Kerala State Board
Class X Physics
Sample Paper – 3

Time: 1½ hrs **Total Marks: 40**

Instructions:

- 15 minutes is given as cool of time.
- This time is to be spent for reading the question paper and planning answers.
- You are not supposed to write anything during the cool off time.
- Attempt questions according to instructions.

---

1. Which of the following do not belong to the same group? [1]

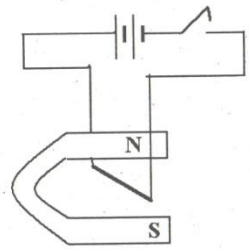
(a) Blue and yellow
(b) Cyan and red
(c) Magenta and blue
(d) Magenta and green

2. We use a device to reduce electric current in an A.C. circuit without reduction in power.

(a) Name the device.
(b) State the principle behind it. [1]

3.

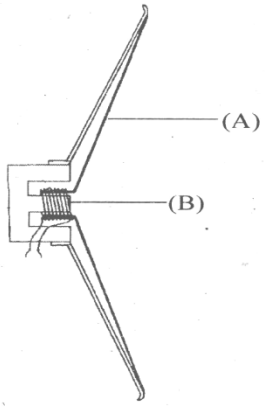
(a) A piece of straight rod made of copper is suspended between the poles of a magnet using copper wire as shown below. [2]



(a) In which direction will the copper rod get deflected when the circuit is switched on?
(b) Based on which rule did you arrive at the answer?

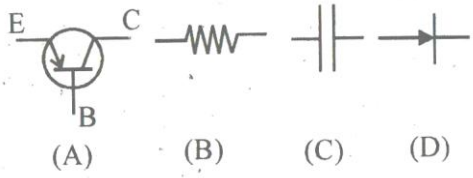
OR

(b) The figure of a moving coil loudspeaker is given. [2]
(a) Write its working principle.
(b) Name the parts (A) and (B).



4. Based on your observation of signal lamps, answer the following. [2]
(a) What is the colour of light used for stopping vehicles?
(b) Why is this colour chosen?

5. What does each symbol shown in the figure represent? [2]



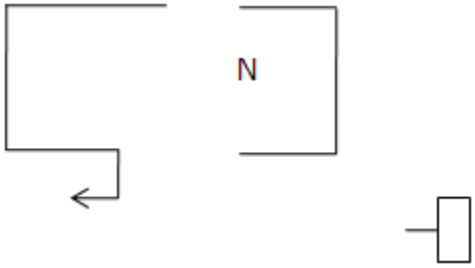
6. We can see several stars in the sky at the night. They differ in their colour and brightness. [3]
(a) What is the reason for the difference in the brightness?
(b) Why do they differ in their colours?
(c) To which galaxy do these stars belong to?

7. Only the outer surface of an iron cup is to be electroplated with silver. [3]
(a) Which is the positive electrode?
(b) Which is the negative electrode?
(c) Write two points to be taken care of while electroplating is being done.

8. The filament of filament lamp is broken at a point. [3]
(a) If the filament is rejoined at the point, then what change do you notice in the brightness of the lamp? Why?
(b) Can you use nichrome to make the filament of a filament lamp? Why?

9.

(A) Some parts of a generator are depicted. [3]



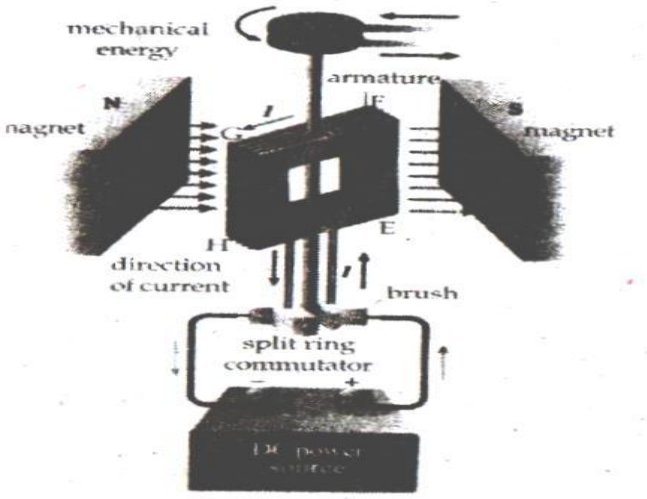
(a) Which type of generator is this?

(b) At which positions of armature are the e.m.f. and current maximum in this device?

(c) What change should be made to make this generator into the other type?

OR

(B) [3]

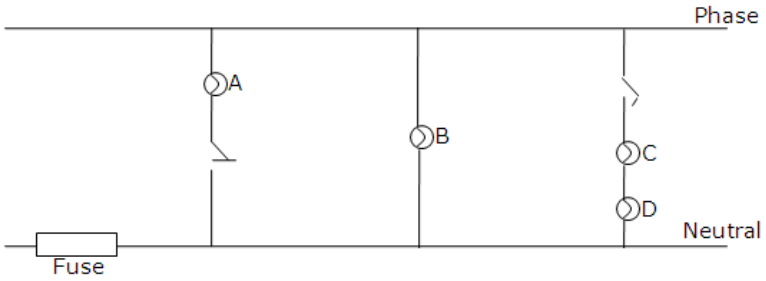


(a) In which direction will the portion GH turn?

(b) Explain the rule used.

10. [4]

(A) One branch of a household circuit is shown. Write any two mistakes and give corrections for each.



(B) You are given a 40 W, 200 V lamp and a 60 W 200 V lamp.

(a) Which one has a higher resistance?

(b) If these lamps are connected in series, which one will glow brighter?

11. Raju who was attending an arts festival in the school auditorium found it difficult to distinguish the sounds properly. [4]

(a) What is the name of the branch of science that teaches us about the correct ways of constructing a hall?

(b) Suggest the methods to overcome the problems felt by Raju.

12. There are three green lines, four blue lines and five yellow lines on a white paper. If you observe the paper through the following filters, in which colour will you observe them? [4]

(a) Blue

(b) Red

(c) Green

(d) Magenta

13.

(A)

(a) What is the energy consumed by a 800 W, 400 V lamp in 20 hrs?

(b) What is the energy consumed for the same lamp in 20 hrs at 200 V? [4]

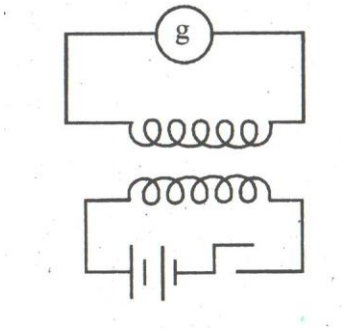
OR

(B) In a house, 5 lamps of 40 W each are used 3 hours a day and 6 lamps of 60W each are used 5 hours a day for a month. [4]

(a) Now the metre reads 5823. What is the meter reading after a month?

(b) What is the expense at the rate of Rs. 5 per unit for the month?

14. What do you observe from the following figure for the following instances? [4]



(a) At the instant of switching on.
(b) If kept switched on.
(c) At the instant of switching off.
(d) If switched on after inserting a soft iron core in the primary.