TRINITY COLLOGE NABBINGO
BOT 2 EXAMINATIONS
S.3 PHYSICS PAPER 535/1
1 Hour

Name …….. Stream …….

Instructions
Answer ALL questions in this paper.
Write your answer in the space provided.
Accelerations due to gravity, g = 10 ms^{-2}

SECTION A (20 marks)

1.	6.	11.	16.
2.	7.	12.	17.
3.	8.	13.	18.
4.	9.	14.	19.
5.	10.	15.	20.

1. Which of the following are specified by both magnitude and direction?
   A. Momentum, acceleration, time, energy.
   B. Speed, temperature, mass, time.
   C. Velocity, work, power, pressure.
   D. Displacement, velocity, acceleration, electric field.
2. Water storage tanks are usually raised in order to;
   A. Reduce pressure of the flowing water.
   B. Increasing pressure of the flowing water.
   C. Minimise pressure of the flowing water.
   D. Increase durability of the tank.
3. The rate at which energy is dissipated is ……..
   A. Work done.
   B. Impulse.
   C. Power.
   D. Strain.
4. A spring extends by 3 cm for every 2 N of the force applied. What mass of a stone is required to extend a spring by 18 cm within the elastic limit?
   A. 1.2 kg.
   B. 3.0 kg.
   C. 10.8 kg.
   D. 12.0 kg.

5. The slope of a distance time graph represents
   A. Velocity of a body.
   B. Speed of a body.
   C. Acceleration of a body.
   D. Displacement of a body.
6. A rod of an insulating material is given a positive charge by rubbing it with a piece of fabric and is then tested for electric charge. You would expect the fabric to have?
   A. A positive charge greater than that on the rod.
   B. A positive charge equal to that on the rod.
   C. A negative charge equal to that on the rod.
   D. A negative charge less than that on the rod.
7. **Fig. 1** shows a light beam, PR, in which PQ = QR. Calculate the value of F required to keep the beam stationary.

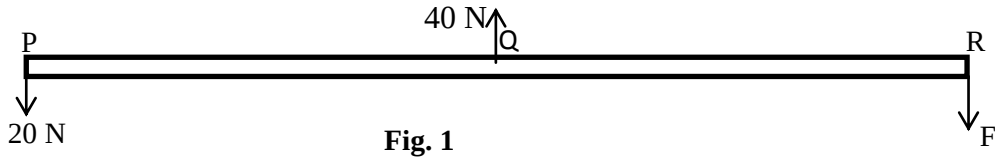


Fig. 1

   A. 20 N.
   B. 30 N.
   C. 40 N.
   D. 49 N.
8. A piece of metal weighs 1 N in air and 0.60 N in water what will it weigh in alcohol of relative density 0.8?
   A. 1.20 N
   B. 0.48 N
   C. 0.68 N
   D. 0.80 N
9. Which is of the following is true for resistance of a voltmeter and the way in which it is connected in a circuit?

	Resistance	**Connections**
A.	Zero	Parallel
B.	Low	Series
C.	Low	Parallel
D.	High	Parallel

10. Under plastic deformation, a body can ……
    A. retain its original shape when a force is removed.
    B. not retain its original shape when a force is removed.
    C. not extend any more.
    D. still be under its elastic limit.
11. During an inelastic collision ……
    A. momentum is conserved but not kinetic energy.
    B. neither momentum nor kinetic energy is conserved.
    C. kinetic energy is conserved but momentum is not.
    D. Kinetic energy and momentum are conserved.

12. A ticker tape in **Fig. 2** below was pulled through a ticker timer which makes 50 dots per second.

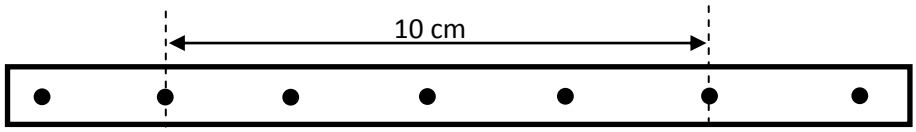


Fig. 2

The speed at which the tape was pulled is

A. 80 cms^{-1}
B. 34.0 cms^{-1}
C. 32.0 cms^{-1}
D. 1.25 cms^{-1}

13.

