535/1
Physics
Senior three

END OF ZOOM EXAMINATIONS 2021
S.3 Physics P.1

Instructions:

- Answer all questions in both sections A and B.
- For section A, write the best alternative A, B, C or D in the spaces provided on page 1. Rings around the alternatives will not be marked.
- For section B, answers are to be written in the spaces provided.
- Present neat work.

Where necessary assume:

Acceleration due to gravity = 10 ms^{-2}

Density of water = 1000 kgm^{-3}

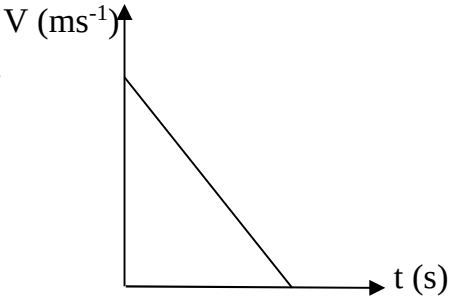
SECTION A (30 marks)

1. The ratio of increase in length to the original length is termed as;
   A. Stiffness C. Stress
   B. Strain D. Ductility
2. Which of the following has units?
   A. Velocity ratio C. Momentum
   B. Relative density D. Magnification
3. Which of the following are second class levers?
   (i) Seesaw
   (ii) Wheel barrow
   (iii) Pair of tongs
   (iv) Nutcracker
   A. (i) and (ii) only C. (iii) and (iv) only
   B. (ii) and (iii) only D. (ii) and (iv) only
4. When a body moves with uniform acceleration;
   A. Velocity increases C. Velocity remains constant
   B. Velocity decreases D. No force acts on it

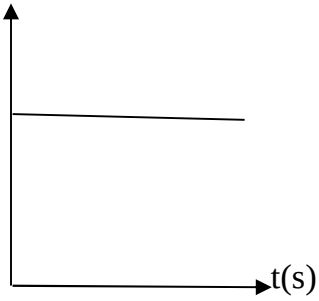
5. Where must an object be placed in front of a concave mirror of focal length 20 cm to give an image which is magnified 3 times?
   A. 80.01cm B. 40cm C. 26.67cm D. 60cm
6. When the object is placed at a point between the centre of curvature and the principle focus of a concave mirror, which of the following will be the characteristics of the image formed?
   (i) Real
   (ii) Virtual
   (iii) Erect and diminished
   (iv) Inverted and magnified
   A. (i) and (ii) only C. (i) and (iv) only
   B. (ii) and (iii) only D. (ii) and (iv) only
7. The possible polarizer in a dry cell is?
   A. Ammonium chloride C. Carbon powder
   B. Manganese dioxide D. Sulphuric acid
8. In order to charge a conductor negatively by induction,
   A. A negatively charged rod is used
   B. A positively charged rod is used
   C. Electrons must go to the earth
   D. The charged rod must touch the conductor
9. Find the pressure which a body of mass 20g exerts on the surface of area of contact 1 cm^2.
   A. 2.0×10^{-1} pa C. 2.0×10^{3} pa
   B. 2.0×10^{2} pa D. 2.0×10^{6} pa
10. Which of the following are renewable sources of energy?
   (i) Solar
   (ii) Coal
   (iii) Natural oil
   A. (iii) only C. (i) and (ii) only
   B. (i) only D. (ii) and (iii) only
11. Which of the following is the phenomenon that exhibits the rectilinear propagation of light?
   A. Formation of images
   B. Formation of darkness at night
   C. Formation of eclipse
   D. Formation of blurred images in mirrors

12. A body of mass 45 kg floats in oil of relative density 0.9. The volume of oil displaced is;
    A. 0.02 m^3 C. 0.05 m^3
    B. 50 m^3 D. 40.5 m^3
13. For a body floating in water;
    A. Volume of water displaced is equal to its volume.
    B. It displaces its own weight of water.
    C. It eventually sinks to the bottom of water after sometime.
    D. It experiences an upthrust equal to the weight of water displaced.
14. Which of the following type of mirror is most suitable for propagation of light in car head lights?
    A. Plane mirror C. Concave mirror
    B. Convex mirror D. Parabolic mirror
15. A body starts from rest and accelerates at 2 ms^{-2} for 6 seconds. It then travels at a constant speed for 10 seconds and then decelerates to rest in 4 seconds. What distance does it travel?
    A. 600m B. 180m C. 80m D. 36m
16. A stone thrown vertically upwards returns to the ground after sometime. Which of the following graphs describes its motion?

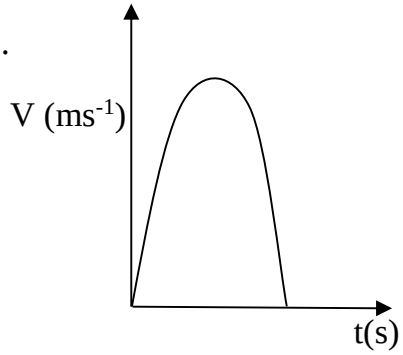
A.



