SS1 PHYSICS 3RD TERM 2017

1. Which of the following dimensions represent impulse A. MLT-2 B. MLT-1 C. MLT D. ML
2. A body accelerate uniformly from rest at 2ms-2. Calculate its velocity when it has travelled a distance of 9m. A. 3 ms-1 B. 4.5 ms-1 C. 6 ms-1 D. 18 ms-1
3. Which of the following process is not a surface phenomenon? A. Condensation B. Evaporation C. Photo emission D. Thermionic emission
4. A body weighing 14N in air is partially immersed in water. If the mass of water displaced in the process is 200g, calculate the upthrust on the body (g = 10m/s2). A. 2N B. 3N C. 3.5N D. 7N
5. A chemical balance is used for measuring A. volume B. mass C. thickness D. density
6. A motorist travelling at 72kmh-1 had his eyes shut for 0.4s during a hard sneeze. Calculate the distance covered by him during this time interval A. 50m B. 28.8m C. 18m D. 8m
7. A body can undergo the following types of motion except A. random B. rotational C. translational D. relative
8. The energy stored in a string of stiffness constant k = 2000Nm-1 when extended by 4cm is A. 0.16J B. 1.6J C. 16J D. 160J
9. Which of the following devices transforms light energy to electrical energy? A. bulb B. television C. solar cell D. Light emitting diode
10. The maximum density of water occurs at a temperature of A. 0°C B. 4°C C. 37°C D. 273°C
11. Which of the following objects is not a conductor of electricity? A. the earth B. human body C. iron rod D. dry wood
12. A lamp rated 100W, 240V is lit for 5 hours. Calculate the cost of lighting the lamp if 1kWh of electrical energy cost #5. A. #2.50 B. #3.20 C. #6.50 D. #9.60
13. What type of motion does the skin of a talking drum perform when it is being struck with the drum stick? A. Random B. Rotational C. Vibratory D. Translational
14. A force F produces an extension, e in a spring of natural length L. the average work done in stretching the spring within the elastic is expressed as A. Fe B.C. . D. .
15. Young’s modulus of elasticity is the ratio of stress to strain, provided the load does not exceed the A. stress limit B. elastic limit C. yield point D. breaking point.
16. A car starts from rest and accelerates uniformly for 2 seconds to cover a distance of 3m. Calculate the acceleration of the car. A. 9m/s-2 B. 3 m/s-2 C. 1.5 m/s-2 D. 0.8 m/s-2
17. A spring stretched by 0.1m when a force of 20N is applied to it. Calculate the elastic potential energy of the spring. A. 1J B. 0.1J C. 2J D. 20J
18. The ice and steam points on a thermometer are 90mm apart. At what distance above the ice point mark will it read a temperature corresponding to 40°C on the Celsius scale? A. 54mm B. 50mm C. 44.4mm D. 36mm
19. Which of the following takes place at any temperature? A. Boiling B. Evaporation C. Freezing D. Melting
20. The instrument for measuring gas pressure is called A. altimeter B. barometer C. hygrometer D. manometer
21. A mercury in glass thermometer read 4 cm at ice point and 29 cm at steam point. Calculate the temperature when the mercury level is at 9 cm. A. 13°C B. 20°C C. 33°C D. 38°C
22. An aluminum rod of length 1.8m at 10°C is heated to produce a difference in length of 0.007m. calculate the temperature to which it is heated. (linear expansivity of aluminum = 2.3 x 10-5 k-1) A. 155°C B. 160°C C. 169°C D. 179°C
23. Materials that can be stretched and still return to their original forms when stressed are removed are said to be A. elastic B. elastomer C. plastic D. thermoplastic
24. An object floats in a fluid when it displaces it’s A. volume of the liquid in which it floats B. mass of fluid in which it floats C. weight of fluid in which it floats D. density of fluid in which it floats.
25. Which of the following units is derived? A. kg B. m C. K D. N
26. The crackling noise produced by aluminum roofing sheets during a hot sunny day is as a result of A. thermal equilibrium of sheet B. conduction of heat by the sheets C. contraction of the sheets D. expansion of the sheets.
27. Water is unsuitable for use as thermometric liquid because it A. expands unevenly between 0°C and 4°C B. has a narrow temperature range C. has a concave meniscus D. maintains a fixed density
28. Which of the concepts is a method of heat transfer that does not require a material medium A. conduction B. radiation C. diffusion D. convention
29. A stone of mass 0.8kg is thrown upward with a velocity of 60m/s. calculate the potential energy attained at the maximum height (g = 10m/s2) A. 2450J B. 1000J C. 1440J D. 4440J
30. A boat accelerate uniformly from rest at 10m/s2, what distance will it cover in 10s? A. 1000m B. 10m C. 100m D. 500m
31. To get the accurate measurement of the relative density of substances in liquid form, one needs a beam balance and a A. pipette B. burette C. density bottle D. measuring cylinder
32. I Polythene II Glass III Ebonite IV Silk ; Which of the materials can be used to obtain positive charge? A. III and IV B. II and IV C. I and III D. I and II
33. Which of the following prevents loss of heat by radiation in a thermo flask? A. vacuum B. cork stopper C. cork supports below the flask D. silvered walls
34. If the initial are of a material is 28m2, calculate the increase in area if it is heated through 35°C. [the linear expansivity of the material is 1.6 x 10-5K-1] A. 0.49960m2 B. 0.30001 m2  C. 0.3000 m2  D. 0.01060 m2
35. Any liquid that will be used as a thermometric liquid must have the following properties EXCEPT A. have a low freezing point B. have a high boiling point C. be a good conductor of heat D. have a high freezing point
36. Which of the following does the working of a blotting paper depend on? A. diffusion B. viscosity C. osmosis D. capillarity
37. Which of the following is NOT a disadvantage of friction? A. it enables vehicles to stop B. it causes unwanted heat in machines C. it reduces efficiency of a machine D. it opposes motion
38. Calculate the energy stored in a stretched spring of spring constant 1 x 104N/m when a force of 200N is applied to its end. A. 2000J B. 200J C. 0.2J D. 2.0J
39. Which of the following can be used to measured human body temperature? A. Constant volume gas thermometer B. liquid –in-glass thermometer C. clinical thermometer D. thermocouple thermometer
40. Which of the following CANNOT be used as a measure of degree of expansion in solids? A. linear expansivity B. cubic expansivity C. area expansivity D. apparent expansivity