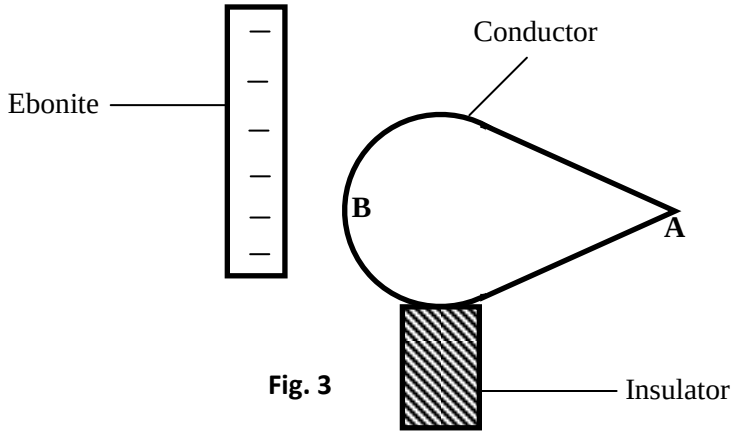


Fig. 3

Fig. 3 above shows a negatively charged ebonite rod brought closer to a spear shaped conductor on an insulated stand. This result in

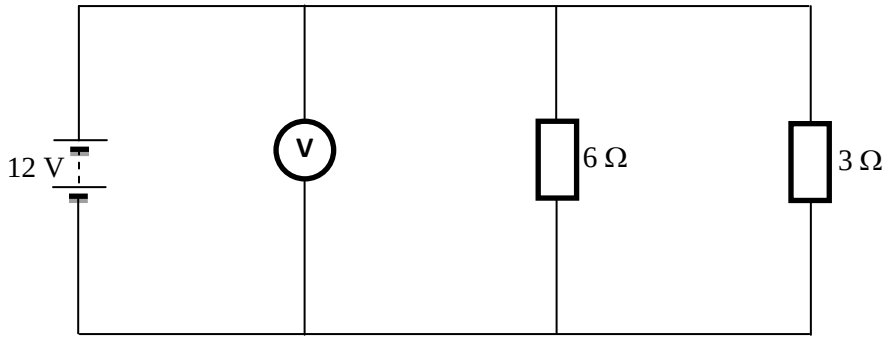
A. Induction of positive charges at the near side B and negative charges at the far side A.
B. Concentration of more charge at A than at B.
C. Concentration of more charge at B than at A.
D. Concentration of all the negative charges at A.

14. If the forces on a moving train along a levelled straight truck are equal and opposite, the train will
    A. Move with a faster speed.
    B. Accelerate uniformly.
    C. Come to a stop.
    D. Move with a constant velocity.
15. Which one of the following is an electrolyte in a dry cell?
    A. Carbon rod.
    B. Manganese (IV) oxide.
    C. Zinc plate.
    D. Ammonium chloride paste.

16. Find the effective resistance of two resistors of 4 Ω and 6 Ω connected in parallel.
    A. 10.0 Ω. B. 5.0 Ω. C. 2.4 Ω. D. 0.4 Ω.

17.

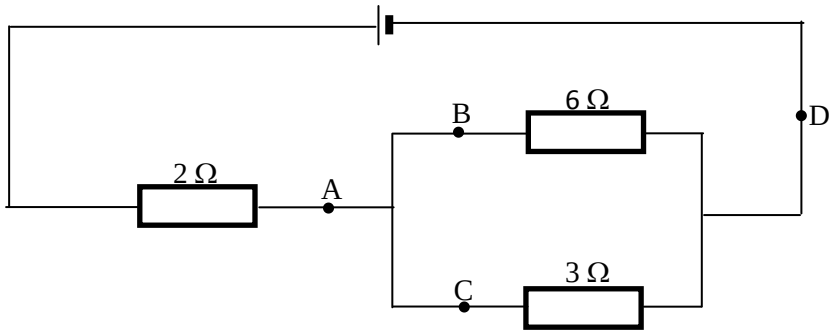
Fig. 4



A battery of emf 12 V is connected across two resistors of 6 Ω and 3 Ω as shown in Fig. 4. Which one of the following statements is true about the circuit?

