

BOT TERM II EXAMS

S.3 PHYSICS PAPER 535/1

1 Hour

Name Stream

Instructions

Answer ALL questions in this paper.

Write your answer in the space provided.

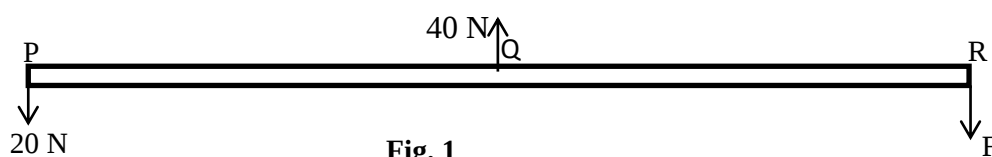
Accelerations due to gravity, $g = 10 \text{ ms}^{-2}$

SECTION A (20 marks)

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

- Which of the following are specified by both magnitude and direction?
 - Momentum, acceleration, time, energy.
 - Speed, temperature, mass, time.
 - Velocity, work, power, pressure.
 - Displacement, velocity, acceleration, electric field.
- Water storage tanks are usually raised in order to;
 - Reduce pressure of the flowing water.
 - Increasing pressure of the flowing water.
 - Minimise pressure of the flowing water.
 - Increase durability of the tank.
- The rate at which energy is dissipated is
 - Work done.
 - Impulse.
 - Power.
 - Strain.
- 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?
 - 1.2 kg.
 - 3.0 kg.
 - 10.8 kg.
 - 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.



- 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 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.

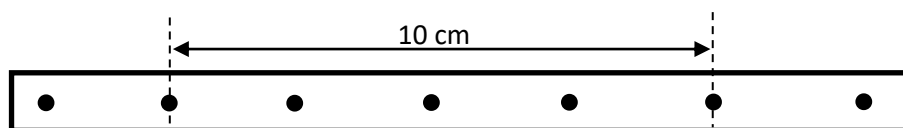


Fig. 2

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.

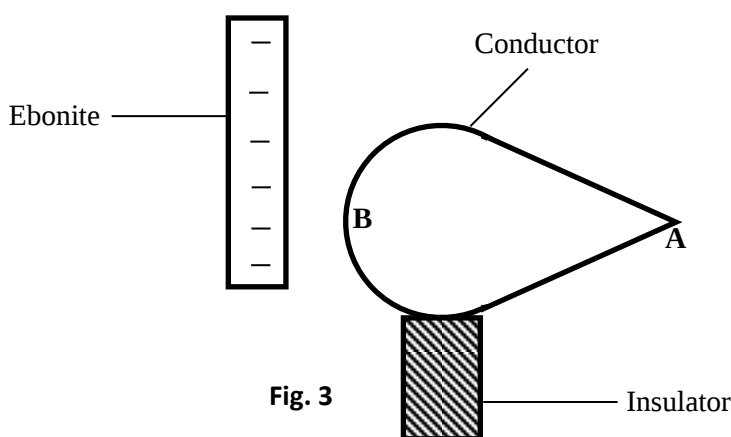


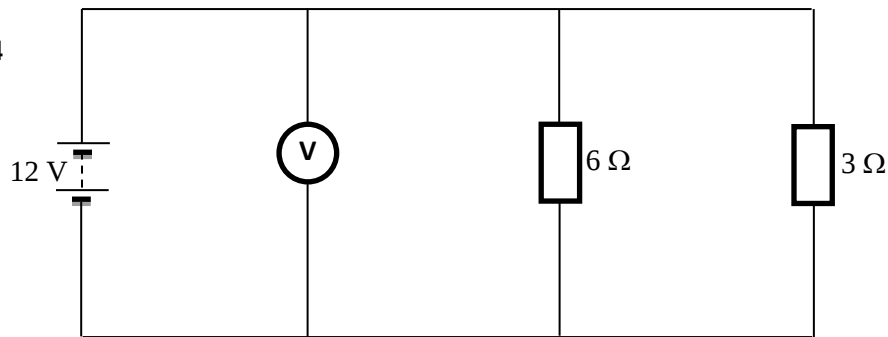
Fig. 3

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 track 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 4Ω and 6Ω connected in parallel.
- A. 10.0Ω .
 - B. 5.0Ω .
 - C. 2.4Ω .
 - D. 0.4Ω .

