

### S.Y.B.Sc. SEM-III PHYSICS-I Sample Questions

1) The time period of simple pendulum is a maximum when-----

a)  $l = 0$  b)  $l = L/2$  c)  $l = L$  d)  $l = k$

2) Rocket motion is based on law of conservation-----

a) charge b) momentum c) energy d) none

3) The distance between the center of suspension and center of oscillation is equal to-----

a) the radius of gyration

b) The length of simple pendulum to compound

c) The length of compound pendulum

d) length of katers pendulum

4) damping force is directly propotional to the -----oscillator

a) mass b) displacement c) velocity d) none

5) The point at which the total mass of the body is concentrated is called as-----

a) center of mass b) center of gravity c) deep center d) geometric center

6) The relation between torque and angular momentum is similar to the relation between-----

a) energy and displacement b) acerlation and velocity

c)mass and moment of Inertia d)forces and momentum

7)the potential Energy of particle with displacement x is U.Then-----

a)  $U = -1/2kx^2$  b) $U = 1/2kx$  c)  $U = +1/2kx$  d)  $U = +1/2kx^2$

8) The time factor of damped harmonic Oscillator is-----

a) $2b/m$  b) $b/m$  c) $2m/b$  d) $m/b$

9)A system undergoing forced oscillation will be oscillating-----

a)at the frequency of its natural oscillation

b)at the frequency of the applied periodic force

c)at the half of frequency of natural oscillation

d)none of these

10)an adiabatic process occurs at constant-----

a)temperature b)volume c)pressure d)heat

11)The gas law  $PV/T = \text{constant}$  is true for-----

a)adiabatic change b)isothermal c)both adiabatic and isothermal

d)none of these

12)All reverssible heat engine working between the same temperature have same-----

a)energy b)efficiency c)frequency d)power

13)Entropy remain constant in-----

a)isothermal b)isochoric c)isolated d)adiabatic

14) In natural process of entropy-----

a) increases b) decreases c) constant d) none of above

15)----- state the entropy is maximum

a) Solid b) liquid c) gas d) none of these

16) Gibbs potential is defined as-----

a)  $G = U - PV + TS$  b)  $G = U + PV + TS$  c)  $G \equiv U - PV - TS$  d)  $G = U + PV - TS$

17) Third law of Thermodynamics based upon change of-----

a) state b) energy c) Temperature d) mass

18) In Otto engine fuel is used as-----

a) Oil b) water vapour c) Petrol d) diesel

19) The efficiency of Otto engine go to beyond-----

a) 50% b) 60% c) 70% d) 80%

20) In Diesel engine heat is rejected at constant -----

a) Volume b) Pressure c) Temperature d) none of these

21) Liquid Helium is superconductor at -----

a) above 2.19k b) below 4.2 k c) below 2.19k d) below ice point

22) The last gas to be liquefied was-----

a) Oxygen b) Hydrogen c) Nitrogen d) Helium

23) SI unit of entropy is-----

a)joule b)joule/calorie c)joule/k d)none of these

24)For a diesel engine the compression ratio is 15 and fuel cutoff ratio is 3,  $\gamma = 1.4$  the efficiency is-----

a)55.8% b)60% c) 35.9% d)47.8%

25)The temperature of inversion of a gas is-----

a)  $a/Rb$  b) $2a/Rb$  c) $8a/27Rb$  d) $27/8Rb/a$