

We Shine Academy

Staff Commission, Government of India

Physics

- The lines of Paschen series for hydrogen atom lie in the spectral region known as
a) Visible b) X-rays c) Ultraviolet d) Infrared
- To achieve high value of rocket velocity, one must have
a) low exhaust velocity and higher loss of mass during propulsion
b) high exhaust velocity and higher loss of mass during propulsion
c) high exhaust velocity and low loss of mass during propulsion
d) None of these
- A combination of two lenses in contact may be achromatic if
a) one of them is concave and the other, convex and they are made of different materials
b) one of them is convex and the other concave and both are made of the same material
c) both the lenses are concave and are made of the same material
d) both the lenses are convex and are made of the same material
- The propagation constant of a wave is
a) directly proportional to the wavelength and can be represented by a wave number
b) directly proportional to the velocity of the wave
c) inversely proportional to the wavelength and can be represented by a wave number
d) directly proportional to the wavelength
- Lenz's law of electromagnetism is a consequence of the law of conservation of
a) Energy b) Charge c) Momentum d) Magnetic Moment
- The phenomenon of viscosity in gases is understood to be due to transfer of
a) mass, linear momentum and energy
b) linear momentum but not of mass and energy
c) mass and linear momentum but not of energy
d) linear momentum and energy but not of mass
- A liquid drop tends to have a spherical shape because
a) a sphere is the most symmetrical object
b) the viscosity does not allow it to spread out
c) it has minimum surface energy
d) the strong gravitational field of earth does not allow it to have any other shape
- An open-end organ pipe can produce
a) odd harmonics only b) sub-harmonics only c) even harmonics only
d) all harmonics
- If the density of water at 0°C , 40°C and 100°C is denoted by R, S and T, then, the correct sequence of the decreasing order of the values of density of water at the given temperatures will be
a) R, S, T b) S, R, T c) S, T, R d) T, S, R
- A neutron, an electron, a proton and an alpha particle are moving with equal kinetic energy. The correct sequence of the increasing order of the velocities of these particles will be
a) alpha particle, proton, neutron, electron b) alpha particle, neutron, proton, electron
c) electron, neutron, proton, alpha particle d) proton, neutron, alpha particle, electron

11. The minimum force needed to move a piano of 1000 N weight on a horizontal surface is 350 N. The coefficient of friction is
a) 0.25 b) 0.30 c) 0.35 d) 0.40
12. The correct sequence of the decreasing order of velocity of light in glass, diamond and water is
a) glass, diamond, water b) diamond, water, glass
c) water, glass, diamond d) diamond, glass, water
13. Which of the following forces hold together the protons and neutrons in the nucleus of an atom?
a) Frictional b) Gravitational c) Magnetic d) Nuclear
14. All of the following statements are correct, except
a) The presence of moisture in the air reduces the conductivity of charge
b) When a body is charged positively, some electrons escape from it
c) A body is said to be negatively charged when it has got some electrons
d) None of these statements is correct
15. Which of the following units is used to signify the magnitude of magnetic intensity?
a) Coulomb b) Gauss c) Volt d) None of these
16. Which of the following accounts for greater illumination from the Sun at noon than in the early morning?
a) Thinness of atmosphere b) Lesser obliqueness of Sun rays
c) Nearness of the Sun to the Earth d) Greater brightness of the Sun rays
17. Why does a stick partly immersed in water appear to be broken at the junction of water and air? This is due to
a) scattering of light b) reflection of light c) refraction of light d) both (a) and (b) above
18. Why does the mercury column in the barometer fall rapidly before a severe storm?
a) It is due to increase in humidity in air
b) It is due to the rise in atmospheric pressure
c) It is due to the fall in atmospheric pressure
d) It is due to severe heat energy from the Sun
19. Why does water boil below 100°C at higher altitudes
a) There is lesser dissipation of heat at higher altitudes
b) Water available at higher altitudes is purer than that in the plains
c) Pollution-free air at higher altitudes increases the calorific value of fuel used
d) The atmospheric pressure at higher altitudes is low as compared to that at sea level
20. Which of the following instruments is used for precise measurement of refractive indices?
a) Spectrometer b) Spherometer c) Micrometer d) Photometer
21. Pyrheliometer is an instrument used for
a) comparing the luminous intensity of the source of light b) measuring solar radiations
c) measuring high temperatures d) measuring heat radiations
22. Which of the following statements about the laws of falling bodies is not correct?
a) In vacuum, all bodies starting from rest fall with equal velocity
b) The space traversed by a body falling from rest is equal to the square of the time
c) The velocity acquired by a body falling freely from rest is proportional to the time of its fall
d) All of these statements are correct

