ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

PHYSICS **4023/1**

PAPER 1 Multiple Choice 1 hour

JUNE 2025 SESSION

Additional materials:
Multiple Choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended.)
Electronic calculator

INSTRUCTIONS TO CANDIDATES

Answer **all** questions. For each question, there are **four** possible answers, **A, B, C** and **D**. Choose the correct answer. Record your choice in **soft pencil** on the separate answer sheet.

Read very carefully the instructions on the answer sheet.

INFORMATION FOR CANDIDATES

There are **forty** questions in this paper. Each correct answer will score **one** mark. Any rough working should be done on this question paper.

This question paper consists of 19 printed pages.

1. Which instrument accurately measures the internal diameter of a boiling tube?

A tape measure

B vernier calipers

C metre rule

D micrometer screw gauge

2. What are the base units of force?

A kgm/s^2

B $kgms^2$

C kgms

D kgm/s

3. Acceleration is defined as the rate of change of

A displacement.

B distance.

C velocity.

D speed.

4. A piece of wire is 60 cm long and 0.2 cm in diameter .
What is its volume?

A $18.85\ cm^3$

B $12.00\ cm^3$

C $7.54\ cm^3$

D $1.88\ cm^3$

5. A trolley is loaded with three concrete bricks and set in motion by a constant force producing an acceleration. If one brick is removed, the trolley will

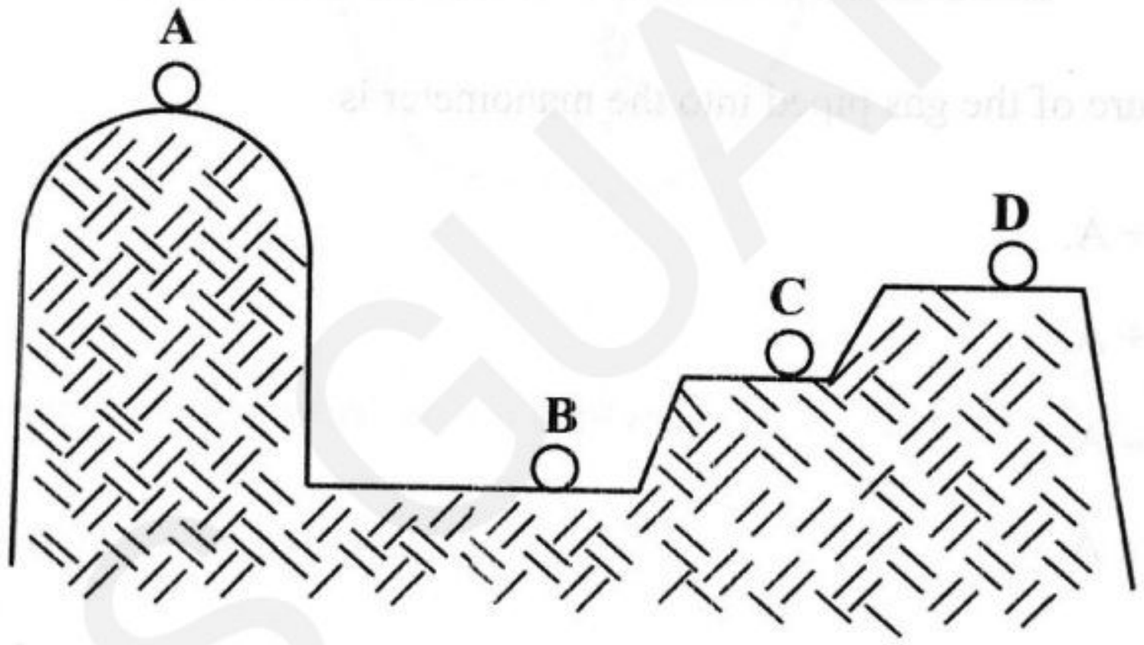
A decelerate.

B accelerate more.

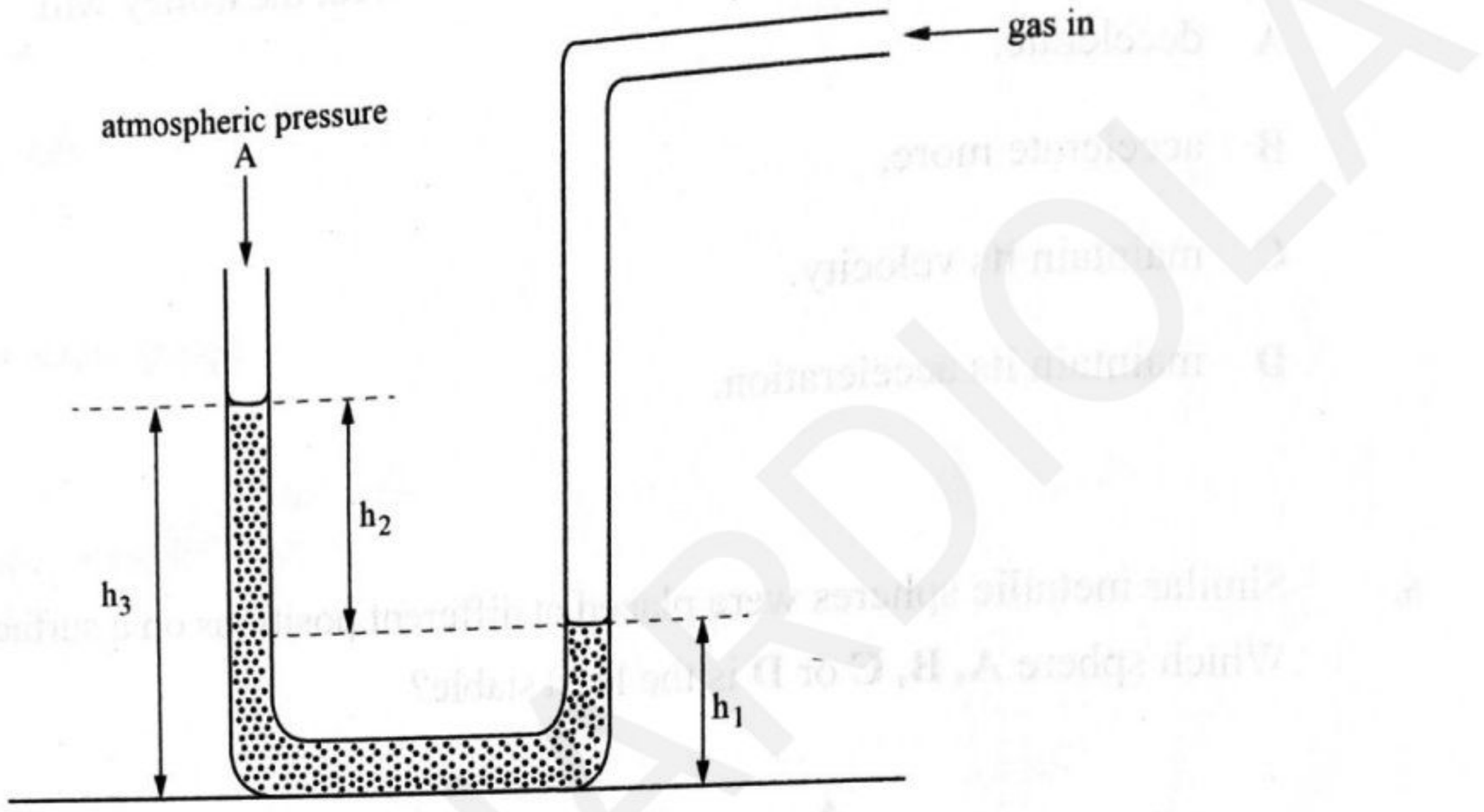
C maintain its velocity.

D maintain its acceleration.

