PY1201

FIRST TERMINAL EVALUATION 2017-18
PHYSICS

Standard: X

Time: 1½ h
Score: 40

Instructions:

1. First 15 minute is given as cool off time. This time is to be used for reading and understanding the questions.
2. Answer the questions based on instructions.
3. Answer the questions according to the score and time.

One score each for questions 1 to 5. Answer any 4 from among them.

1. Find out the one that does not belong to the group. Write down the reason for it.

   Shehanai, stethoscope, sonometer, megaphone

2. What is the colour of the light emitted by discharge lamp filled with chlorine when it works?
3. What happens to the power of a 230V, 400 W lamp if the voltage applied is less than 230 V?

   (increases, does not change, decreases).

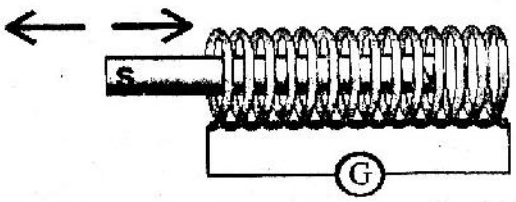
4. Instead of permanent magnets electromagnets are used as field magnets in power generators. Find out reasons from the following and write them down.

   a) The strength of permanent magnets goes on decreasing.

   b) The strength of electromagnets goes on decreasing.

   c) Electromagnets can retain the required magnetic strength.

5. A solenoid is connected to a galvanometer. A magnet is moved into and out of the solenoid frequently.



Which of the following will be most similar to the time - emf graph of the electricity available from the solenoid.

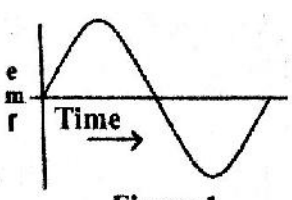


Figure 1

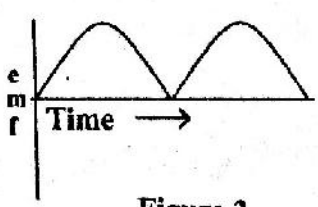


Figure 2

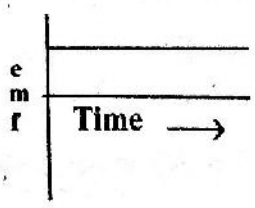
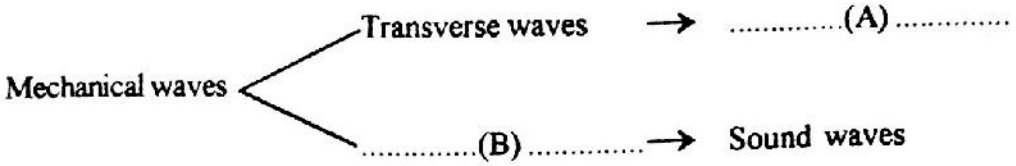


Figure 3

Two score each for questions 6 to 10. Answer any 4 from among them.

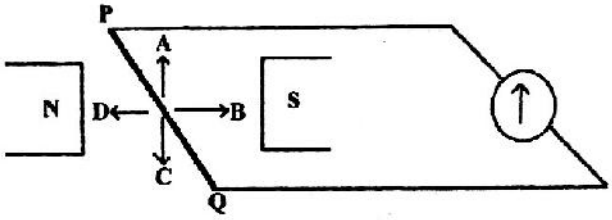
6. Complete the given flow chart.



7. "It is better to minimize the use of eletcrictiy rather than establishing a new power station. For this promote the use of LED lamps instead of using other lamps". What is your opinion about this? Justify.

8. A sound produced from a SONAR in a ship reached the bottom of a sea and came back in 8 s. If the depth of the sea at that place is 6000 m, what is the speed of sound in sea water?

