B? (1)

c) Which wave has a higher frequency? (1)

d) How is frequency and wavelength related when velocity of the wave remains constant? (1)

17. The filament of an incandescent lamp is made of Tungsten.

a) What are the advantages of using tungsten as a filament? (1)

b) Incandescent lamps are filled with inert gas. Why? (1)

c) What happens to the brightness of a bulb if the broken filament of a bulb is rejoined and lighted? Substantiate your answer. (2)

18. Two bulbs, 'A' is marked 55W, 110 V and 'B' is marked 100W 240 V.

a) Which among the above bulbs has higher resistance? (2)

b) Find the power of bulb 'B' when the applied voltage is reduced to 120 V? (2)

19. An experiment on sonometer was conducted with an excited tuning fork of 512 Hz and vibrations of the paper rider is observed for different lengths of sonometer wire.

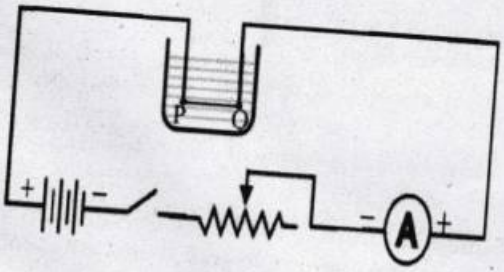
a) What is the frequency with which the string of sonometer vibrates? (1)

b) What is this vibration called? (1)

c) What will be the natural frequency of the string when the paper rider is thrown off? (1)

d) Which characteristics of the wave changes when it attains resonance? (1)

0. Electricity is passed through a Nichrome wire PQ which is dipped in a beaker of water.



a) What change in Ammeter reading can we observe, if the wire PQ is replaced by an Aluminium wire of same length and thickness ? (2)

Does the amount of heat produced change when we connect Aluminium wire in circuit? Give the reason. (Time remains unchanged)