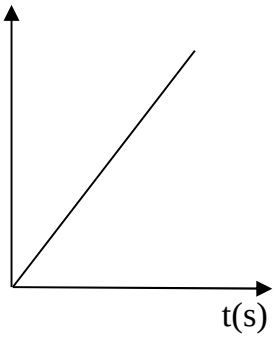
C.



B.



D.



17. Find the force that acts on a body of mass 0.05 kg accelerating at 20 ms^{-2}.
    A. 1.0N B. 10N C. 100N D. 400N
18. The purpose of treads on tyres is to make them;
    A. Attractive C. Stronger
    B. Reduce friction D. Increase friction
19. When a car is suddenly brought to rest, a passenger jerks forward because of?
    A. Breaks C. Momentum
    B. Inertia D. Friction
20. An object which is 30 cm from a plane mirror is moved 6 cm towards the mirror, the new object distance from the mirror is;
    A. 24cm B. 36cm C. 48cm D. 60cm
21. Which of the following are fundamental physical quantities?
    A. Mass, density and time.
    B. Weight, time and mass.
    C. Weight, length and time.
    D. Mass, length and time.
22. A body of mass 2 kg is thrown vertically upwards with a velocity of 10 ms^{-1}. Find its maximum height reached.
    A. 0.5m B. 5.0m C. 10.0m D. 50.0m
23. Polythene and wood are rubbed against each other and after they are separated, they acquire;
    A. No charge.
    B. Equal and similar charges.
    C. Equal and opposite charges.
    D. Same charge.
24. A crane can lift 6000 kg mass through a vertical height of 12m in 18 seconds. The rate of doing work is;
    A. 400N B. 4000N C. 900N D. 7000N
25. The brightness of the image formed by a pinhole camera depends on;
    A. Shape of object. C. Size of pinhole
    B. Shape of pinhole. D. Shape of object
26. The weight of 40g is;
    A. 400N B. 0.4N C. 4000N D. 4N
27. Metals are good conductors of heat because they;
    A. Are ductile.
    B. Contain free protons.
    C. Are brittle.

D. Contain free electrons.

28. An object 5 cm high is placed 12 cm in front of a pinhole camera of length 8cm. Calculate the height of the image.

A. $\frac{8x1}{1}$ C. $\frac{1 \ x8}{15}$

B. $\frac{1 \ x1}{8}$ D. $\frac{8 \ + \ 1}{1}$

29. Gases are easy to compress because;
    A. They are lighter
    B. Their molecules are further apart.
    C. They have molecules which are always in continuous random motion.
    D. Their molecules have weaker intermolecular forces.
30. Convert 30 ms^{-1} to kmh^{-1}.
    A. 68 kmh^{-1} C. 108 kmh^{-1}
    B. 125 kmh^{-1} D. 60 kmh^{-1}

SECTION B (20 marks)

31. (a) (i) Define a polarizer. (01 mark)

……

(ii) Give two examples of polarizers. (01 mark)

……

……

(b) State one difference between a primary cell and a secondary cell. (01 mark)

……

……

(b) (i) Give one defect of a simple cell. (01 mark)

……

(ii) Suggest how the defect in (b) (i) can be minimized. (01 mark)

……

32. (a) (i) What is a brittle material? (01 mark)

……

……

(ii) Give two examples of brittle materials. (01 mark)

……

……

(b) (i) State Hooke's law. (01 mark)

……

……

……

(ii) A load of 12N stretches a spring by 80cm. Find the weight which produces an extension of 60 cm on the same spring. (02 marks)

33. (a) (i) Define pressure. (01 mark)

……

……

(ii) State the S.I unit of pressure. (01 mark)

……

(b) A cylindrical vessel contains a liquid to a height of 10 cm. If the base area is 5.0 cm^2 and the liquid is of density 1 gcm^{-3}. Find the pressure (in Nm^{-2}) exerted at the bottom of the liquid. (03 marks)

34. (a) (i) Define the term acceleration as applied to motion. (01 mark)

……

……

(ii) State the S.I unit of acceleration. (01 mark)

……

(b) A body starts from rest and moves with a velocity of 20 ms^{-1} for 5 seconds. Calculate its;

(i) Acceleration. (01 mark)

(ii) Distance covered in the 5 seconds. (02 marks)

35. (a) Define the term principle focus of a concave mirror. (01 mark)

…….

…….

…….

(b) An object 5 cm is placed 30 cm in front of a concave mirror of focal length 15 cm. calculate the:

(i) Position of the image. (02 marks)

(ii) Magnification produced. (02 marks)

END.