6. Similar metallic spheres were placed at different positions on a surface.
Which sphere **A, B, C** or **D** is the least stable?



7. The diagram shows a manometer measuring gas pressure.



The pressure of the gas piped into the manometer is

A $\rho g h_2 + A.$

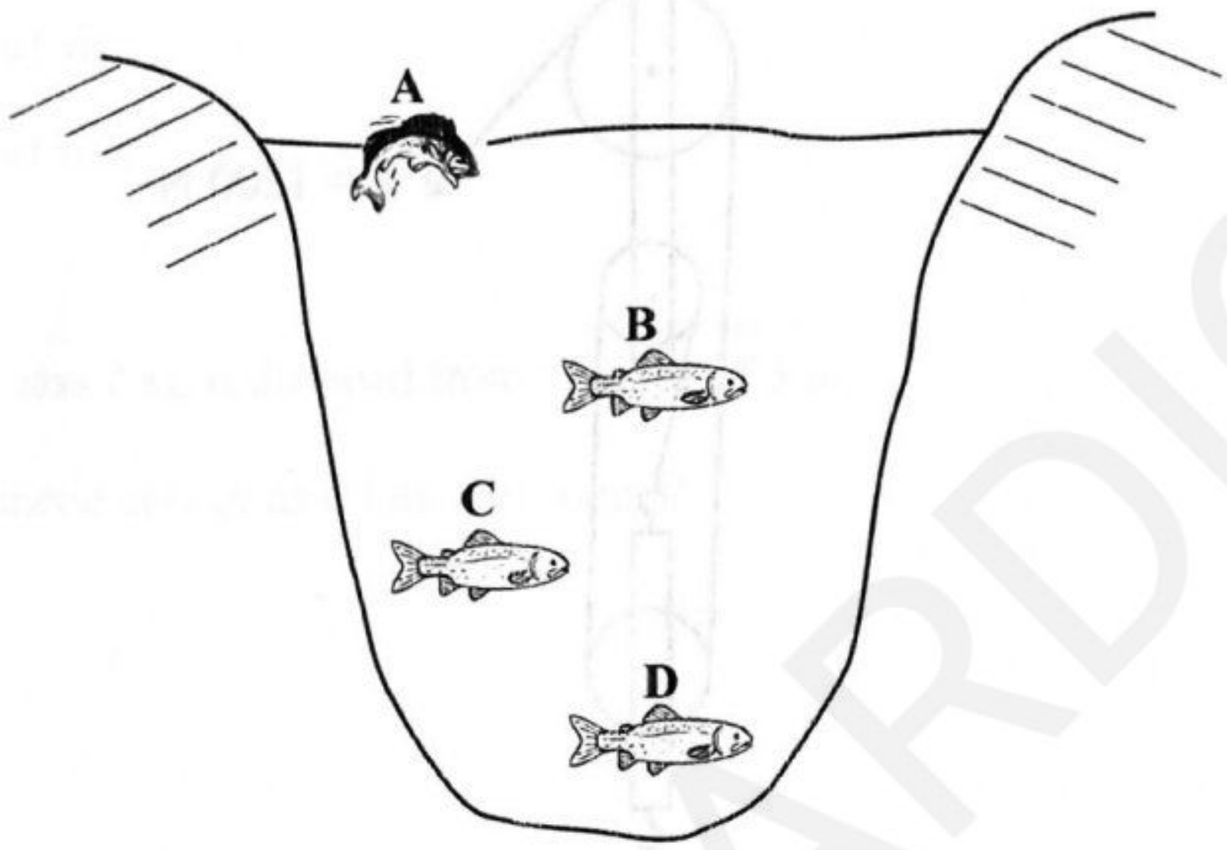
B $\rho g h_1 + A.$

C $\rho g h_2 - A.$

D $\rho g h_3 + A.$

8. The diagram shows a fish pond with fish at different heights from the bottom of the pond.

Which fish **A, B, C,** or **D** is experiencing the greatest pressure?



9. What is the power generated when an object of mass 2 kg falls with a constant velocity of 3 m/s?

[Take acceleration due to gravity to be 10 m/s^2]

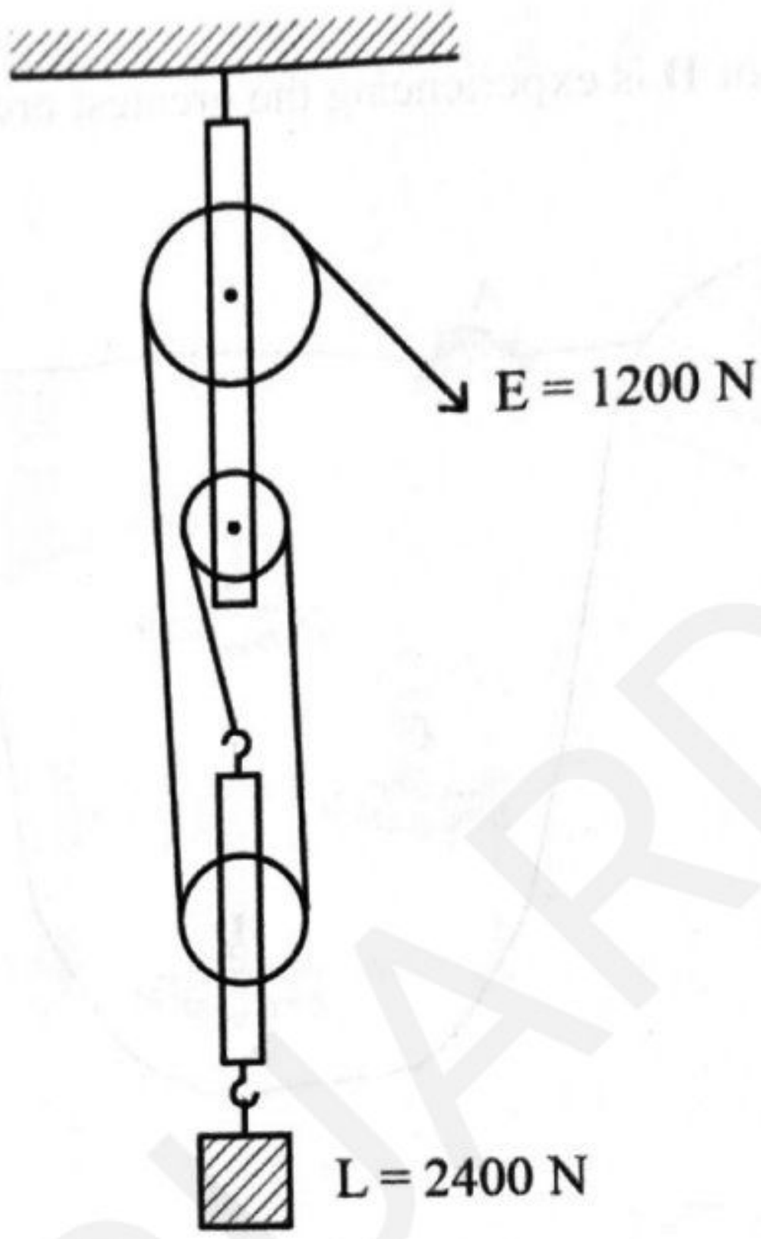
A 0 W

B 60 W

C 90 W

D 180 W

10. The diagram shows a pulley system.



What is the work done by the effort, E, when the pulley system raises the load, L, by 4 m?

A 3 600 J

B 4 800 J

C 9 600 J

D 14 400 J

11. When builders lay bricks, they are making

A lapped joints.

B pinned joints.

C mortised joints.

D grooved joints.

12. Which process only occurs in a four stroke engine?

A ignition by compression

B ignition by spark plug

C filtration of air

D filtration of fuel

13. An object of mass 2 kg is dropped from a height of 5 m.

What is the kinetic energy as it hits the ground?

