# Physics 2013

**3. Internal resistance of cell does not depend upon the**
(a) current taken by cell
(b) distance between the electrode
(c) concentration of electrolyte
(d) emf of cell

**Ans.(d)**


**4. Charge is quantized. This prove from**
(a) experiment of Devisson- Jarmer
(b) effect of Compton-scattering
(c) Millikans oil drop experiment
(d) Raman-scattering

**Ans.(c)**

**6. In an induction coil with resistance, the induced emf will be maximum when**
(a) the switch is put on due to high resistance
(b) the switch is put off due to high resistance
(c) the switch is put on due to low resistance
(d) the switch is put off due to low resistance

**Ans.(b)**

**7. In stationary waves, the nodes have**
(a) maximum energy
(b) maximum change in pressure and density
(c) maximum change in distortion
(d) All of the above

**Ans.(b)**


**8. The ratio of diameter of 4th semi-frequency zone to 9th semi-frequency zone will be**
(a)2/3
 (b)4/9
 ( c ) 1/4
(d) 16/81

**Ans.(a)**

**9. If the specific resistance and area of the potential meter wire are p and A respectively and the current / flows in the wire, then potential gradient will be**
(a) I/14 (b) I/Ap
(c) IA/p (d) I/Ap

**Ans.(a)**

**13. The nature of circuit is antiresonant of maximum frequency from resonant frequency will be**
(a) resistance
 (b) capacitance
(c) inductance
(d) All of these

**Ans.(c)**

**15. At NTP for the same volume of two gases of constant unit will be**
(a) the total number of molecule
(b) average kinetic energy
(c) square mean root velocity
(d) mean free path

**Ans.(a)**

**16. At normal temperature for the diatomic gas, the number of degree of freedom is**
(a)7
(b)6
(c)5
(d)4

**Ans.(c)**

**17. In capillery, meniscus of mercury is**
(a) concave
(b) convex
(c) plane
(d) circular

**Ans.(b)**

**18. A ball is released from height h on the ground level. If the coefficient of restitution is e, then what height will after 2 times jump from ground?**
(a) ch/2
(b) 2ch
(c) *eh*
(d) *e4h*

**Ans.(d)**

**20. If the displacement of simple pendulum at any time is 0.02 m and acceleration is 2 m/s2, then in this time angular velocity will be**
(a) 100 rad/s
 (b) 10 rad/s
(c)1  rad/s
(d)0.1rad/s

**Ans.(b)**

**21. Which is constant, the earth  revolving around the sun?**
(a) Angular momentum
(b) Linear momentum
(c) Rotational kinetic energy
(d) Kinetic energy

**Ans.(a)**

**23. Two spheres each of mass M and radius R/2 are connected with a massless rod of length 2R as shown in the figure. What will be the moment of inertia of the system about an axis passing through the centre of one of the spheres and perpendicular to the rod?**
(a)pV
(b)2pV
(c)3pV
(d)4pV

**Ans.(a)**

**24. In non- elastic collision**
(a) momentum Is conserved
(b) energy is conserved
(c) momentum and energy are conserved
(d) momentum and energy are non conserved

**Ans.(a)**

**25. In adiabatic process, the work done by system is 50 J, then**
(a) the temperature of the system will be increase 50)
(b) the temperature of the system will be constant
(c) the tnternal energy of the system will be increase SOJ
(d) the internal energy of the system will be decrease 50 J

**Ans.(d)**

**28. The requirement in phase relative source that those**
(a) amplitudes are same
(b) wavelengths are same
(c) frequencies are same
(d) first phase difference are same

**Ans.(d)**

**29. In the Young's double slit experiment, intensities of black and bright fringes are 1 and 4 respectively, the ratio of amplitudes of sources will be**
(a)1:1
(b)1:2
(c)3:1
(d)1:4

**Ans.(b)**

**30. The primary reason of generation of Frounhofer line is**
(a) reflection of radiations by chromosphere
(b) absorption of radiation by chromosphere
(c) emittion of radiation by chromosphere
(d) transmission of radiation by chromospheres

**Ans.(b)**

**32. A pure resistance is attached as shown in figure. The phase difference between the emf and flowing current will be**
(a) zero
 (b) r/2
( c  —r/2
(d) n/4

**Ans.(a)**

**35. The ozone layer is important because**
(a) it prevents the cooling of each at night
(b) it prevents the IR rays coming from the space
(c) it prevents UV rays from the meteors coming from the space
(d) it prevents the UV rays and micro rays the coming from the space

**Ans.(d)**

**36. The number of zones for achieving the first minima on the screen due to circular gate will be**
(a)4
(b)6
(c)3
(d)2

**Ans.(d)**

**37. In India for the use the fixed value of voltage and frequency of electricity are**
(a) 200 V, 60 Hz
(b) 220 V. 50Hz
(C) 220 V, 60 Hz
(d)220V, 50Hz

**Ans.(b)**
**38. If resonant frequency is / and capacity become 4 times, then resonant frequency will be**
(a)f/2
(b)2f
(c)f
(d)f/4

**Ans.(a)**

**39. The forbidden energy gap in the intrinsic semiconductor is**
(a)0.leV
(b)leV
(c) 5 eV
(d) 10 eV

**Ans.(b)**

**40. How much kinetic energy will be gained by an a - particle in going from a point at 70 V to another point at 50 V?**

(a) 40 eV
(b)4OkeV
(c)4OMeV
(d)Zero

**Ans.(a)**

**42. The velocity of sound in air is 333 rn/s and the fundamental frequency of open pipe is 333 Hz. The length of pipe to produced second overtones wilt be**
(a) 0.5 m
(b) 1.0 m
(c)1.5m
 (d)2m

