

NAME.....STREAM.....

TRINITY COLLEGE NABBINGO
END OF TERM I EXAMINATIONS
S.4 PHYSICS PAPER 1(535/1)
TIME: 1 HOUR 45 MINUTES

INSTRUCTIONS

- Section **A** contains **35** objective questions. You are required to write the correct answer **A, B, C** and **D** in the answer grid shown below.
- Section **B** contains **five** structured questions. Answers are to be written in the spaces provided on the question paper.
- Attempt **all** questions.

ANSWER GRID FOR SECTION A

1.	6.	11.	16.	21.	26.	31.
2.	7.	12.	17.	22.	27.	32.
3.	8.	13.	18.	23.	28.	33.
4.	9.	14.	19.	24.	29.	34.
5.	10.	15.	20.	25.	30.	35.

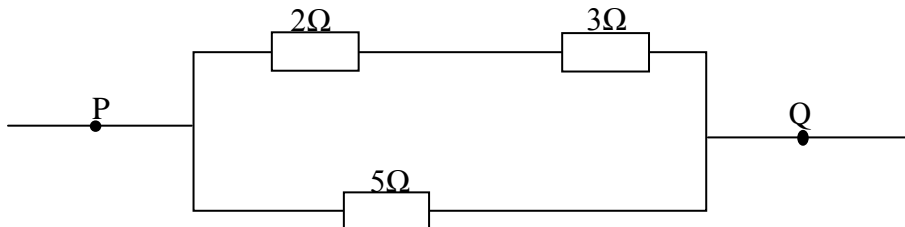
Turn Over

SECTION A

1. Which one of the following quantities is the odd one out?
A. Kinetic energy
B. Force
C. Momentum
D. Velocity
2. An atom has mass number 88 and atomic number 38. Which of the following are correct statements about the atom?
(i) It has 38 protons and 50 neutrons
(ii) It has 38 protons and 38 electrons
(iii) It has 50 protons and 38 neutrons.
A. (i) and (iii)
B. (i) and (ii)
C. (ii) and (iii)
D. (i), (ii) and (iii)
3. Capillary rise in a tube dipped in water is due to;
A. surface tension
B. high vapour pressure
C. adhesive force being greater than cohesive force
D. atmospheric pressure acting on the surface of water.
4. Permanent magnets are made from;
A. Diamagnetic materials
B. Dielectric materials
C. paramagnetic material
D. ferromagnetic material
5. A bullet of mass 0.1kg is fired from a rifle of mass 5kg. the rifle recoils with a velocity of 16ms^{-1} . Calculate the velocity with which the bullet is fired?
A. 800ms^{-1}
B. 28ms^{-1}
C. 110ms^{-1}
D. 210ms^{-1}
6. In which of the following devices is electrical energy converted into mechanical energy.
A. an accumulator
B. electric motor
C. a dynamo
D. a combustion engine
7. A rectangular block of dimension $4\text{cm} \times 2\text{cm} \times 1\text{cm}$ exerts a maximum pressure of 200Nm^{-2} when resting on a table.
A. 16g
B. 40g
C. 4g
D. 400g
8. X-rays are;
A. electrons of high velocity
B. particles of negative charge
C. neutrons of high velocity
D. electromagnetic waves.

9. The half life of a radioactive element is 10 days. Find the mass left after 40 days if the initial mass is 16g.
- A. 1g B. 2g C. 4g D. 8g
10. Calculate the amount of current taken by an electric flat iron marked 250V, 1000W.
- A. 0.25A B. 4.00A C. 0.40A D. 2.50A
11. A stick with one end immersed in water appears bent at the water surface because of;
- A. reflection B. interference C. refraction D. diffraction
12. An electroscope becomes negatively charged when it;
- A. gains protons B. loses electrons
C. loses protons D. gains electrons
13. Nuclear fission occurs when;
- A. a uranium nucleus splits into two nuclei
B. two deuterium atoms come together
C. nuclei of uranium atoms split into lighter nuclei.
D. two hydrogen nuclei come together.

