SET-A

CODE : PY 9201

ANNUAL EVALUATION 2017 - 18

PHYSICS

Standard : IX

Time : 1½ hour
Total Score : 40

Instructions:

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

One score each for questions 1 to 5. Answer any FOUR among them **(4 x 1 = 4)**

1. Using the relationship between the terms in the first pair; complete the second pair given below.

   Electric Charge : coulomb

   Electric Current : .....

2. Find out the odd one and give reason for your answer.

   (Field magnet, Voice coil, Armature, Split rings)

3. Which is the correct statement related to the features when cells are connected in parallel?

   - The total emf is the sum of the emf of all the cells.
   - The current passing through each cell is the same
   - If all the cells have equal emf then the emf of the circuit is same as that of a single cell.
   - The internal resistance developed in the circuit by the battery increases.

4. What is the lowest value of the effective resistance when ten 1 Ω resistors are combined?

   $\left(10\ \Omega, \frac{1}{10}\ \Omega, \frac{1}{20}\ \Omega, \frac{1}{40}\ \Omega\right)$ 10 Ω .

5. Which law is used to find the direction of magnetic field around a current carrying conductor?

(Ohm's law, Motor principle, Right hand rule, Fleming's Left hand Rule)

Two score each for questions 6 to 10. Answer any FOUR among them **(4 x 2 = 8)**

6. Hydrometer is an instrument used to measure the relative density of a liquid. (1)

   a) Write the working principle of hydrometer?

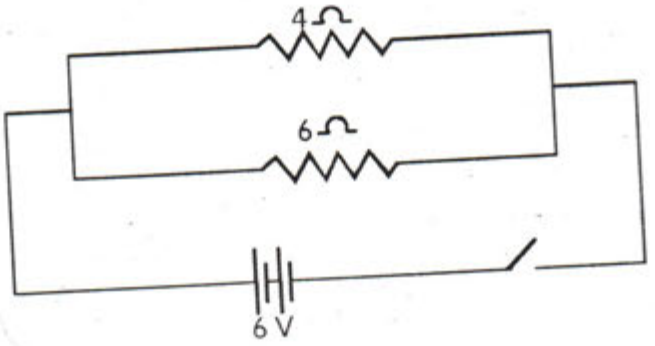
   b) Why do the values of the markings on the hydrometer increase towards the bottom? (1)

7. The features when resistors connected in series and parallel are given below. Classify them suitably in the table. (2)

- Effective resistance decreases.
- Effective resistance increases.
- The current through each resistor is same.
- Each resistor can be controlled by using separate switches.

Resistors in series	Resistors in parallel

8. Observe the circuit given below.



When the circuit is switched 'ON'.

a) What is the potential difference across the 4 Ω resistor ? (1)

b) What is the current flowing through the 6 Ω resistor ? (1)

9. Electric motors are devices which convert electrical energy to mechanical energy

a) State the working principle of electric motor (1)

b) Mention another device which works on motor principle. (1)

10. Artificial satellites are classified into Equatorial satellites and Polar satellites.

a) Write any one use of each type of satellite. (1)

b) What is the condition for an equatorial satellite to behave as a geostationary satellite? (1)

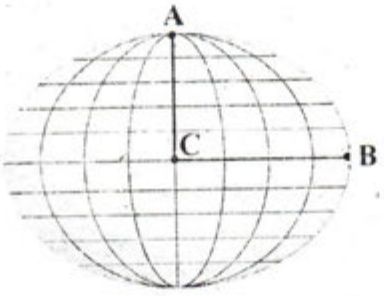
Three Score each for question 11 to 15 . Answer any FOUR among them **(4 x 3 = 12)**

11. A stone falling towards the earth from a certain height possesses momentum.

a) What is meant by momentum ? (1)

b) If the mass of this stone is 2 kg and the velocity just before it touches the ground is 10 m/s, calculate the momentum of this stone? (2)

12. Observe the figure. A and B are two places on the surface of earth. C represents the centre of the earth.



a) In which place among A and B the weight of a body is maximum? (1)

b) Justify your answer. (1)

c) What is the weight of a body when it is at C? (1)