A 10 J

B 20 J

C 100 J

D 500 J

14. Air vents allow heat exchange mainly through

A radiation only.

B conduction and convection.

C radiation and convection.

D convection only.

15. When a substance is melting or boiling its

A temperature increases.

B kinetic energy increases.

C latent energy increases.

D particle size increases.

16. The amount of heat needed per unit mass to change the state of a substance at constant temperature is called

A latent heat.

B heat capacity.

C specific latent heat.

D specific heat capacity.

17. Which property distinguishes longitudinal waves from transverse waves?

A ability to be refracted

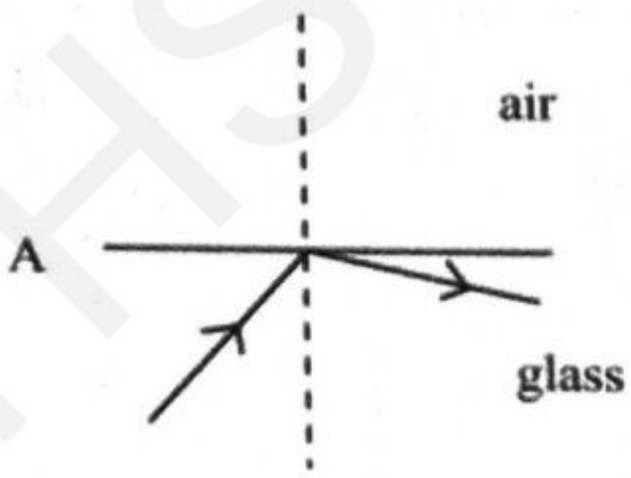
B amplitude of vibration

C period of oscillation

D direction of vibration of particles

18. Which diagram shows the correct path of a light ray travelling from glass to air?

A



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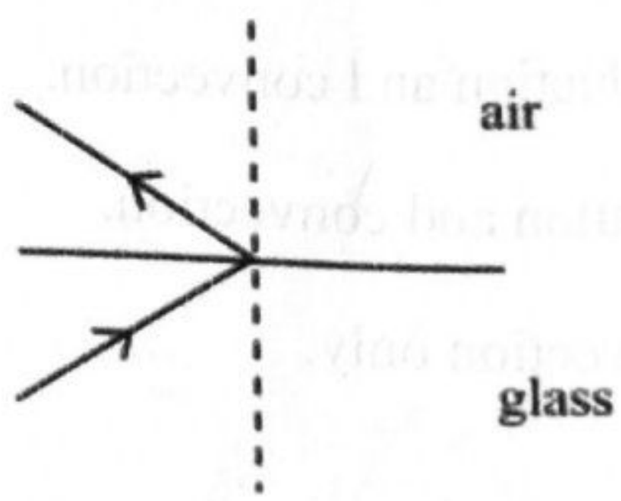

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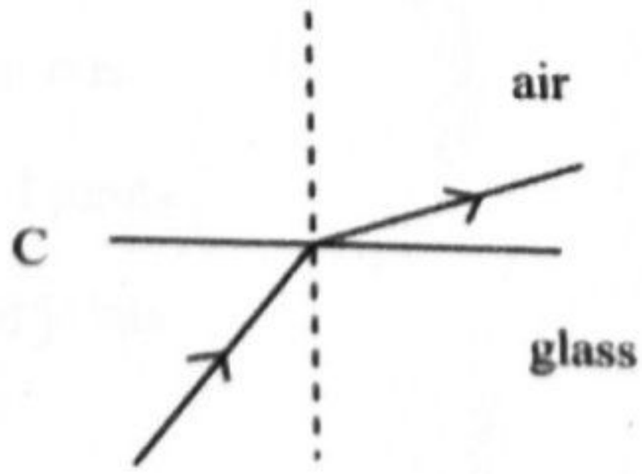
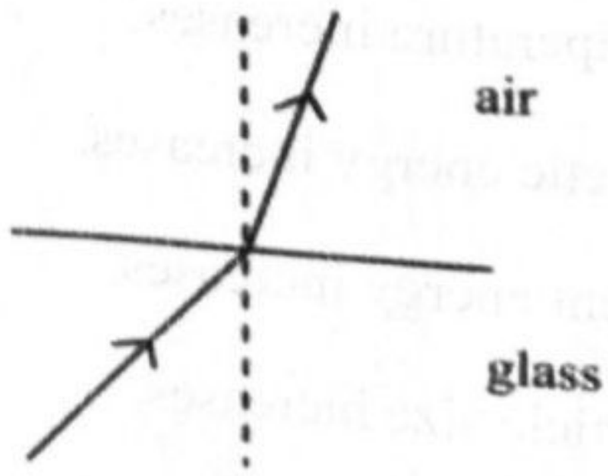
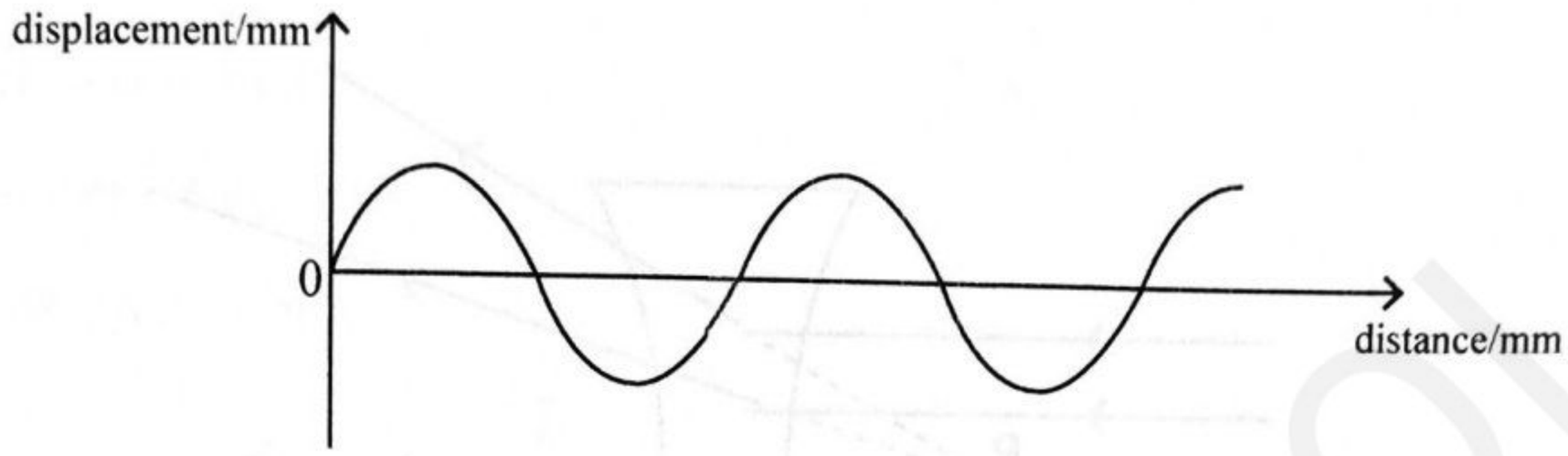


D



19. The diagram shows a wave profile for sound.



What **cannot** be obtained from the graph?

