

INSRUCTIONS:

- **ATTEMPT ALL QUESTIONS.**
- **WRITE YOUR ANSWERS FOR SECTION A IN THE GRID PROVIDED.**
- **ANSWERS TO SECTION B MUST BE WRITTEN IN THE SPACES PROVIDED.**

1.	6.	11.	16.	21.	26.	31.	36.
2.	7.	12.	17.	22.	27.	32.	37.
3.	8.	13.	18.	23.	28.	33.	38.
4.	9.	14.	19.	24.	29.	34.	39.
5.	10.	15.	20.	25.	30.	35.	40.

SECTION A.

1. A stone has a mass of 27g and volume 9 cm^3 . Find its density in kgm^{-3} .

A. $3.0 \times 10^3\text{ kgm}^{-3}$	B. 3.0 kgm^{-3}
C. $3.0 \times 10^{-3}\text{ kgm}^{-3}$	D. $3.0 \times 10^{-5}\text{ kgm}^{-3}$

2. A taxi driver placed a bag on top of his car and forgot to tie it up. State and explain what happened to the bag when the car suddenly came to a stop.

A. The bag falls in front of the car because of inertia	B. The bag falls in front of the car because of momentum
C. The bag falls behind the car because of inertia	D. The bag's position does not change because of force of gravity.

3. The force of gravity on the moon is one-sixth of that on the earth. What is the weight of a 12kg mass on the moon?

A. 7.2N	B. 20N
C. 0.14N	D. 2N

4. The total pressure of a gas supply is $2.5 \times 10^5\text{ pa}$. What will the pressure of the liquid column be, given that the atmospheric pressure is $1.0 \times 10^5\text{ pa}$?

A. $1.0 \times 10^5\text{ pa}$	B. $1.5 \times 10^5\text{ pa}$
B. $2.5 \times 10^5\text{ pa}$	D. $3.5 \times 10^5\text{ pa}$

- D. Balance, ruler, beaker containing water
25. Which one of the following is not a property of the image of an object placed 12cm in front of a plane mirror.
- A. It is behind the mirror. B. It is 12cm from the mirror.
 C. It is real. D. It is laterally inverted.
26. Which of the following quantities increases when the mass of the body increased?
- A. Velocity B. Acceleration
 C. Displacement D. Momentum
27. A girl of mass 20 kg develops a power of 20 W on climbing steps in 120 s. If each step is 0.2 m high, find the number of steps.
- A. $\frac{20 \times 20}{20 \times 0.2}$ B. $\frac{20 \times 0.2}{20 \times 120}$
 C. $\frac{20 \times 120}{200 \times 0.2}$ D. $\frac{0.2 \times 200}{20 \times 120}$
28. Which of the following increase the stability of the body?
- (i) Raising the centre of gravity.
 (ii) Lowering its centre of gravity
 (iii) Making its base narrow
 (iv) Making its base wide.
- A. (i) and (iv) only. B. (ii) and (iv) only.
 C. (i) and (iii) only. D. (ii) and (iii) only.
29. The mass of a moving body multiplied by its velocity is measuring the body's
- A. inertia B. weight
 C. force D. momentum
30. Which of the following factors enable(s) a small effort to lift a large load in a hydraulic press?
- (i) Pressure is transmitted equally in all directions.
 (ii) Small piston produces high pressure.
 (iii) The load experiences a large force.
- A. (i) only. B. (i) and (iii) only.
 C. (i) and (ii) only. D. (i), (ii) and (iii).

SECTION B.

41. (a) State the principle of conservation of linear momentum. (1mark)

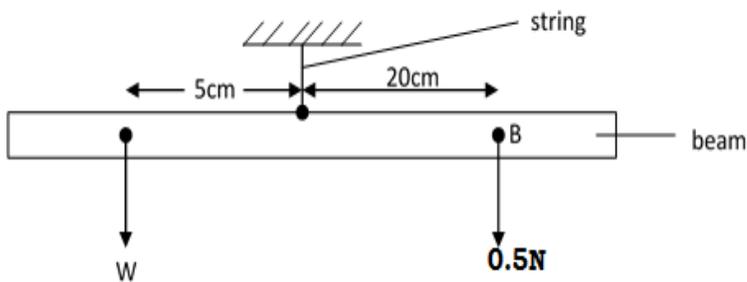
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(b) A car of mass 1000kg moving at 25ms^{-1} collides with a stationary car of mass 500kg. After collision, the first car continues to move in the same direction with a velocity of 20ms^{-1} . Calculate the velocity of the second car after collision and state its direction. (3marks)

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42. (a) State two conditions for a body to be in equilibrium. (2marks)

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(b)

The figure above shows a beam of weight, W suspended on a string balancing with a mass of weight $0.5N$ hang at B. Calculate the tension, T in the string. (3marks)

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43. (a) Define the following terms as used in machines.
(i) Mechanical advantage (1 mark)

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(ii) Velocity ratio (1 mark)

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(iii) Efficiency (1mark)

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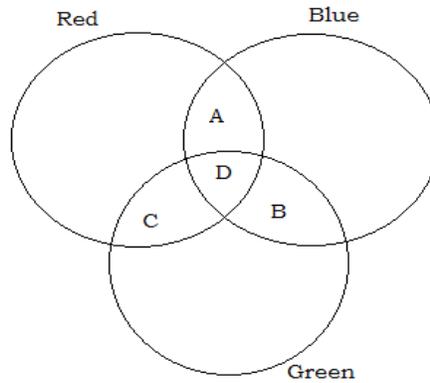
(b) Give two reasons why machines are never 100% efficient. (2marks)

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44. (a) Distinguish between a primary and a secondary colour and give one example of each (3marks)

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(b) Figure 2 shows colours mixed by addition. Name the colours represented by the parts labelled A, B, C and D. (4marks)



A..... B.....
 C..... D.....

45. (a) Define;
 (i) Total internal reflection (1mark)

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- (ii) Critical angle (1mark)

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- (b) With the help of a ray diagram, show how a convex lens can be used as a magnifying glass. (2marks)

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END.