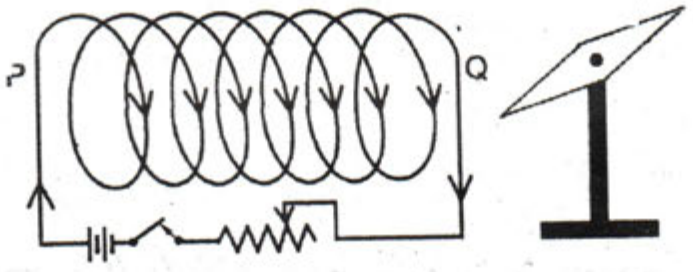
13. Persons A and B lifts 5 bricks each of 2 kg to the terrace of a building of height 9 m. The details are listed in the table.

Name of the Person	Time taken to lift the bricks (s)
A	30
B	60

a) Calculate the work done by them. ($g=10\ m/s^2$) (1)

b) Calculate the power of A in kilowatt. (2)

14. PQ is a solenoid. A magnetic needle is placed near the end 'Q' of the solenoid as shown in the figure. The solenoid acts as a bar magnet when current flows through it.



a) When the circuit is switched on, which pole of the magnetic needle is attracted towards Q? (1)

b) How did you arrive at this conclusion? (1)

c) Write any two methods to increase the magnetic strength of a current carrying solenoid? (1)

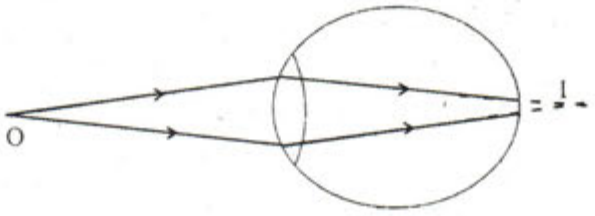
15. Th sun is divided into different regions.

a) Name the regions outside the photosphere of the sun? (1)

b) Name the region which can only be seen during total solar eclipse? Explain the reason? (2)

Four Score each for question 16 to 20. Answer any FOUR among them **(4 x 4 = 16)**

16. The image formed in the eye when a child viewed a nearby object is depicted.

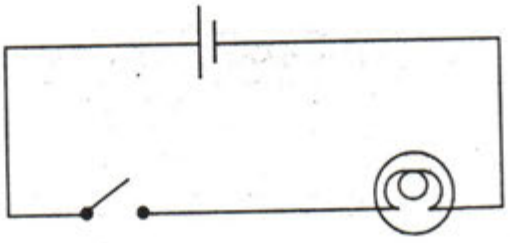


a) Which defect of the eye can be identified from this figure? (1)

b) Give the reasons of this defect? (2)

c) Which lens is used to remedy this defect? (1)

17. Observe the circuit given below.

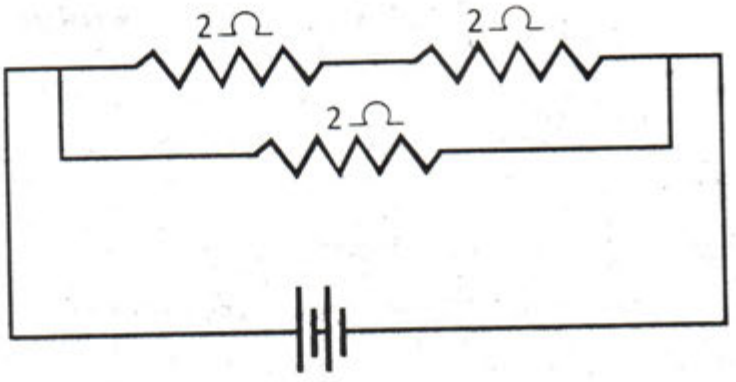


a) Which component in the above circuit helps to maintain the potential difference in the circuit? (1)

b) A charge of 30 coulomb flows through this circuit in 60 s. Calculate the current in the circuit? (1)

c) Redraw the circuit by including the devices that are used to measure the current in the circuit and potential difference across the bulb. (2)