14.



The figure above shows a network of resistors. The effective resistance between points P and Q is;

- A. 0.97Ω B. 2.5Ω C. 1.2Ω D. 10Ω
15. Which one of the following is a property of X-rays?
- A. They are deflected by magnetic fields
B. They can cause photoelectric emissions
C. They ionize matter
D. They are electrically charged particles.

16. Which of the following will increase the force on a current carrying wire in a magnetic field?

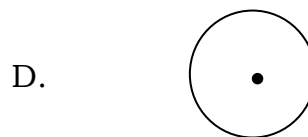
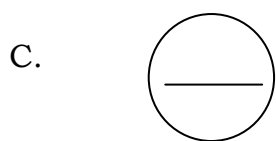
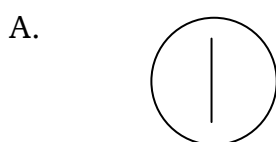
- (i) Using a large current
- (ii) Using a stronger magnetic field
- (iii) Using a shorter length of wire in the field.

- A. (i) only
- B. (i) and (iii) only
- C. (ii) and (iii) only
- D. (i) and (ii) only

17. Which of the following are all brittle materials?

- A. Glass, cast iron, chalk
- B. Clay, glass, wood
- C. Leather, rubber, thread
- D. Rubber, polyester, copper wire.

18. Which of the following represents an appearance on the screen of a cathode ray oscilloscope when an alternating voltage is connected across the y- plates with the time based switched on?



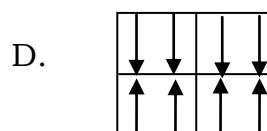
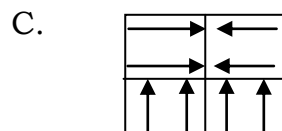
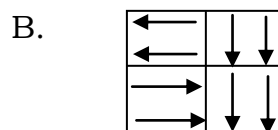
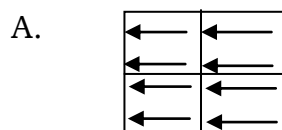
19. Which one of the following statements is false? The pressure in a liquid;

- A. at any one point depends only on the depth and density
- B. at any one point acts equally in all directions
- C. at any one point in a liquid would not change even when more liquids is added.
- D. Increases with depth.

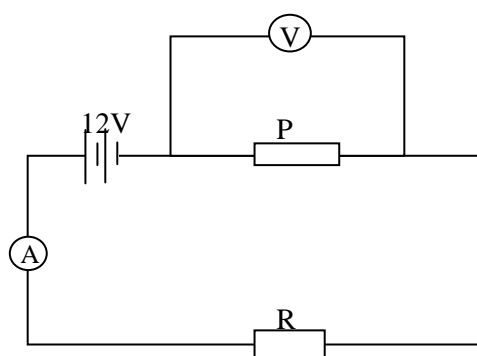
20. The energy changes that take place when a stone falls freely from rest to the ground can be orderly arranged as;

- A. Kinetic energy → potential energy → sound energy → heat energy
- B. Sound energy → potential energy → kinetic energy → heat energy
- C. Potential energy → sound energy → kinetic energy → heat energy
- D. Potential energy → kinetic energy → heat energy → sound energy

21. Which of the following shows a piece of material in a magnetized condition?



22. In the figure below, the ammeter reads 4A and the voltmeter, V reads 4V. Find the value of R.



- A. 1Ω B. 2Ω C. 3Ω D. 4Ω

23. When glass and silk are rubbed against each other and then separated, they acquire;

- A. no charge
 B. equal amount of same type of charge
 C. equal and opposite charges
 D. both acquire positive and negative charges.

24. An object 2cm tall is placed 5cm in front of a convex lens. a real image is produced 20cm from the lens. Calculate the magnification of the lens.