A amplitude

B wavelength

C loudness

D period

20. When a tuning fork is struck in a vacuum, it

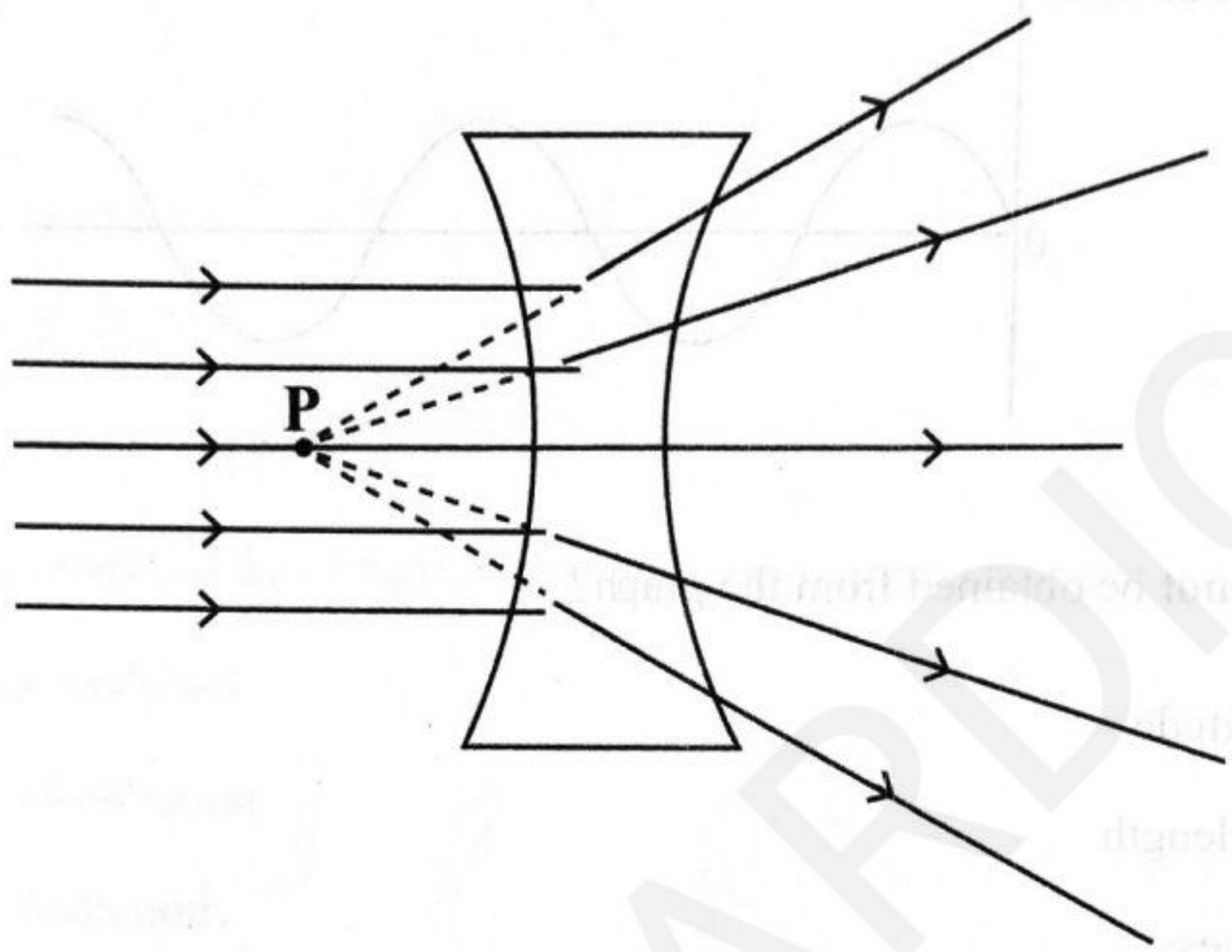
A produces sound.

B produces high pitch sound.

C produces low pitch sound.

D produces no sound.

21. The diagram shows a diverging lens.



What name is given to point **P**?

A principal focus

B focal length

C principal axis

D virtual point

22. In sound waves pitch is related to

A speed.

B amplitude.

C frequency.

D wavelength.

