INSTRUCTIONS

- Attempt **all** questions
- Answers must be put in the grid below.

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

1. What is true of linear motion?

   A) It is a circle   B) it is parabolic   C) it is random.   D) It is in a straight line

2. A mass of 1.6 kg moves with a speed of 10ms^{-1} at a height of 20cm.which of the following is true?

   A) Its potential energy is zero   B) its potential energy is 3.2J

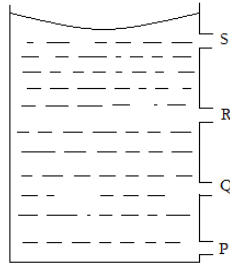   C) Its kinetic energy is 160J   D) its potential energy is 320J

3.
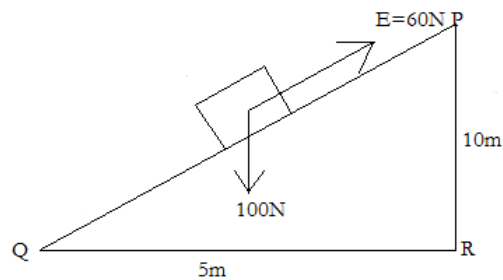
   The load of 100N is moved from Q to P using an effort of 60N.what is the work done by the machine?

   A) 300J   B) 600J   C) 866J   D) 1000J

4.

Which hole would out spurt out water furthest

    A) P   B) Q   C) R   D) S

5. Which of the following is a brittle material?

    A) Copper   B) Rubber   C) Glass   D) Plasticine

6. What is the force on a body of mass of 80kg moving with an acceleration of $4ms^{-2}$

    A) 200N   B) 320N   C) 480N   D) 1120N

7. An effort of 80N moves through a distance of 20m to raise a load of 800N through a height of 1.6m.what is the energy wasted?

    A) 128J   B) 320J   C) 800J   D) 1280J

8. The total pressure of a gas supply is 2.5×10^5 pa .what will the pressure of the liquid column be, given that the atmospheric pressure is 1.0×10^5 pa?

    A) 1.0×10^5 pa   B) 1.5×10^5 C) 2.5×10^5 pa   D) 3.5×10^5 pa

9. A couple is formed by

    A. two equal like parallel forces

    B. two equal unlike parallel forces

    C. two equal forces acting at the same point.

    D. two equal forces acting at different point.

10. Which of the following is the S.I unit of volume?

    A) m^3 B) cm^3 C) mm^3 D) liters

11. Which of the following list contains vector quantities only?

    A. kinetic energy, potential energy, velocity

B. acceleration, displacement, force

C. displacement, kinetic energy, power

D. time, velocity, density

12. A uniform meter rule pivoted at the 25cm mark balances when a mass of 0.15kg hung at the 8cm mark. Calculate the mass of a meter rule.

A. 0.00020kg   B. 0.048kg   C. 0.102kg   D. 1.020kg

13. If mercury barometer reads 760mmHg.what is the atmospheric pressure in Nm^{-2}(density of mercury=$13600kgm^{-3}$)

A. $1.03 \times 10^{4} Nm^{-2}$ B. $1.36 \times 10^{4} Nm^{-2}$ C. $1.03 \times 10^{5} Nm^{-2}$ D. $1.36 \times 10^{5} Nm^{-2}$

14. A car starts from rest and accelerate uniformly at $2ms^{-2}$.find the distance it covers in 6 seconds.

A. 12m   B. 36m   C. 72m   D. 108m

15. A rectangular block of tin is 0.5m long and 0.01 thick. Calculate the width if it has a mass of 0.365kg and density of $7.3 \times 10^{3} kgm^{-3}$

A. 0.001m   B. 0.010m   C. 0.100m   D. 1.000m

16. A liquid of density $1.03 \times 10^{3} kgm^{-3}$ fills a vessel of uniform cross-sectional area of $10^{-4} m^{2}$ to a depth of 0.24m.calculate the force exerted by the liquid on the bottom of the vessel.

A. $1.03 \times 10^{-1} N$ B. $2.472 \times 10^{-1} N$ C. 1.03N   D. 2.472N

17. A bullet of mass 150g fired with a speed of $400ms^{-1}$.the riffle recoil with a speed of $10ms^{-1}$. Find the mass of the riffle.