- A. 2 B. 0.5 C. 0.25 D. 4

25. A student is holding a white paper with green printing on it. If she enters a room with red light, she will see;

- A. black printing on a red paper B. blue printing on red paper
 C. yellow printing on a red paper D. red printing on a white paper

33. Which of the following is an electrolyte in a dry cell;
- A. Ammonium chloride
C. Manganese (IV) oxide
- B. Dilute sulphuric acid
D. Dilute hydrochloric acid
34. A car starts from rest and accelerates uniformly at a rate of 2ms^{-2} for 13 seconds. Find the final velocity of the car.
- A. 6.5ms^{-1}
B. 26ms^{-1}
C. 26m/s^2
D. 6.5m/s^2
35. A car of mass 1200kg moving with a velocity of 60ms^{-1} collides head-on with another car of mass 1000kg at rest and they stick together. Calculate their velocity after collision.
- A. $\frac{1000 \times 60}{1200 + 1000} \text{ms}^{-1}$
B. $\frac{1200 + 1000}{1200 \times 60} \text{ms}^{-1}$
C. $\frac{1200 \times 60}{1200 \times 1000} \text{ms}^{-1}$
D. $\frac{1200 + 1000}{1000 \times 60} \text{ms}^{-1}$

SECTION B (25 MARKS)

36. (a) What is meant by;
- (i) Uniform velocity. (1 mark)
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- (ii) Uniform acceleration. (1 mark)
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- (b) A car travelling with a uniform velocity of 25ms^{-1} for 5s brakes and then comes to rest under a uniform deceleration in 8s.
- (i) Sketch a velocity time graph for the motion. (1 mark)

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(ii) Find the total distance travelled. (2 marks)

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37. (a) Define the term lateral inversion as applied to mirrors. (1 mark)

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(b) State **two** properties of an image formed in a concave mirror when the object is placed between the focal point and the mirror. (2 marks)

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(c) Sketch a ray diagram to show how refraction of light makes a pond to appear shallower than it actually is. (2 marks)

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38. (a) Define the following;

(i) Radio activity (1 mark)

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(ii) An isotope. (1 mark)

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(b) Give **three** differences between X-rays and cathode rays. (3 marks)

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39. (a) Define the following with respect to magnetism.

(i) a magnet. (1 mark)

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(ii) a neutral point (1 mark)

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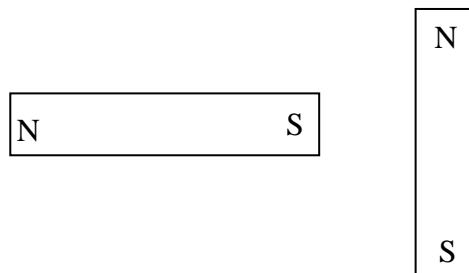
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(iii) consequent poles (1 mark)

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(b) The diagram shown below shows two identical bar magnets placed closed to each other. On the diagram, draw the resultant magnetic field pattern. (2 marks)



40. (a) State ohm's law. (1 mark)

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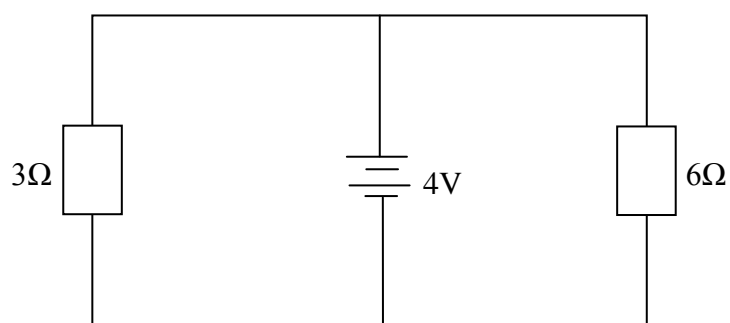
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- (b) Two resistors of 3Ω and 6Ω are connected across a battery of $4V$ of negligible internal resistance as shown in the figure below;



Find the;

- (i) Combined resistance.

(2 marks)

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- (ii) Current supplied by the battery.

(2 marks)

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END