9. The figure shows a conductor PQ situated in a magnetic field, connected to circuit.



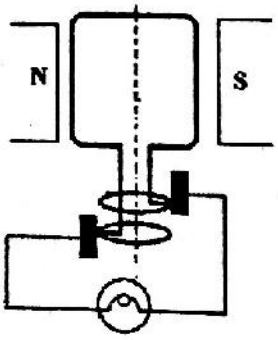
a) If the conductor is moved in the direction A, what is the direction of induced current ?
(from P to Q, from Q to P, from B to D, from D to B)

b) State the rule used in finding out direction of induced current.

10. The fuse wire in your domestic circuit got burnt away. What are the precautions to be taken while replacing the fuse wire by a new one?

Three score each for questions 11 to 15. Answer any 4 from among them.

11. Observe the figure.



a) Identify the device shown in the figure.

b) Suggest two methods to increase the emf obtained when such devices work.

12. Classify the following as those suitable for fluorescent lamps and for arc lamps.

a) The main part is carbon rods.

b) The heating coil is coated with thorium oxide.

c) used in search lights.

d) more harmful for the environment.

e) more intense light.

f) utlraviolet rays are produced.

13. Find out the relation and complete the missing parts.

i) tungsten	: .....(A).....	: high melting point
ii) alloy of suitable metals	: fuse wire	: ..... (B) .....
iii) ..... (C)	: heating coils	: high melting point

14. Select the most suitable term from within the box for the given situations.

Free vibration, reverberation, forced vibration, resonance

a) the vibration of sound board of a guitar on plucking a string of it.

b) the vibration of a table on knocking on it.

c) the instance when the paper rider is thrown off in the experiment using tuning fork and sonometer.

15. The filament of a filament lamp is broken. It is rejoined and is lit again.

a) What happens to the intenstiy of light from it? Describe the reason behind.

b) Incandescent lamps are filled with ntirogen at low pressure. What is the advantage of doing so?

c) You are given two filament lamps of resistance 750 Ω and 1000 Ω. Of these, which has more power?

Four score each for questions 16 to 20. Answer any 4 from among them.

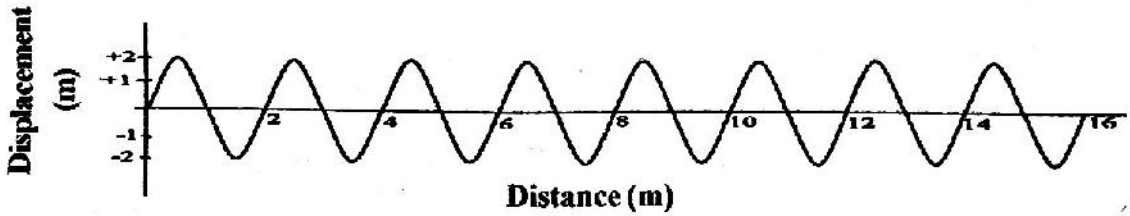
16. An eletcric heater working at 230 V produces 1000 J energy in one second.

a) What is the power of the lamp?

b) Calculate the resistance of the heating coil used in it.

c) Calculate the heat generated by it when it works for 5 minute.

17. The figure shows a wave that travelled in 2 second.



a) Complete the table.

Number of crusts	Wavelength	Frequency	Amplitude

b) Calculate the speed of the wave.

c) What happens to the wavelength of a wave on increasing the frequency of it without changing the speed?

18. A wave formed from the epic centre of the earthquake brings many damages in nature.

a) Which is the wave that originates from the epic centre of earthquakes?

b) Which type of wave is it?

c) Write down two characteristics of the wave.

19. In a meeting for the planning of the contsruction of a new hall after demolishing the old hall, the participants were of the opinion that the sound in the old hall was felt as a boom.

a) Name the phenomenon behind the boom of the sound in the hall.

b) Name the branch of science that deals with the conditions to be fulfilled in the contsruction of a building for clear audibiltiy.

c) Suggest four methods to minimise the problems that occur due to reflection of sound in a hall.

20. Write down the reasons for the following statements.

a) the speed of sound is greater during summer seasons.

b) armature of a power generator is made stator.

c) do not throw away the used fluorescent tubes carelessly.

d) the induced emf in an armature is maximum when it reaches 90^0 position on rotating.