PHYSICS OBJ 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. The angle at which a projectile must be fired to cover maximum range is A. 30° B. 45° C. 60° D. 90°
8. A body can undergo the following types of motion except A. random B. rotational C. translational D. relative
9. 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
10. A plane is inclined at an angle θ to the horizontal. Its velocity ratio is A. sin θ B. tan θ C. D.
11. Which of the following devices transforms light energy to electrical energy? A. bulb B. television C. solar cell D. Light emitting diode
12. Thermal energy added or removed from a substance that changes the state of a substance is called A. latent heat B. heat of reaction C. calorimetry D. specific heat
13. The maximum density of water occurs at a temperature of A. 0°C B. 4°C C. 37°C D. 273°C
14. A vapour whose molecules are in dynamic equilibrium with those of its own liquid is said to be A. unsaturated B. gaseous C. saturated D. diffused
15. A rainbow is formed when sunlight is incident on water droplet suspended in the air due to A. diffraction B. refraction C. dispersion D. interference
16. Which of the following statements about the 3rd overtone of a vibrating air column of an open pipe is correct? It has A. 4 nodes B. 5 nodes C. 3 antinodes D. 4 antinodes
17. Consider the wave equation: y = 10 sin 7 (x -50t). what does the number 10 in the equation represent? A. Acceleration B. speed C. Amplitude D. Wavelength.
18. Plane waves passing through a narrow gap emerge as circular waves. This phenomenon is known as A. interference B. dispersion C. refraction D. diffraction
19. Two plane mirrors are inclined at an angle 20° to each other. Determine the number of images formed when an object is placed between them. A. 17 B. 18 C. 19 D. 20
20. The inverse of the time required for a wave to complete one full cycle is called A. wavelength B. period C. frequency D. amplitude
21. Which of the following objects is not a conductor of electricity? A. the earth B. human body C. iron rod D. dry wood
22. 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
23. Two tuning forks of frequencies 256Hz and 260Hz are sounded close to each other. What is the frequency of the beats produced? A. 2Hz B. 4Hz C. 8Hz D. 258Hz
24. 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
25. The absolute refractive indexes of glass and water are and respectively. The refractive index at the interface when a ray travel from water to glass is A. B. C. D.
26. Which of the following arrangement in the sequence shown can be used to obtain a pure spectrum of white light? A. source, slit, converging lens, prism, diverging lens, screen B. source, slit, converging lens, prism, diverging lens, screen C. source, slit, converging lens, prism, diverging lens, screen D. source, slit, prism, diverging lens, screen
27. Which of the following is used for controlling the amount of light entering the eye? A. cornea B. pupil C. iris D. ciliary muscle
28. Crystals can be distinguished by their A. names B. colors C. shapes D. cells
29. 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. .
30. 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.
31. 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
32. At what angle to the horizontal should stone be projected to attain maximum range? A. 30° B. 45° C. 55° D. 60°
33. A uniform metre rule balance horizontally on a knife edge at the 25cm mark, when a mass of 30g is hung at the 10cm mark. Calculate the mass of the ruler. A. 30g B. 18g C. 12g D. 6g
34. Which of the following is an example of a body in an unstable equilibrium A. Ball in a bowl B. cone resting on its side C. cylinder lying on its side D. egg on an inverted spherical bowl.
35. 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
36. 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
37. Which of the following takes place at any temperature? A. Boiling B. Evaporation C. Freezing D. Melting
38. The instrument for measuring gas pressure is called A. altimeter B. barometer C. hygrometer D. manometer
39. Which of the following frequency is used to determine sea depth? A. audio B. infrasonic C. supersonic D. ultrasonic
40. An object is placed at 20cm of a concave mirror of radius of curvature 30cm. calculate the distance of its image from the mirror. A. 8.6cm B. 20cm C. 30cm D. 60cm
41. Which of the following sets of media is arranged in order of increasing speed of sound in them A. water, iron and air B. iron, water and air C. iron, air and water D. air, water and iron
42. A coin was viewed through a 3cm thick glass block and observed to be 2cm below the surface. Calculate the refractive index of the glass. A. 5 B. 1.5 C. 1 D. 0.7
43. 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
44. 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
45. 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
46. 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.
47. Which of the following units is derived? A. kg B. m C. K D. N
48. 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.
49. 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
50. 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
51. If an object is located 25cm from a converging mirror of radius of curvature 10cm. calculate the image distance from the mirror. A. 6.25 cm B. 8 cm C. 3.12 cm D. 4.02cm
52. If the distance between two crests of a transverse wave of frequency 100Hz is 20cm, the velocity of the wave is A. 200 m/s B. 2000m/s C. 20m/s D. 40m/s
53. 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
54. A boat accelerate uniformly from rest at 10m/s2, what distance will it cover in 10s? A. 1000m B. 10m C. 100m D. 500m
55. The horizontal component of a force of 120N inclined at 60° to the horizontal is A. 120N B. 30N C. 60N D. 45N
56. 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
57. 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
58. What does the statement “The latent heat of fusion of ice is 336J/g ” mean? It means 336J is the amount of heat energy that A. is required to change 1g of ice to e=water at its melting point B. will change 1g of ice at O°C to water at 336°C C. is enough to vapourise 336g of water completely D. will raise the temperature of ice through 1K
59. 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
60. 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