**Ans.(a)**

**43. If the length of sonometer wire is to be half, the value of resonance frequency will be**
(a) three times
(b) half
(c) four times
(d) twice

**Ans.(d)**

**45. The intensity of the X-rays in coolidge tube control**
(a) by the current flowing in the filament
(b) by potential between the cathode and anti- cathode
(c) Both (a) and (b)
(d)None of the above

**Ans.(a)**

**46. Which of the following is correct in terms of increasing work done for the same initial and final states?**
(a) Adiabatic < Isothermal < lsobaric
(b) Isobaric < Adiabatic < Isothermal
(c) Adiabatic < Isobaric < Isothermal
(d)None of the above

**Ans.(a)**

**54. The produced rays in sonography are**
(a) microwaves
(b) infrared waves

(c) sound wavc
(d) ultra sound

**Ans.(d)**

**55. The ratio of secondary of primary turns of step up transformer is 4: 1. If a current of 4 A is applied to the primary, the induced current in secondary will be**
(a)8A
(b)2A
(c)1A
(d)0.5A

**Ans.(c)**

**57. The plate resistance of a triode is 15 k 2 and voltage gain is 50. If load resistance is 100 k ) the amplification factor will be**

(a)5
(b)50
(c) 57.5
(d) 75.5

**Ans.(c)**

**60. At any instant the ratio of the amount of radioactive substances is 2:1. If their half lives be respectively 12 and 16 hours, then after two days, what will be the ratio of the substances?**
(a)4:1
(b)2:1
(c)1:2
(d)1:4

**Ans.(a)**

**62. Two bulbs of wattage 25 and 100 respectively are connected in series, which bulbs will fuse?**
(a) 25 W bulb
(b) 100W bulb
(c) Both (a) and (b)
(d) None of them

**Ans.(a)**


**63. The hardness of X-rays by coolidge tube depends upon**

(a) filament current
(b) air pressure in tube
(c) material of target
(d) potential between target and cathode

**Ans.(d)**

**66. If a van der Waal's gas expands freely, then final temperature is**
(a) less than the initial temperature
(b) equal to the initial temperature
(c) more than the initial temperature
(d) less or more than the initial temperature depending on the nature of the gas

**Ans.(a)**

**67. The required mechanical work to increase in per unit surface area of liquid is called surface tension of the liquid. When liquid is in**
(a) isothermal condition
(b) isobaric condition
(c) isochoric condition
(d) adiabatic condition

**Ans.(a)**

**68. A person will get more quantity of matter in 1 kgw tat**
(a) poles
(b) moon
(c) equator
(d) satellite

**Ans.(c)**

**70. The moment of inertia of anybody about an its axis is equal to moment of inertia about its perpendicular axis, body Is**
(a) disc
(b) solid cylinder
(c) ring
(d) spherical shell

 **Ans.(d)**

**71. A clocks is based on oscillation of a spring and a clock P is based on pendulum motion. Both clocks run at the same rate on earth. On a planet having the same density as earth but**

**twice the radius**
(a) S will run faster than P
(b) P will run faster than S
(c) They will both run at the same rate as on the earth
(d)noneof the adove

**Ans.(b)**

**73. A body is rolling without slipping on a horizontal surface and its rotational kinetic energy is equal to the translational kinetic energy. The body is**
(a) disc
 (b) sphere
(c) cylinder
 (d) ring

**Ans.(d)**

**74. An inelastic ball is dropped from a height of 100 m. Due to collision with earth, 20% of its energy is lost. To what height the ball will rise?**
(a)80m
(b)40m
(c)60m
 (d)20m

**Ans.(a)**

**75. If two soap bubbles of equal radii R coalesce then the radius of curvature of interface between two bubbles will be**
(a) infinity
(b) R
(c)**R/2**
**(d)**zero

**Ans.(a)**

**78. An astronaut orbiting the earth in a circular orbit 120 km above the surface of earth , gently drops a pen out of space ship. The pen will**
(a) move towards the moon
(b) fall vertically down to the earth
(c) move along with space-ship
(d) move opposite direction of space-ship

**Ans.(c)**

**80. In sky, a liquid Is heated in weightlessness, the heat is transmitted through**
(a) conduction
(b) convection
(c) radiation
(d) Neither, because the liquid cannot be heated in weightlessness

**Ans.(d)**

**81. In Young's double slit experiment the type of diffraction is**
(a) Fresnel
(b) Fraunhoffer
(c) Both (a) and (b)
 (d) None of these

**Ans.(a)**

**82. Positive rays are beam of**
(a) Positrons
(b) Protons
(c) a-particles
 (d) Positive-ions

**Ans.(d)**

**83. Which one is the minimum inresonancing position of series L-C-R circuit?**
(a) Current
(b) Impedence
(c) Reactance
 (d) Power factor

**Ans.(b)**

**86. If light to be polarized by reflection then the angle between reflected and refracted rays is**
(a) r
(b) r/2
(c) 2r
(d)r/4

**Ans.(b)**

**90. What will be the percentage of radioactive material after S half- life?**
(a) 31%

(b) 3.125%
(c) 0.3%
(d) 1%

**Ans.(b)**

**96. A light wave of speed v is incidence on plane surface,afterreflection its speed will be**
(a)v
(b) v / 2
(c)v/3
(d)y/4

**Ans.(a)**

**100. Two siren situated one kilometer apart are producing sound of frequency 330 Hz. An observer starts moving from one siren to the other with a speed of 2 rn/s. If the speed of sound be 330 rn/s, what will be the beat frequency heard by the observer?**
(a)8
(b)4
(c)6
(d)1

Ans.(b)