23. The Sun spectrum is
a) Line spectrum b) Band spectrum c) Continuous spectrum d) None of these
24. A fuse in an electric circuit is used to
a) break the circuit when excessive current flows
b) control the voltage fluctuation in the circuit
c) increase the flow of current in the circuit
d) decrease the flow of current in the circuit
25. What does Angstrom measure ?
a) Intensity of light b) Length of light waves
c) Volume of liquids d) Speed of flowing water
26. Why are transformers used in the transmission of electric power?
a) Because they speed up transmission
b) Because they can conserve electrical energy
c) Because they can reduce transmission losses
d) Because they help to distribute electrical energy efficiently
27. Which of the following controls the chain reaction in a nuclear reactor?
a) Active hydrogen b) Ions c) Molecules of high energy d) Moderator
28. Which of the following metals is used for the manufacture of heating elements provided in electric presses?
a) Chromium b) Nichrome c) Nickel d) Tungsten
29. Which of the following instruments is used for detecting and measuring small electric currents?
a) Ammeter b) Fluxmeter c) Galvanometer d) Voltmeter
30. Who discovered law of attraction and repulsion between electric charges?
a) Coulomb b) Graham Bell c) Marconi d) Reumer
31. The lightning conductor or rod used for protecting buildings from lightning is made of
a) aluminium b) copper c) iron d) All of these
32. The rod in the dry cell, which acts as the positive terminal, is made of
a) carbon b) copper c) tin d) zinc
33. Which of the following transformations of energy take place in a microphone?
a) Electrical energy into sound b) Sound into electrical energy
c) Mechanical energy into sound d) Sound into mechanical energy
34. For which of the following purpose is a transformer used?
a) Conversion of D.C into A.C.
b) Regulation of fluctuations of voltage
c) Measurement of flow of electricity
d) Conversion of low voltage into high voltage and vice-versa
35. Which elementary particles are equal in mass?
a) Neutron and proton b) Electron and proton
c) Neutron and electron d) None of these
36. What kind of mirror is used for rear view?
a) Concave b) Convex c) Plane d) Simple glass

37. Who invented the Radio?
a) Graham Bell b) Marconi c) Newton d) Otto Hume
38. Who invented the Lift and when?
a) Michael Faraday - 1831 b) E.G. Otis - 1852
c) Thomas Alva Edison - 1878 d) John Logie Baird - 1926
39. The branch of Physics which deals with the measurement of light is called
a) Electro - dynamics b) Photometry c) Spectrology d) Spectroscopy
40. Upon which of the following does the quantity of light falling on a surface area depend?
a) Its distance from the source of light
b) Position of the surface with respect to the direction of the incident rays
c) Illuminating power of the source
d) All of these factors
41. The phenomenon of bending of light at the surface of separation of two media is called
a) Deflection of light b) Reflection of light c) Refraction of light d) Absorption of light
42. Spring of shock absorbers of automobiles and railway coaches are made of steel and not of rubber, because steel is
a) more durable than rubber b) less expensive than rubber in the long run
c) less elastic than rubber d) more elastic than rubber
43. A man standing at a distance of one metre from a mirror wishes to take the photograph of his image in the mirror. At what distance should he place his camera from the mirror?
a) 1/2 of a metre b) 1 metre c) 2 metre d) 4 metres
44. In a photographic camera fitted with a convex lens, which of the following types of images will be formed on the film?
a) Erect and real b) Inverted and real c) imaginary and erect
d) The type of image formed will depend on the distance between the lens and the object.
45. In the year 14,000 A.D., due to the Earth's precession, the axis of rotation of Earth will point towards
a) Proxima centauri b) Pole star c) Vega d) None of these
46. As the temperature of water rises gradually, its surface tension
a) goes on increasing b) goes on decreasing
c) is not affected and remains unchanged d) increase only when the heat is too intense
47. The density of a solid and that of a liquid, in which it is to be immersed, is the same. On immersion, its apparent weight will be reduced to
a) half b) one-third c) one-quarter d) zero
48. A fresh egg sinks in pure water whereas, it floats in saturated salty water. This is due to
a) higher density of the salty water
b) higher density of the pure water
c) the fluid matter inside the egg-shell
d) the fact that the egg-shell is made of the calcium which is heavier than pure water
49. Diffusion is the process of
a) movement of particles from higher concentration to lower concentration
b) movement of particles through a semipermeable membrane
c) rarefaction of particles
d) accumulation of particles on a solid surface

