T3-Physics

Model Question Paper XI

9th Standard

Science

Reg.No. : | | | | | | |

I. Answer all the questions

Time : 01:30:00 Hrs

Total Marks : 45

Part-A

10 x 1 = 10

1) Work done by the force is said to be negative if the displacement of a body is _____.

(a) along the force (b) against the force

2) Commercial unit of electrical energy is _____. (joule, joule/second, watt,

(a) joule (b) joule/second (c) watt (d) kilowatt-hour

3) Capacity of doing work is called_____

(a) power, (b) energy

4) One Kwh is equal to _____

(a) $3.6X10^6$ J (b) 360000 J

5) The degree of hotness or coldness of a body is _____

(a) heat (b) temperature

6) The two important points emerging from the definition of heat are:
Heat is the form of energy which is transferred from one object to another due to _____

(a) height difference (b) temperature difference (c) mass difference (d) velocity difference

7) The two important points emerging from the definition of heat are:
Heat is an energy that is _____.

(a) in transit (b) stationary (c) contained in a body

8) Heat is_____

(a) moving energy (b) unmoving energy

9) The SI unit of specific heat capacity is _____

(a) $JKg^{-1}K^{-1}$ (b) JK^{-1}

10) Thermal capacity of an object = _____

(a) $m \times c \times \triangle t$ (b) m x c

Part-B

10 x 2 = 20

11) "Energy can neither be _____ nor _____; it can only be changed from one form to another".

12) Define 'power'.

13) Define kinetic energy.

14) You did 150 joules of work lifting a 120- Newton backpack.
a) How high did you lift the backpack?
b) How much did the backpack weigh in pounds? [Hint: 1 pound = 4.448 newtons]

15) A 1000 watt microwave oven takes 90 seconds to heat a bowl of soup. How many joules of energy does it use?

16) A scientist wants to raise the temperature of 0.1 Kg sample of glass from -45°C to 15°C. How much heat energy is required to raise the temperature? (SHC of glass 8 J/Kg/ °C)

17) What is the amount of heat energy required to convert ice of mass 20 Kg at -4°C to water at 20°C? Use the relevant option for calculation.
a) Latent heat of fusion of ice 3.34 x 105 J / Kg.
b) Specific heat capacity of water is 4180 J / Kg / K
c) Specific heat of ice 2093 J / Kg / K

18) The boiling point of water is 100°K. Identify the mistake(s) in the statement and correct it in Kelvin scale.

19) Explain why evaporation is accompanied by cooling.

20) A 12.5 scuba tank holds oxygen gas at the pressure of 202 kilo pascal. What is the original volume of oxygen at atmospheric pressure that is required to fill this scuba tank?

Part-C

5 x 3 = 15

21) Name the energy transformations that occur in the following.
a) Electric motor b) Photoelectric cell c) Electric heater d) Photosynthesis in plants e) Lightbulb

22) Two objects were lifted by a machine. One object had a mass of 2 kg and was lifted at a speed of 2 m/s. The other had a mass of 4 kg and was lifted at a rate of 3 m/s.
a) Which object had more kinetic energy while it was being lifted?
b) Which object had more potential energy when it was lifted to a distance of 10 m? (gravity – 9.8 m/s^2)

23) A machine that uses 200 watts of power moves an object to a distance of 15 m in 25 seconds. Find the force needed and the work done by this machine

24) A toy balloon filled with air has an internal pressure of 1.25 atm and a volume of 2.50 L. If I take the balloon to the bottom of the ocean where the pressure is 95 atmospheres at constant temperature, what will be the new volume of the balloon?

25) Explain the experiment of the melting point of wax using a graph.

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