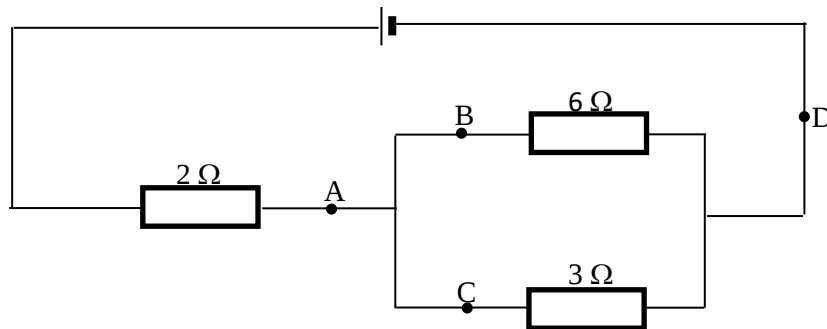
17.

Fig. 4



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

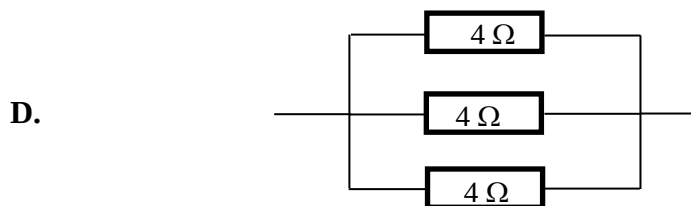
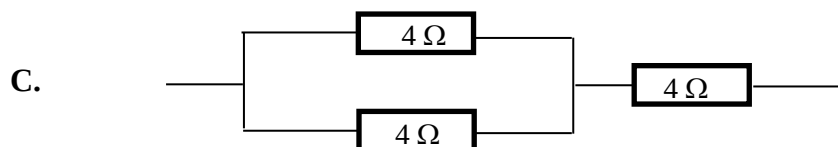
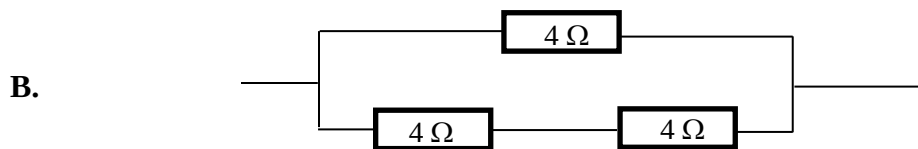
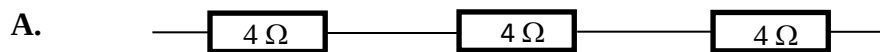
- A. P.d. across $6\ \Omega$ is half the p.d. across $3\ \Omega$.
 - B. P.d. across $6\ \Omega$ is the same as the p.d. across $3\ \Omega$.
 - C. P.d. across $6\ \Omega$ is twice the p.d. across $3\ \Omega$.
 - D. Reading of voltmeter V is greater than 12 V.
18. Which one of the following is observed 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 $4\ \Omega$ are to be used to make a $6\ \Omega$ combination. Which arrangement will achieve this?



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)

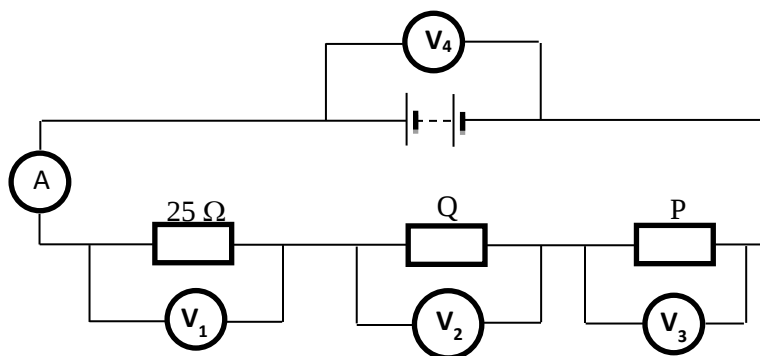
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23. Study the circuit below.



(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 $Q = 10\ \Omega$, 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