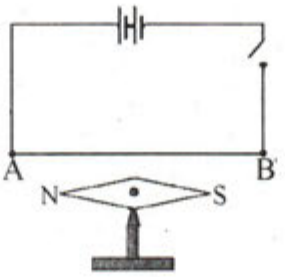
18. Observe the circuit given below.



a) Calculate the effective resistance in the circuit? (2)

b) Draw the circuit by arranging the given three resistors so as to get an effective resistance of 3 Ω. (2)

19. A conductor AB is arranged parellel to a pivoted magnetic needle as in the figure.

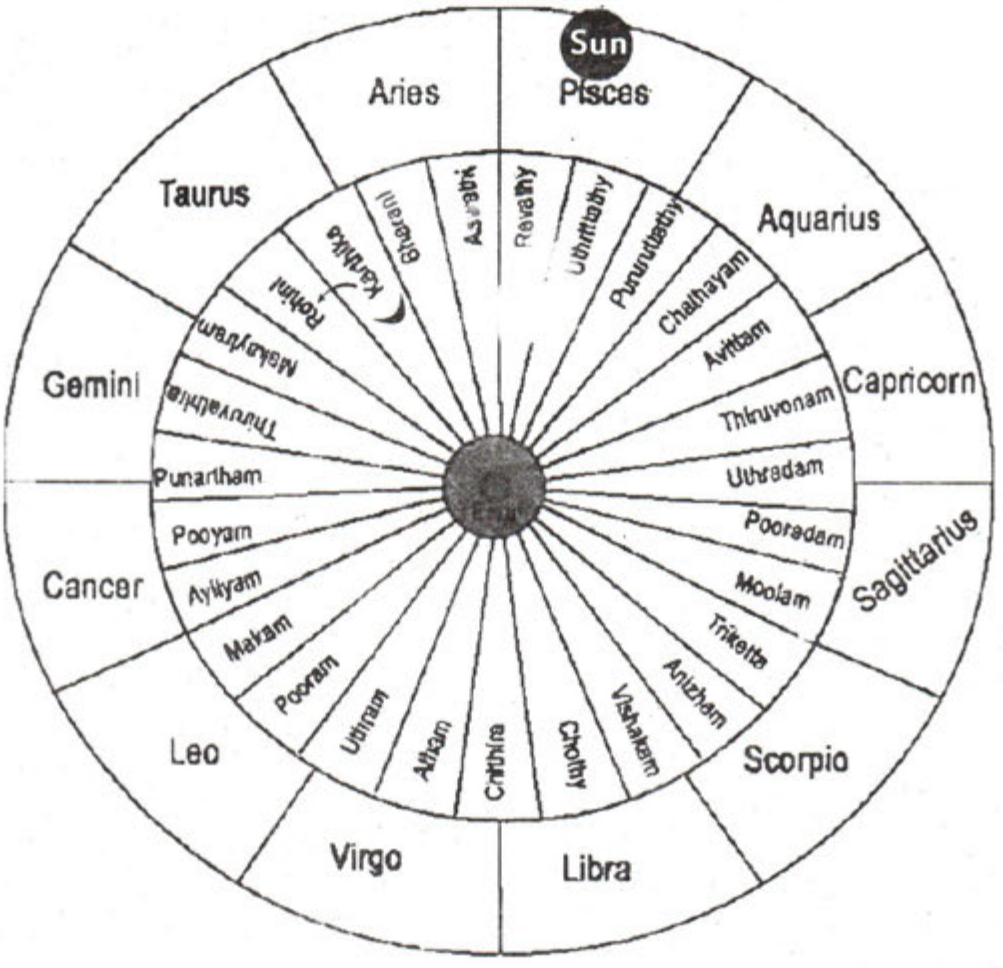


a) When current flows through AB the magnetic needle deflects What is the reason? (1)

b) Write any one method to reverse the deflection of the magnetic needle? (1)

c) Name and state the law which helped you to find the direction of the deflection of the north pole of magnetic needle? (2)

20. The positions of the sun and moon on a particular day is depicted.



a) Identify the asterism (Naal) from this figure? (1)

b) What do you meant by njattuvela? (1)

c) In which month does Rohini njattuvela occur? (1)

d) What is the approximate duration of a njattuvela ? (1)