A. 0.3kg   B. 0.6kg   C. 3.0kg   D. 6.0kg

18. The stability of a bus is reduced when a heavy load is placed on its roof rack because;

A. the total weight is increased

B. the pressure upon the tyres is increased

C. the maximum speed is reduced

D. the centre of gravity is raised

19. A machine which is 80% efficient is moved by an engine with an output of 40w.the time taken to rise a load of 1500N through 0.15m will be;

A. 4.5s   B. 5.6s   C. 7.0s   D. 28.1s

20. A man of mass 50kg climbs 40 steps upstairs. If each step is 0.2m high, the potential energy gained is;

   A. 100J   B .400J   C. 4000J   D. 20000J

21. If a load of 1N extends a spring by 5cm, what extension will a load of 0.6N produce?

   A. 1.2cm   B.3.0cm   C.8.3cm   D.30.0cm

22. A body of mass 20kg falls freely from a height of 5m.find the velocity with which it hits the ground.

   A. $3.2ms^{-1}$ B. $4ms^{-1}$ C. $7.1ms^{-1}$ D. $10ms^{-1}$

23. A car of mass 500kg starts from rest and gain a speed of $80ms^{-1}$ in 5 seconds. Calculate the force e applied on the car.

   A.16N   B.5000N   C.8000N   D.80000N

24. Which of the following sets contains only good conductors of heat?

   A. copper, wood, air   B. silver, gold, rubber

   C. iron, mercury, copper   D. magnesium, paper, wool

25. Two solid cubes have the same mass, but their surface areas are in the ration 16:1.what is the ratio of their densities?
   A.64:1   B.1:64   C.4:1   D. 1:4

26. Two forces of 5N and 12N acts at appoint at right angles to each other. Find the magnitude of the resultant force.

   A. 7N   B.13N   C.17N   D.60N

27. 10^5kg of water falls from a height of 50m every second. Calculate the power generated.

   A. 2.0×10^4 B. 2.9×10^5 C. 5.0×10^7 D. 5.0×10^3

28. A rectangular block of mass 48kg measures of 4m x 3m x 2m.what is the least pressure it can exert on a given surface?

A. 20Nm^{-2} B. 40Nm^{-2} C. 60Nm^{-2} D. 80Nm^{-2}

29. A thermopile is an instrument which converts,

A. heat energy to electrical energy B. electrical energy to light energy

C. light energy to electrical energy D. chemical energy to heat energy

30. A mass of 0.5kg causes a spiral spring to extend by 4cm, the force that would cause an extension of 6cm is;

A.20N B.3.3N C.4.8N D.7.5N

31. When a person steps forward from rest, one foot pushes backwards on the ground. The ground will as a result, push that foot;

A. backwards with an equal force

B. forwards with an equal force

C. backwards with smaller force

D. forwards with a greater force

32. It is more difficult to compress a liquid than a gas because;

A. the speed of liquid molecules is lower than that of gas molecules

B. liquid particles attract one another when compressed while gas particles repel each other

C. the distance between liquid particles is less than those between gas particles

D. liquid molecules repel one another when compressed while gas molecules attract each other

33. Find the forces that act on a body of mass 0.05kg accelerating at 20ms^{-2}

A.1.0N B.10N C.100N D. 400N

34. A body dropped from the top of a high building falls with uniform velocity when;

A. the pull of gravity is towards the ground

B. the resultant force is towards the ground

C. the pull of gravity is balanced by air resistance

D. the resultant force is equal to the pull of gravity.

35. A block of mass 8kg slides on a rough horizontal surface under the action of a force of 48N as shown below.
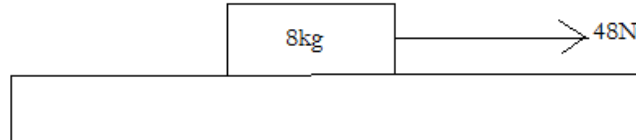
If the block moves with an acceleration of 5ms^{-2}.calculate the frictional force on the block;

A.6N   B.88N   C.40N   D.48N

36. A notch on a material spreads more rapidly when the material is;

A. in tension   B. in compression   C. pre-stressed   D. reinforced

37. An object of mass 2kg dropped from the top of building hits the ground with kinetic energy of 900J.the height of the building is;

A. 20m   B. 45m   C. 100m   D. 55m

38. A boy lifts 5 bricks in 1 minute through a height of 1.2m. If each brick weighs 50N, find the power expended.

A. 300 W   B. 0.083 W   C. 5 W   D. 1 W

39. An oil drop of volume $2\times10^{-3}\,cm$ forms a patch of area $0.8cm^2$ on a water surface. Given that the patch is one molecule thick, find the size of the molecule.

A. $2.5\times10^{-3}\,cm$ B. $400cm^3$ C. $2.5\times10^{-2}\,cm$ D. $25cm^3$

40. In a laboratory, different containers of different shape and different base areas contain water. Which statement is correct?

The pressure exerted by the water on the base of the containers depends on.

A. the area of the base.
B. the shape of the container.
C. both the area and the shape of the container .
D. only on the height of the water column in the container.

END