THEORY : QUESTION 1 is compulsory plus 3 other questions

1. A wire is gradually stretched by loading it until it snaps.

(a) Sketch a load-extension graph for the wire - 4mks

Indicating on the graph (i) elastic limit (ii) yield point (iii) breaking point

(b) A force of 40 N is applied at the end of a wire fixed at one end to produce an extension of 0.24mm. if the original length and diameter of the wire are 3m and 2mm respectively. Calculate

(i)stress on the wire -3mks

(ii)strain in the wire - 3mks

1. Explain the following term (i) Viscosity - 1 mk (ii) terminal velocity – 1 mk

(b) State two

(i) effects of viscosity – 2mks

(ii) application of viscosity – 2mks

(c)A ball bearing falls through a viscous liquid. Using a labelled diagram of a tall vessel, show the forces acting on it – 2mks

(ii) When will it attain terminal velocity? – 2mks

1. Explain the rise of water in a glass capillary tube using kinetic theory – 1.5mks

(b) Define angle of contact – 1.5mks

Draw sketches to show angles of contact for a capillary tube dipped vertically in

1. water – 1.5mks
2. Mercury. – 1.5mks

(c) State two differences between crystalline and amorphous substances. -2mks (ii) Give one example of each – 2mks

1. An electric bell takes a current of 0.2A from a battery of two dry cells connected in series. Each cell has an emf of 1.5V and an internal resistance of 1.0Ω

(i) Sketch the diagram – 2mks

(ii)calculate the effective resistance of the bell – 3mks

(iii) what current would the bell take if the cells were arranged in parallel. -2mks

(b) A battery of e.m.f 12V and internal resistance 0.5Ω is connected to 1.5Ω and 4.0Ω series resistor. Calculate the terminal voltage. – 3mks

5. In a certain house, 3 fans each of 80W, an air-conditioner rated 1500W are operated for 6 hours each day. The home theatre 100W and television set 80W are switched on for 10 hours each day. Seven lamps each rated 40W are switched on 5 hours. Calculate (i) the total power consumed in the house for one month ( 30 days) in kWh (ii) the cost of operating all the appliances for one month at #1 per kWh – 5mks

(b) Electrical energy can be converted into other forms of energy, mention any three. – 3mks

(c) Briefly Explain the working principle of a fuse. – 2mks

1. Define surface tension and state it formula – 2mks

(b) With the aid of a diagram, use kinetic theory to explain surface tension – 2mks (c) State (i) 2 factors on which surface tension depends – 2mks

(ii) two method of reducing surface tension – 2mks

(iii) How can mosquito larvae be made to sink in stagnant water. – 2mks