23. Which energy change takes place when electric current flows through a resistor?

A chemical to heat

B electrical to heat

C chemical to electrical

D heat to electrical

24. Which fuse rating is suitable for an appliance rated 800 W, 240 V, to prevent overheating?

A 1 A

B 2 A

C 5 A

D 10 A

25. A wire of length 2.5 m and area 1.76×10^{-6} m^2 has a resistance of 0.5 Ω.
What is its resistivity?

A 2.20×10^{-6} Ωm

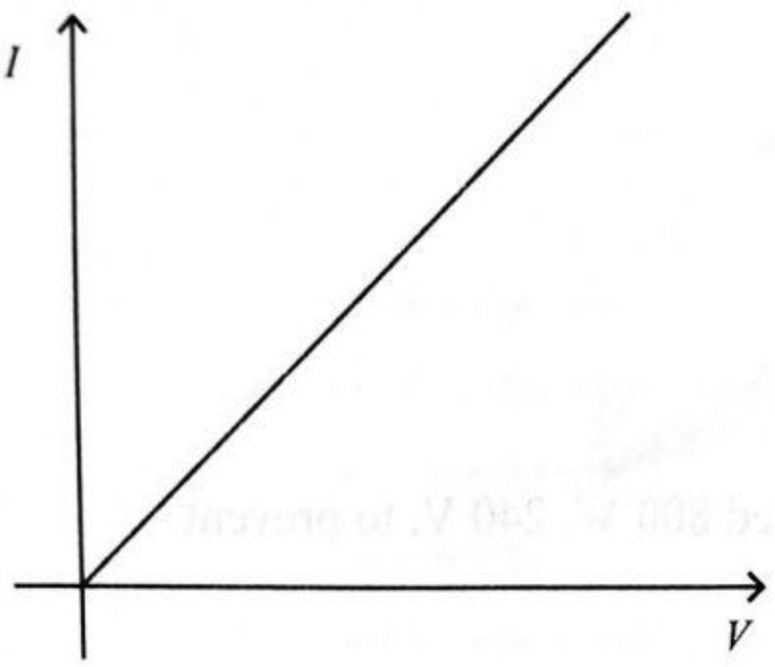
B 3.52×10^{-7} Ωm

C 8.80×10^{-6} Ωm

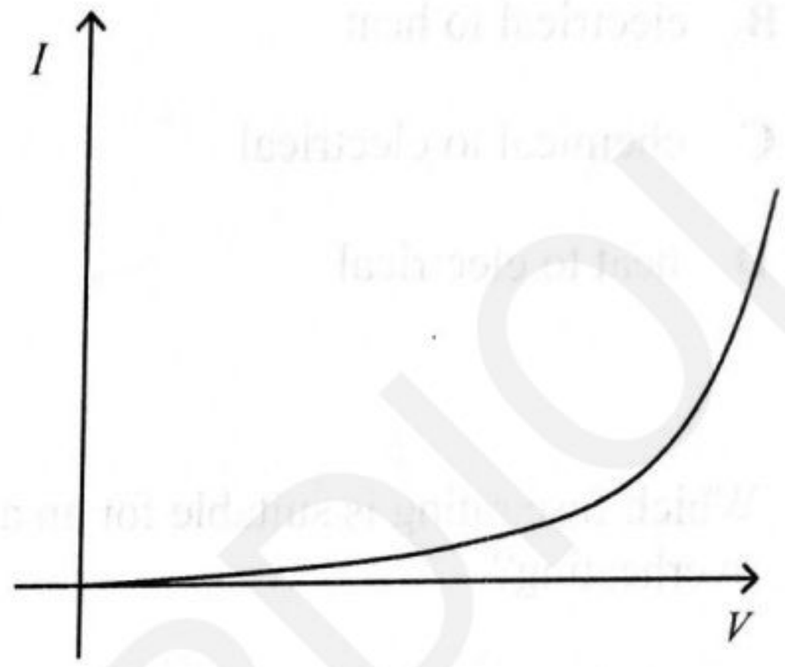
D 7.10×10^{5} Ωm

26. Which graph shows the variation of current, I, and potential difference, V, for an Ohmic conductor?

A



B



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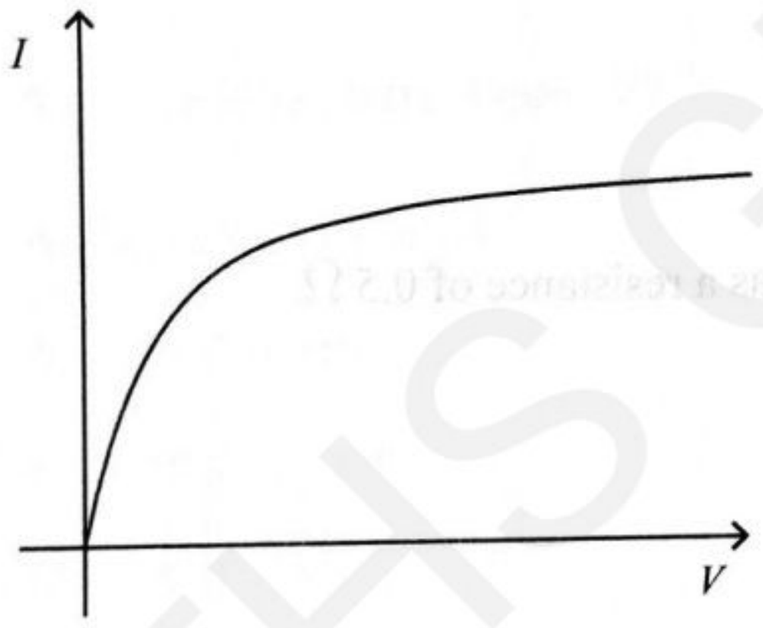

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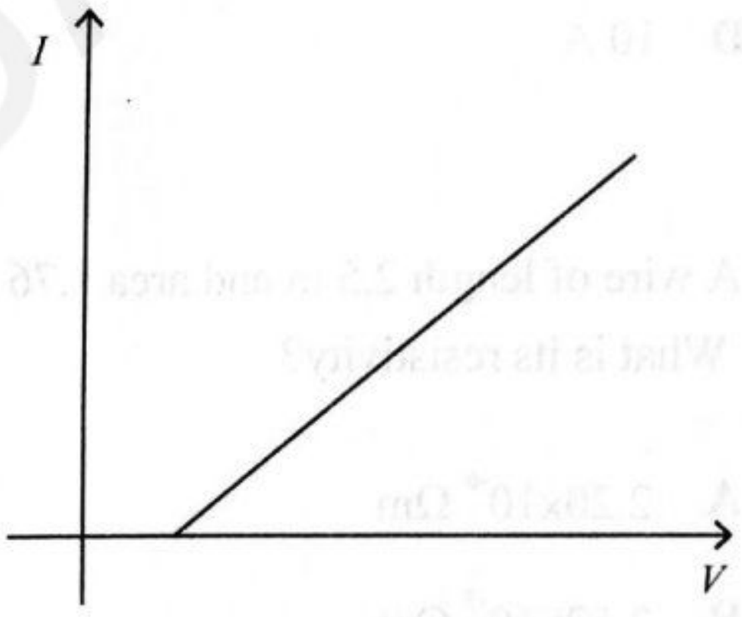


27. Which part of a d.c motor reverses the direction of current to have rotation in one direction?

A coil

B split rings

C slip rings

D carbon brushes

28. Which component is used to rectify a.c?

A buzzer

B thermistor

C capacitor

D diode

29. Which device does **not** use the magnetic effect of current?

A switch

B electric bell

C generator

D transformer

30. Which statement best describes the cause of induction in a transformer?

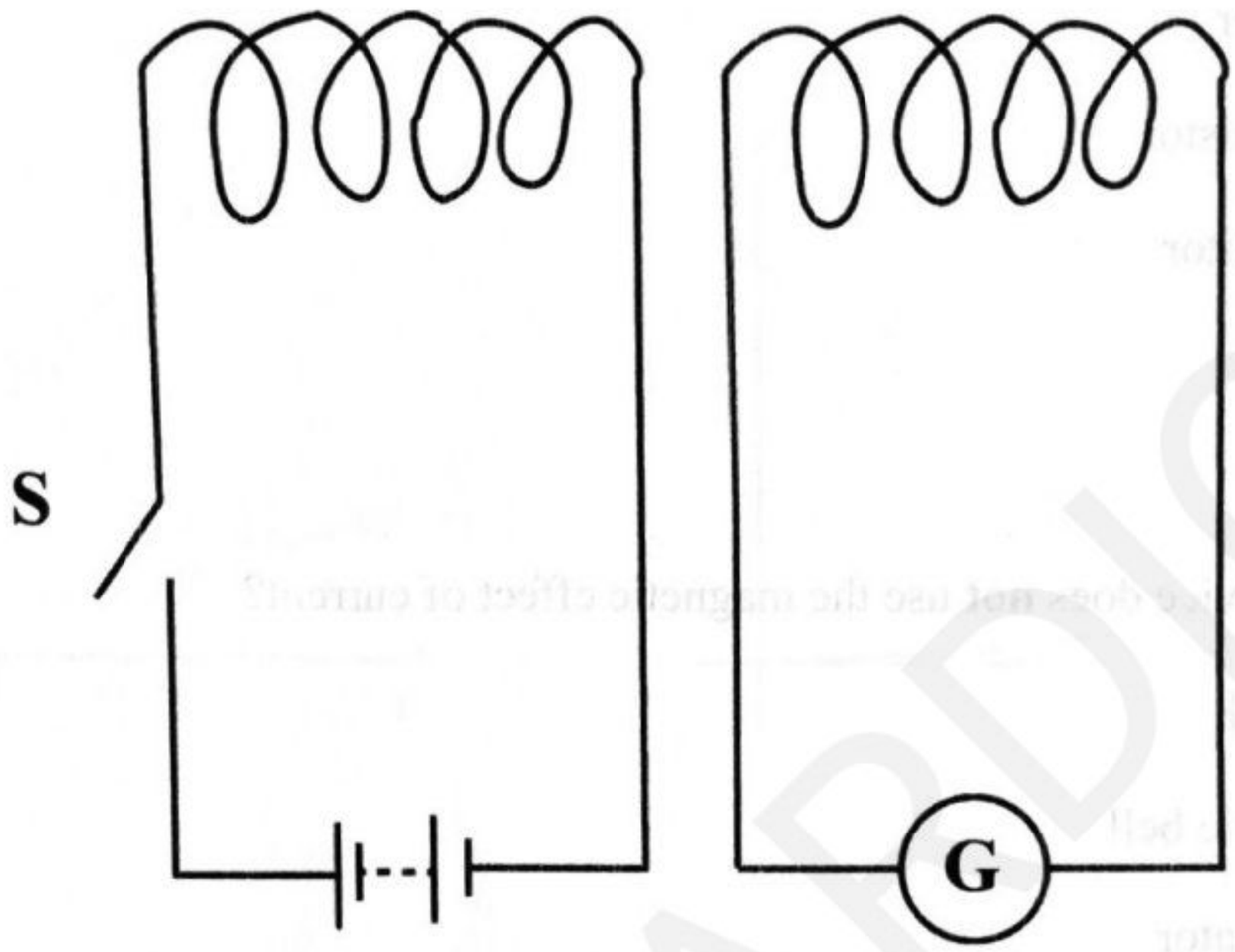
A movement of the primary and secondary coils

B relative motion between magnets and coil

C change in magnetic fields

D change in eddy currents

31. The diagram shows two separate circuits containing solenoids.



What happens to the galvanometer when **S** is closed?

A does not deflect

B repeatedly deflects

C momentarily deflects

D deflects and gives a constant value

32. Hot filaments emit

A protons.

B neutrons.

C atoms.

D electrons.