A. P.d. across 6 Ω is half the p.d. across 3 Ω.
B. P.d. across 6 Ω is the same as the p.d. across 3 Ω.
C. P.d. across 6 Ω is twice the p.d. across 3 Ω.
D. Reading of voltmeter V is greater than 12 V.

18. Which one of the following is observed when a positively charged body is brought near the cap of a positively charged electroscope?
    A. The leaf diverges further.
    B. There is no change in the leaf divergence.
    C. There is a decrease in the leaf divergence.
    D. The leaf falls and then diverges again.
19. Study the electric circuit shown below.

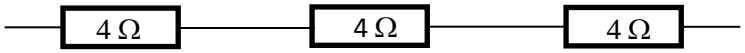


At which point is the current smallest

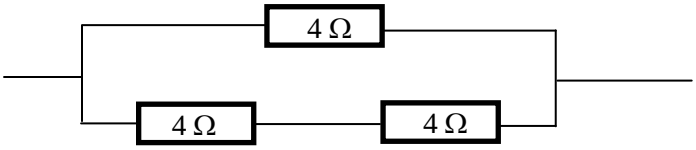
A.
B.
C.
D.

20. Three resistors, each of resistance 4 Ω are to be used to make a 6 Ω combination. Which arrangement will achieve this?

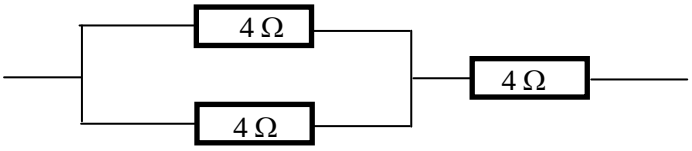
A.



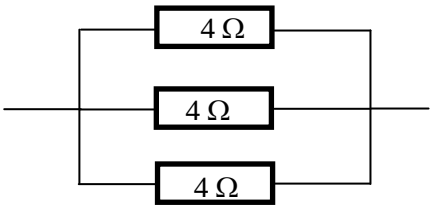
B.



C.



D.



SECTION B (20 marks)

21. (a) (i) What is meant by a secondary cell? (1 mark)

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(ii) Give two examples of a secondary cell. (1 mark)

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(b) (i) What substance is used to top up the level of the liquid in accumulators? (1 mark)

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(ii) Explain briefly why this substance is used. (1 mark)

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(c) Name two checks you would make to decide if a given accumulator needed charging. (2 marks)

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22. (a) State Ohm's law. (1 mark)

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(b) Briefly explain the following terms as used in electricity.

(i) Potential difference (1 mark)

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(ii) Current (1 mark)

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(iii) Resistance (1 mark)

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(iv) Electromotive force (1 mark)

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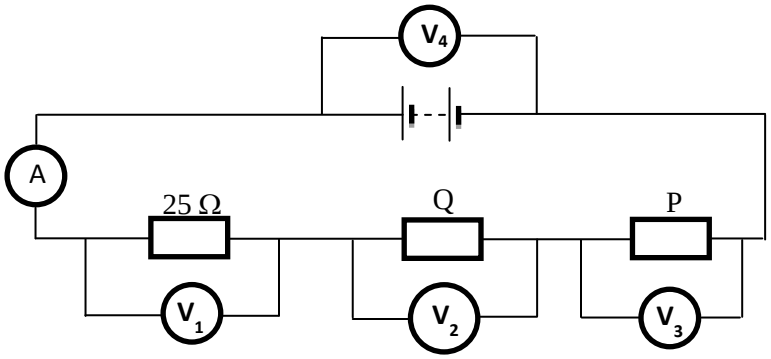
23. Study the circuit below.



(a) Identify the devices A, V_4, P and Q. (2 marks)

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(b) What type of circuit is shown in the diagram above? (1 mark)

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(c) (i) If V_1 reads 5 V, what is the reading of A? (2 marks)

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(ii) If Q = 10 Ω, what is the reading of V_2? (2 marks)

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(iii) V_4 reads 10 V, what is the value of P? (2 marks)

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END