50. The top atmosphere of the Earth directly reflects back into space nearly what part of the total amount of Sun's energy coming to it?
a) One-tenth b) One-fifth c) One-third d) One-half
51. Through which of the following media does sound travel the fastest?
a) Cool air b) Warm air c) Cold water d) Steel
52. Which of the following is the unit of frequency?
a) Ampere b) Joule c) Hertz d) Newton
53. The light of which of the following colours has the longest wavelength?
a) Blue b) Green c) Red d) Yellow
54. In the modern-day computers, when operational, the electrical impulses travel
a) at the speed of sound b) at seven times the speed of sound
c) at half the speed of light d) nearly at the speed of light
55. A mixture of which of the following gases is used in the manufacture of electric bulbs?
a) Nitrogen and Argon b) Nitrogen and Oxygen
c) Oxygen and Argon d) Oxygen and Hydrogen
56. Why is the metal tungsten used for the manufacture of the filament of an electric bulb?
a) Because it is a good conductor b) Because it is inexpensive
c) Because it is malleable d) Because it has a very high melting point
57. Which of the following functions is performed by a photo-electric cell?
a) It conserves sound energy b) It converts light energy into electrical energy
c) It converts electrical energy into light d) It converts electrical energy into sound
58. Which of the following have the highest upper limit of audible range?
a) Bats b) Dogs c) Human beings d) Whales
59. Why does the police use dogs for detective work?
a) Because they can run very fast
b) Because they can hear ultrasonic waves
c) Because they have sharp eye-sight
d) Because they are easily trainable and remain faithful
60. The sound waves which cannot be heard by a human ear are called
a) extraordinary sounds b) infrasonic sounds c) ultrasonic sounds d) both (b) and (c)
61. Which of the following happens when a body is charged positively?
a) Some electrons get added to it from outside
b) Some protons get added to it from outside
c) Some electrons escape from it
d) Some protons escape from it
62. In which of the following units is magnetic intensity expressed?
a) Coulomb b) Gauss c) Oersted d) Volt
63. Which of the following statements regarding sound is not correct?
a) The velocity of sound increases with the rise in temperature
b) The speed of sound is less in iron than in air
c) The sound waves in air are longitudinal
d) All these statements are correct

64. The India scientist, who put forward the theory of 'thermal ionisation', was
a) J.C. Bose b) H. J. Bhabha c) Meghnath Saha d) C. V. Raman
65. Who, amongst the following, was the first to observe ultraviolet rays and when?
a) William Herschel - 1800 b) Johann Wilhelm Ritter - 1801
c) Rutherford - 1911 d) Auguste Comte - 1844
66. When was positron discovered?
a) 1978 b) 1982 c) 1986 d) 1988
67. Who, amongst the following, discovered that the atoms of some naturally occurring elements were not exactly alike and when?
a) F. W. Aston - 1919 b) Neils Bohr - 1913
c) Albert Einstein - 1911 d) Dalton - 1909
68. An ice cube floats on water but it sinks in alcohol because
a) the ice cube is the frozen form of water
b) water is more transparent than alcohol
c) ice cube is solid while alcohol is liquid
d) the ice cube is lighter than water and heavier than alcohol
69. An iceberg is floating in the sea. Out of 10 parts of its mass, how many will remain above the surface of the water?
a) One part b) Two parts c) Three parts d) Five parts
70. An object weight less at the equator than at the poles because
a) the force of gravity is more at the equator than at the poles
b) the force of gravity is less at the equator than at the poles
c) the Earth is almost flat at the equator
d) the equatorial radius of the Earth is less than the polar radius
71. Which of the following statements is correct?
a) The reading on a thermometer immersed in boiling water varies as the heat increases or decreases above the boilign point
b) When a gas under high pressure is permitted to expand into a region of low pressure, it gains remperature
c) Air escaping from a punctured tyre feels cold
d) None of these statements is correct
72. Under normal conditions, the velocity of sound in the air is
a) 33 m/sec. b) 300 m/sec. c) 600 m/sec. d) 3,300 m/sec
73. What is the melting point of Tungsten?
a) 500°C b) 1,000°C c) 2,000°C d) 3,000°C
74. Which of the following are emitted by the filament of a vacuum tube?
a) Electrons b) Neutrons c) Protons d) All of these
75. The transformer works on which of the following principles?
a) Electro-magnetic attraction b) Electro-magnetic repulsion
c) Electro-magnetic induction d) Electro-magnetic conduction
76. What is the mass of positron?
a) Equivalent to a neutron b) Equivalent to a proton
c) Equivalent to the sum of a neutron and an electron d) Equivalent to an electron