33. A magnet **cannot** be demagnetised by

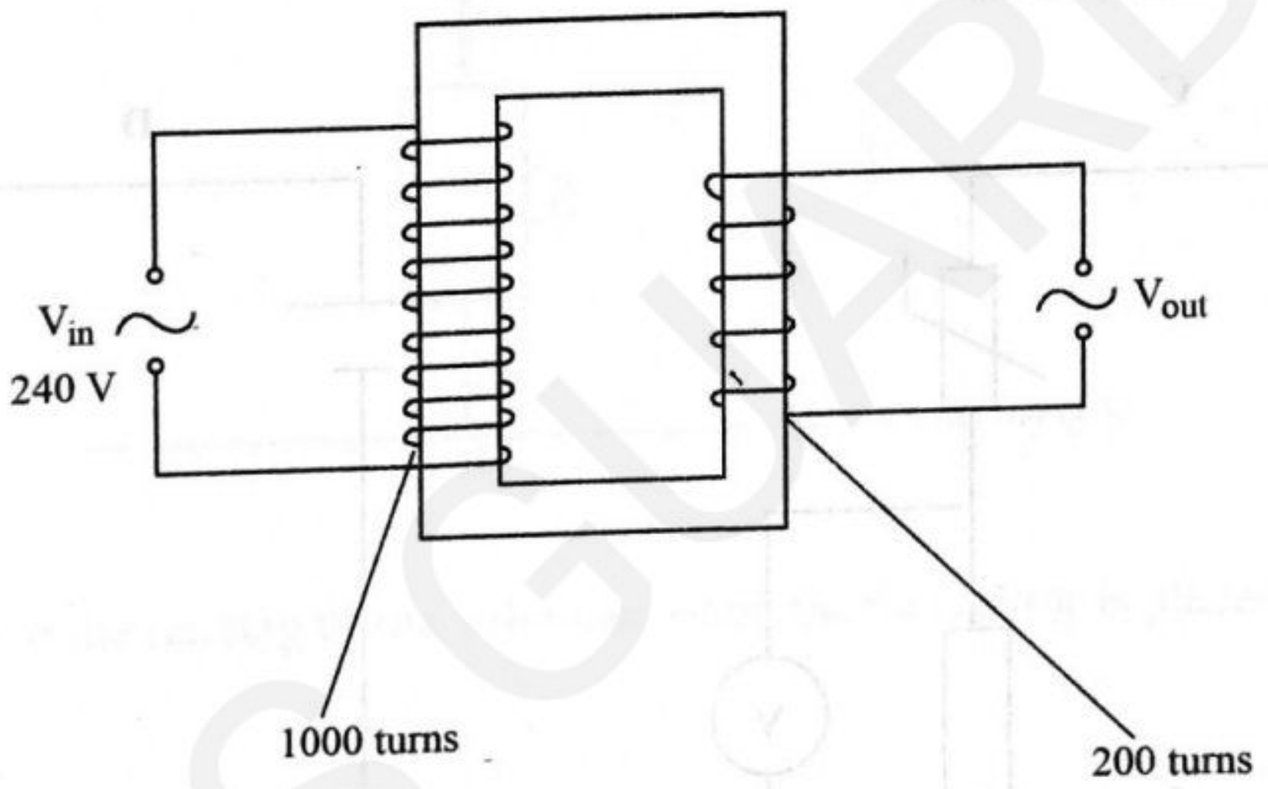
A heating.

B hammering.

C electrical methods.

D stroking.

34. The diagram shows a step down transformer.



What is V_{out}?

