

Phy

1 :- a wooden block of mass 1.5kg rest on a rough horizontal surface. If the limiting frictional force between the block and the surface is 6N, calculate the coefficient of friction. ($g = 10\text{ms}^{-2}$)

CORRECT ANSWER =

0.4

2 :- a toaster uses 5A from 240V, if it takes 90s to toast a loaf of bread, how much energy is consumed by the toaster?

CORRECT ANSWER =

$1.08 \times 10^5 \text{ J}$

3 :- if an object 4cm high is placed vertically 20cm in front of a concave mirror and produces an image 80cm from the mirror, calculate the height of the image formed

CORRECT ANSWER =

16.0cm

4 :- what part of the camera corresponds to the eye?

CORRECT ANSWER =

diaphragm

5 :- the relative density of an alloy is 6.5. find the mass of the solid alloy cube of volume 0.008m^3

CORRECT ANSWER =

52kg

6 :- if a load of 5N gives an extension of 0.56cm in a wire, what would be the extension caused by a load of 20N when both obey Hooke's law?

CORRECT ANSWER =

2.24cm

7 :- steel bars each of length 3.0m at 28°C are to be used for constructing a rail line. What is the safety gap that must be left between successive bars if the highest temperature expected is 40°C ?

CORRECT ANSWER =

$3.6 \times 10^{-4}\text{cm}$

8 :- how does increase in pressure affect the melting point of water?

CORRECT ANSWER =

it lowers the melting point

9 :- the work function of a metal is 4.65eV and the metal is illuminated with radiation of 6.86eV. What is the kinetic energy of the electrons ejected from the surface of the metal?

CORRECT ANSWER =

2.21eV

10 :- the temperature 45 °C is the same as

CORRECT ANSWER =

1130F

11 :- calculate the frequency of a wave whose distance between two successive crests is 2m and velocity 300ms⁻¹

CORRECT ANSWER =

150Hz

12 :- the resultant R of two vectors P and Q is represented by

CORRECT ANSWER =

13 :-

CORRECT ANSWER =

V.R = (2/p)

14 :- two parallel plates are charged to a voltage of 80V. If they are separated by a distance of 20.0cm. Calculate the electric intensity between them

CORRECT ANSWER =

400Vm⁻¹

15 :- if the distance between two successive nodes of a stationary wave of frequency 50Hz is 45cm, calculate the speed of the wave

CORRECT ANSWER =

45ms⁻¹

16 :-

CORRECT ANSWER =

9975J

17 :- which of the following observations CANNOT be explained using the rectilinear propagation of light?

CORRECT ANSWER =

diffraction patterns of light

18 :-

CORRECT ANSWER =

escape velocity

19 :- which of the following statements is NOT true of an electric cell?

CORRECT ANSWER =

the NiFe accumulator

20 :- which of the following colours can be absorbed when light is incident on an object which is magenta in colour?

CORRECT ANSWER =

red and blue

21 :- which of the following must take place in the process of convertinng a galvanometer into an ammeter?

CORRECT ANSWER =

a low resistance shunt is connected in parallel

22 :- the funvtions of p-j junction in a circuit is for

CORRECT ANSWER =

rectification

23 :- if the volume of a gas increase steadily as the temperature decreases at constant pressure, the gas is said to obey

CORRECT ANSWER =

Charle's Law

24 :- the power dissipated in an a.c circuit with an r.m.s current of 4A, r.m.s voltage of 10V and a phase angle of 60° is

CORRECT ANSWER =

20W

25 :- a car moves 1km due east and then 1km due north. Calculate its displacement

CORRECT ANSWER =

2km, N45 $^\circ$ E

26 :- explain Charle's law using kinetic theory

CORRECT ANSWER =

an increase in temperature causes increase in kinectic energy

27 :- when the air inside two thick metal hemispheres in contact is pumped out, pulling them apart

CORRECT ANSWER =

requires very large force

28 :- a force of 10N acts at a point K on a rod PKG as shown in the diagram above. If Pk is 4m, calculate the moment of the force about point P

CORRECT ANSWER =

0 Nm

29 :- which of the following is NOT a derived quantity?

CORRECT ANSWER =

temperature

30 :- the vibration of an air column produces the sound in the
CORRECT ANSWER =

Flute

31 :- on a certain day, the dew point is 10 °C when the temperature of the air is 32 °C, calculate the relative humidity of the air when s.v.p of water at 32 °C and 10 °C are 16.2mm and 9.8mm of mercury respectively
CORRECT ANSWER =

60.50%

32 :- find the magnetic flux in an area of 6m² which is perpendicular to a field of 0.5T
CORRECT ANSWER =

1.5Wb

33 :- three cells each of e.m.f 2.5V and an internal resistance of 2.0 are connected in parallel across a load resistance of 3.67. calculate the current in the load
CORRECT ANSWER =

0.6A

34 :- three 2F capacitors are arranged as shown in the circuit above. Calculate the effective capacitance between P and K
CORRECT ANSWER =

1.33F

35 :- determine the refractive index of a material with a critical angle of 42.07°
CORRECT ANSWER =

1.5

36 :- what is the power expended by a woman of mass 60kg ascending from stairs 10m high in 10s. If acceleration due to gravity is acting on her?
CORRECT ANSWER =

600W

37 :- if 0.036kg of silver is to be deposited by electrolysis on a surface by passing a steady current for 300s, the current is (electrochemical equivalent of silver = 0.00120
CORRECT ANSWER =

1A

38 :- energy losses through eddy currents are reduced by using
CORRECT ANSWER =

Laminated soft iron cores

39 :- heat transfer by convection in a liquid is due to the
CORRECT ANSWER =

expansion of the liquid

40 :- which of the following is true of X-ray properties?

CORRECT ANSWER =

they do not travel in straight line