77. Which of the following is used as an electrolyte in chromium-plating?
a) chromium solution in mercyr b) chromic acid solution
c) solution of oxide of chromium in water d) All of these
78. What is the number of basic units in the Internatioinal System of Units?
a) 4 b) 5 c) 6 d) 7
79. Which of the following instruments is used for detecting electric charge?
a) Electroscope b) Galvanometer c) Ammeter d) None of these
80. In which of the following we can not use alternating current?
a) Amplifier b) Galvanometer c) Transformer d) Volmeter
81. By the use of which of the following can the conversion of heat into electrical energy be achieved?
a) Hydrometer b) Photoelectric tube c) Thermo-couple d) Triode valve
82. Enriched Uranium, used in a nuclear reactor, is
a) Uranium alloy with aluminium
b) Uranium freed of all impurities
c) Uranium with a high percentage of a particular isotope
d) Uranium treated with radiation
83. Which one of the following is a common constituent of transistors?
a) Beryllium b) Copper c) Germanium d) Iron
84. Safety wire used in electrical circuits is made of a material having
a) low melting point b) high resistance c) high melting point d) low specific heat
85. For which of the following is a diode used?
a) Amplification b) Modulation c) Oscillation d) Rectification
86. By the use of which of the following types of lens can myopia be corrected?
a) Biconcave b) Concave c) Convex d) Plano-concave
87. The speed of sound is maximum through which of the following?
a) Air b) Glass c) Water d) Wood
88. Which of the following is used in semi-conductors?
a) Aluminium b) Copper c) Silicon d) None of these
89. Why are shields made of iron usually provided around precision instruments?
a) For protection against the effect of external magnetic fields
b) For guarding the instruments against unauthorised handling
c) For protection against the effect of moisture in the air
d) For absorbing heat generated during the functioning of the instruments
91. In which of hte following positons a person will exert the least pressure on the ground?
a) Standing erect on his feet
b) Lying on his back with his body stretched in a straight line
c) Standing erect on one foot, the other leg lifted up at the knee
d) Sitting cross-legged
92. In a wave motion in high frequency there are
a) less vibrations per second b) more vibrations per second
c) very few vibrations per second d) no vibrations at all

ANSWERS

1.d	2.b	3.a	4.c	5.a	6.b	7.c	8.d	9.b	10.b
11.c	12.d	13.d	14.a	15.d	16.b	17.c	18.c	19.d	20.a
21.b	22.b	23.c	24.a	25.b	26.c	27.d	28.b	29.c	30.a
31.b	32.a	33.b	34.d	35.a	36.b	37.b	38.b	39.b	40.d
41.c	42.d	43.b	44.d	45.c	46.b	47.d	48.a	49.a	50.c
51.d	52.c	53.c	54.d	55.a	56.d	57.b	58.a	59.d	60.d
61.c	62.c	63.b	64.c	65.b	66*	67.a	68.d	69.a	70.b
71.c	72.b	73.d	74.a	75.c	76.d	77.b	78.d	79.a	80.b
81.c	82.c	83.c	84.a	85.d	86.b	87.b	88.c	89.a	90.d
91.b	92.b	93.d	94.b	95.b	96.c	97.a	98.c	99.c	100.d


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