A 0.001 V

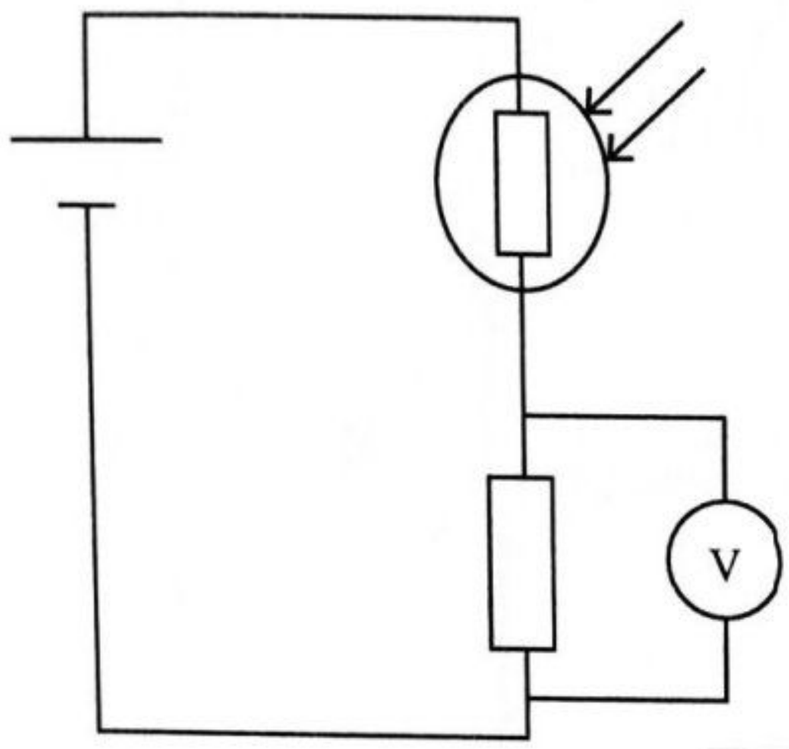
B 48 V

C 833 V

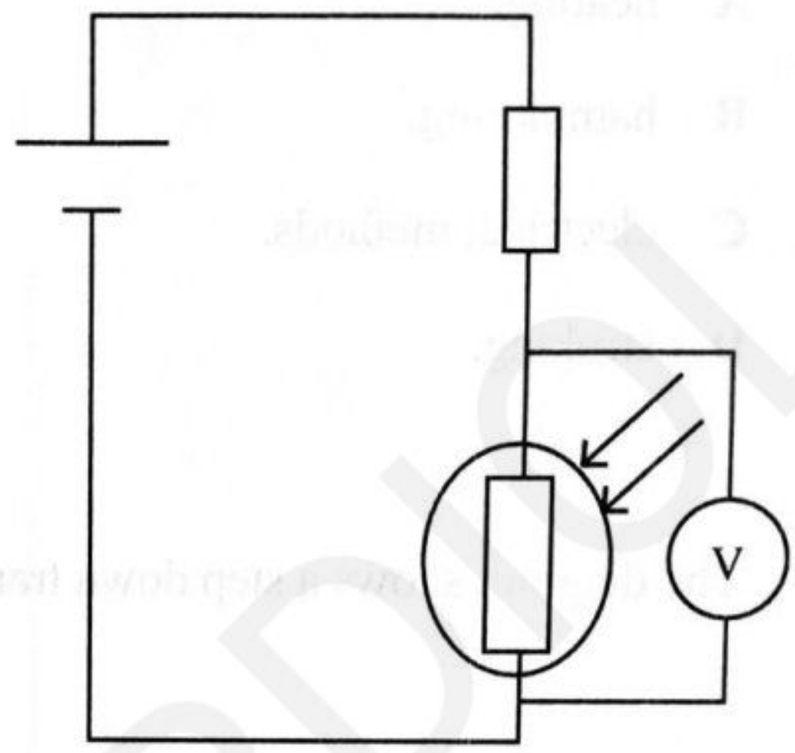
D 1200 V

35. In which circuit would the voltmeter record the highest reading during the night?

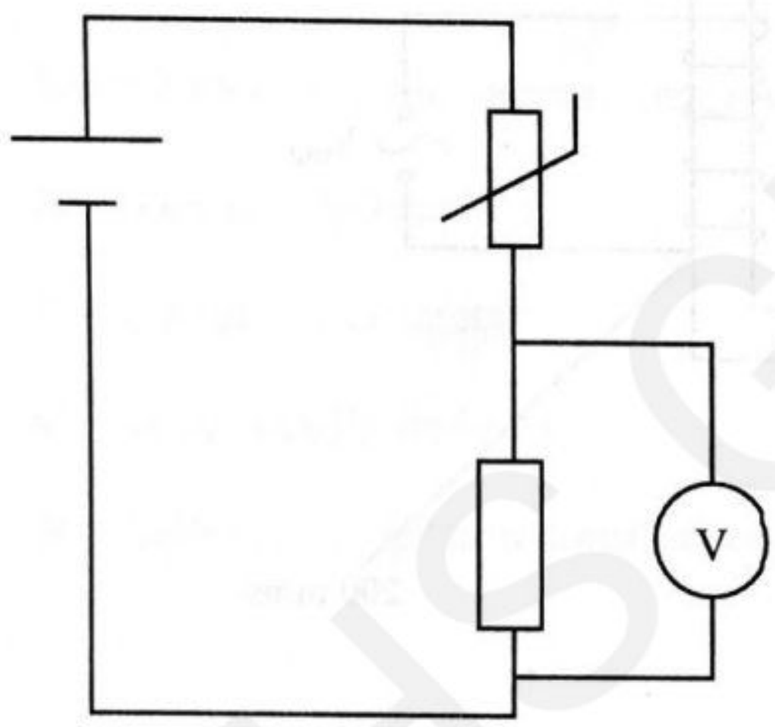
A



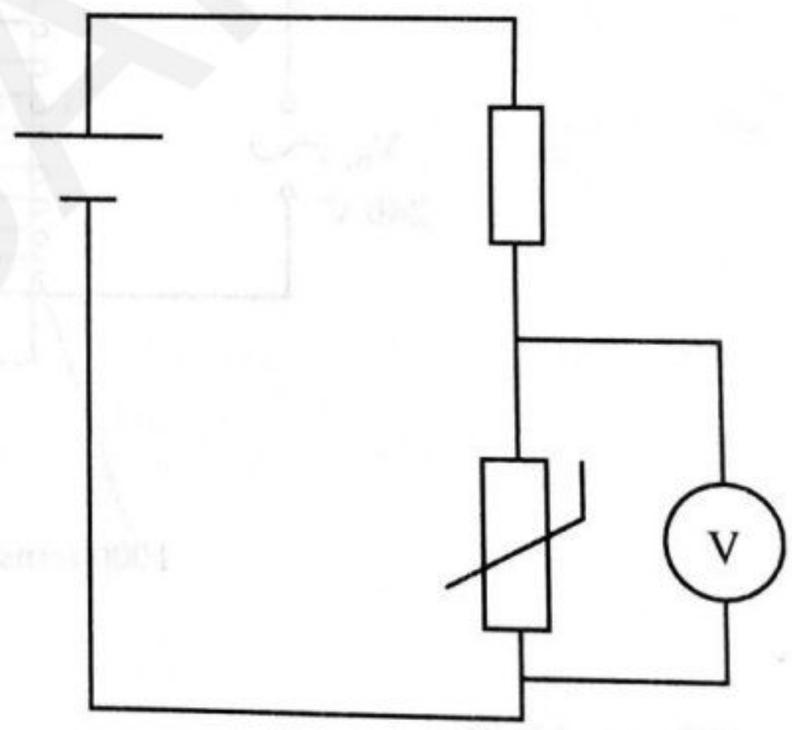
B



C



D



36. A diode is an electronic device that

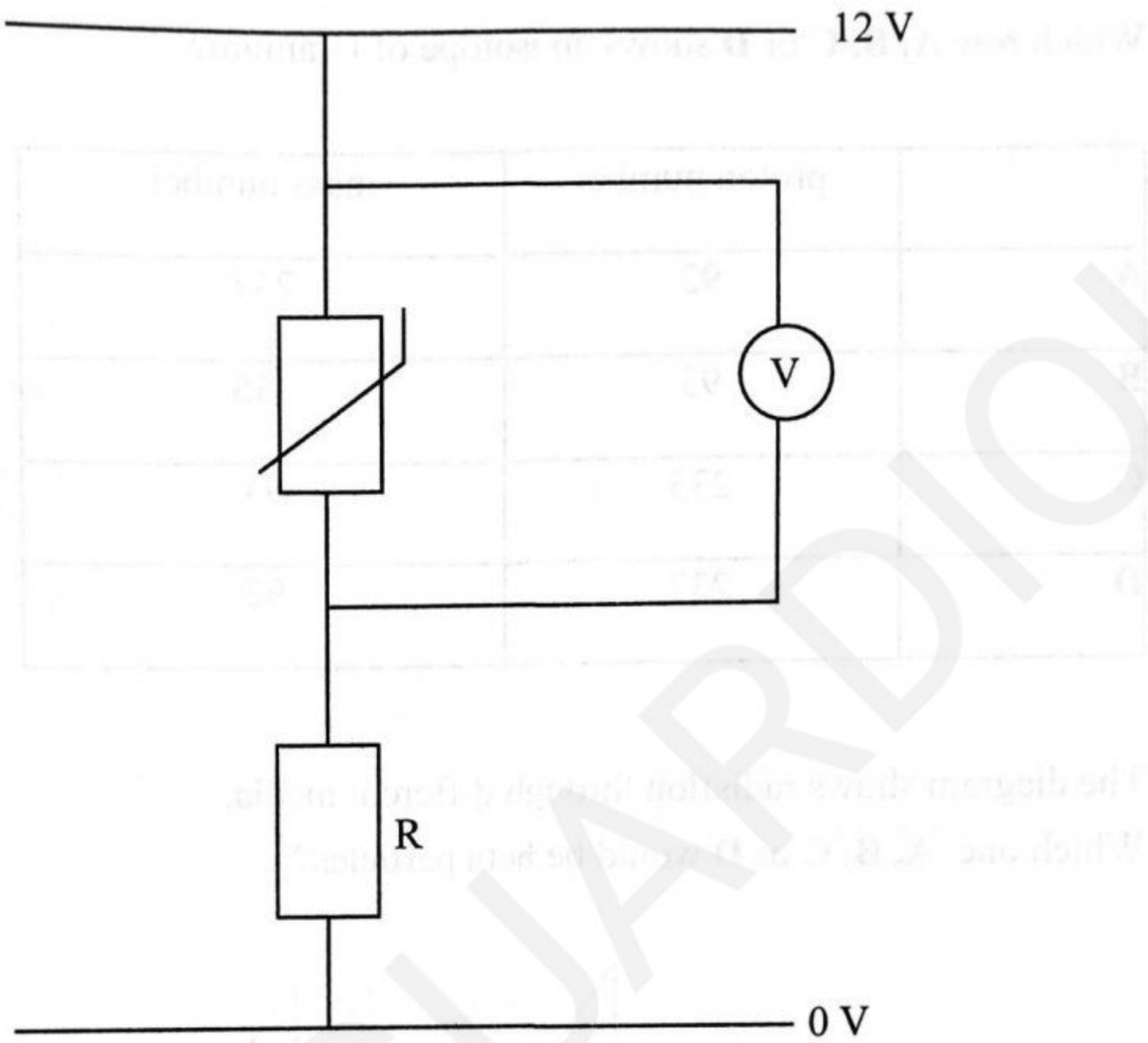
A conducts current.

B has high resistance.

C allows conduction in one direction.

D does not allow conduction in one direction.

37. The diagram shows a potential divider circuit consisting of a thermistor and a resistor.



What happens to the reading of the voltmeter when the thermistor is placed in hot water?

A reduces to zero

B stays the same

C increases to a maximum value

D reduces not getting to zero

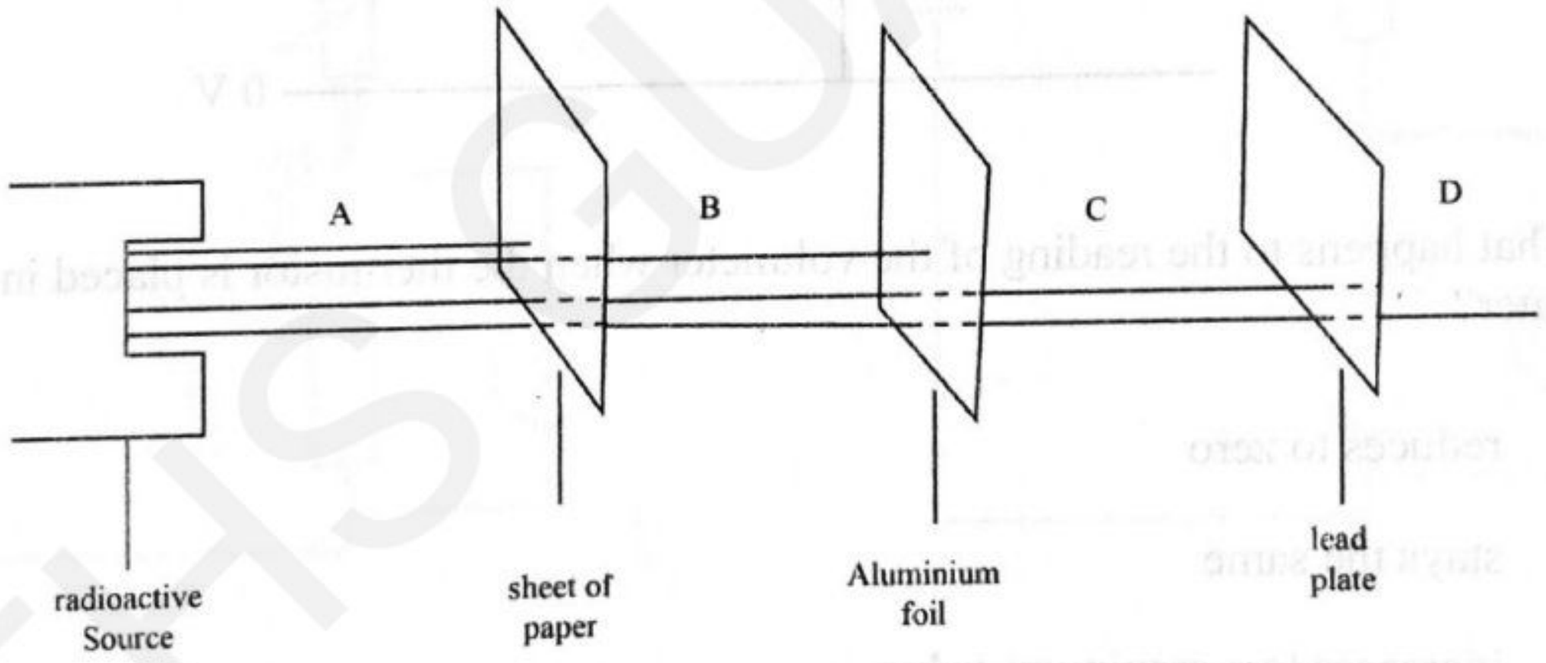
38. The nuclide notation for Uranium -235 is $^{235}_{92}\mathbf{U}$.

Which row **A, B, C** or **D** shows an isotope of Uranium?

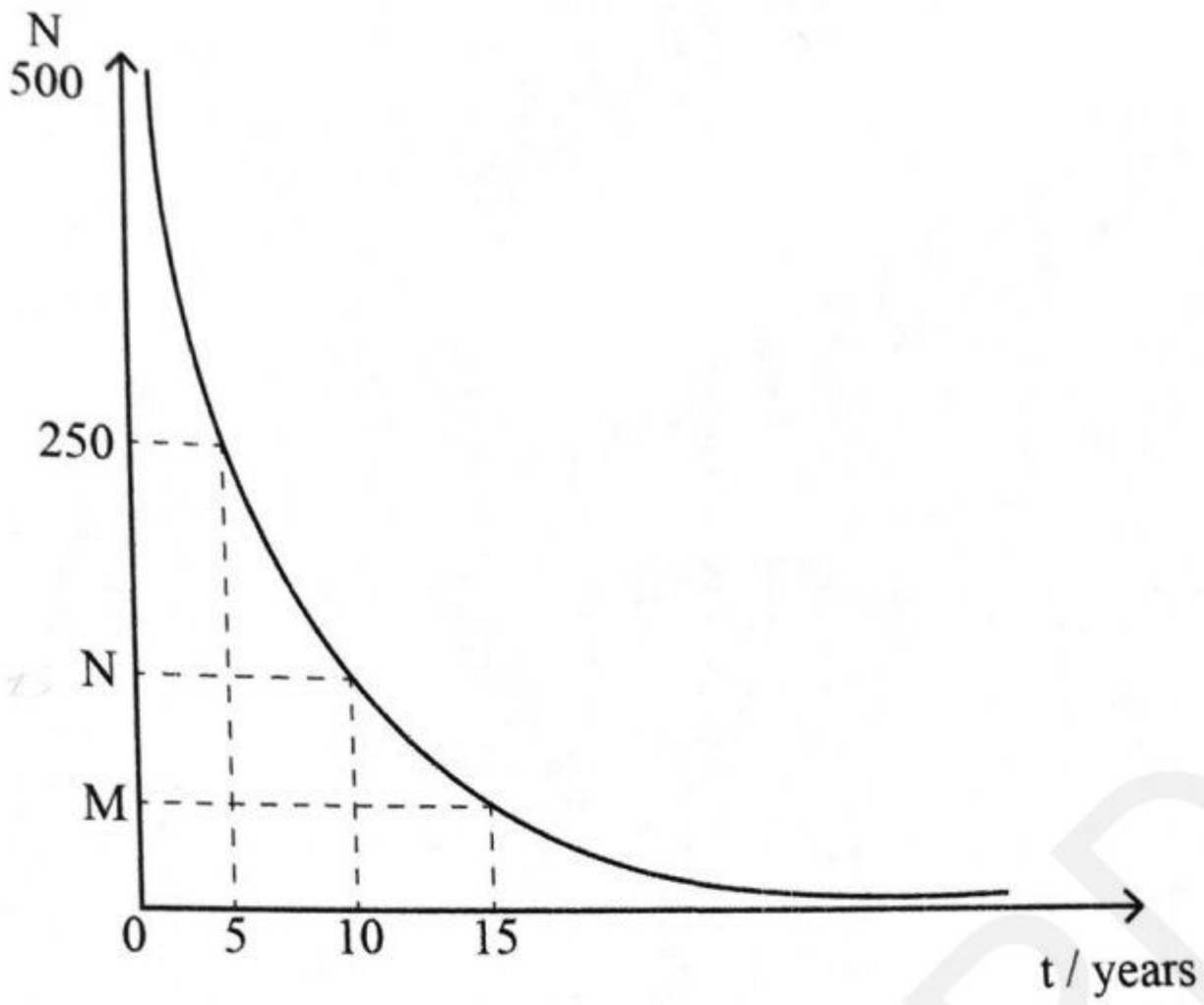
	proton number	mass number
A	92	237
B	93	235
C	235	93
D	237	92

39. The diagram shows radiation through different media.

Which one, **A, B, C** or **D** would be beta particles?



40. The diagram shows a decay curve of a radioactive isotope with a half-life of 5 years.



The values of N and M are

	N	M
A	125	63
B	100	33
C	63	125
D	33	100