# M.Sc. (Physics) Entrance Test, 2022

1. The diagonals of a quadrilateral bisect each other if and only if it is a :

(A) triangle

(B) rectangle

(C) parallelogram

(D) hexagon

2. If unit vectors $\hat{A}$ and $\hat{B}$ are inclined at an angle θ then $\left|\hat{A}-\hat{B}\right|$ is :

(A) $\sin\theta$

(B) $2\sin\dfrac{\theta}{2}$

(C) $2\sin^2\dfrac{\theta}{2}$

(D) $\sin 2\theta$

3. If $\hat{F}$ is irrotational i.e. $\nabla\times\vec{F}=0$, then $\vec{F}$ is :

(A) gradient of scalar function

(B) gradient of vector function

(C) divergence of scalar function

(D) divergence of vector function

4. If $\vec{A}$ is a solenoidal vector, then its :

(A) Gradient is zero

(B) Divergence is zero

(C) Curl is zero

(D) None of the above

5. The area under the graph for the motion of a body shown below may represent :
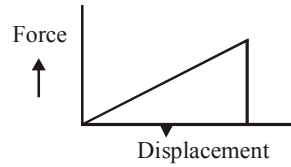
(A) Impulse

(B) Momentum

(C) Acceleration

(D) Energy

6. The magnitude of an electric filed vector at a distance of 100 cm from a charge of − 2uC is :

(A) 18×10^3 N/C

(B) 7.2×10^3 N/C

(C) -9×10^3 N/C

(D) 1.0×10^3 N/C

7. The differential form of Gauss law in a medium is :

(A) $\text{div.}\vec{E} = \dfrac{\rho}{\varepsilon}$

(B) $\text{grad.}\vec{E} = \dfrac{\rho}{\varepsilon}$

(C) $\text{curl.}\vec{E} = \dfrac{\rho}{\varepsilon}$

(D) $\text{div.}\vec{E} = \rho$

8. The Biot-Savart law gives magnetic field at any point only in case of :

(A) Large current carrying conductors

(B) Infinitesimally small current carrying conductors

(C) All type of current carrying conductors

(D) No current is flowing into the conductor

9. A current of 7 mA is flowing through a long wire. The line integral of magnetic field around a path enclosing the wire is :

(A) 10.0 Tesla m

(B) 05.0×10^{-9} Tesla m

(C) 8.8×10^{-9} Tesla m

(D) 3.14×10^{-9} Tesla m

10. The relation between B, H and I for magnetic materials in CGS system is :

(A) $B + H = 4\pi I$

(B) $B = H + 4\pi I$

(C) $H = B + 2\pi I$

(D) $B = H + I$

11. A graph plotted between I and H/T, then linear portion of graph represents (I = Intensity of magnetisation, H = magnetic intensity, T = temperature) :

(A) Curie Law region

(B) Faraday's Law region

(C) Ampere Law region

(D) Gauss Law region

12. The velocity of electromagnetic wave in free space is :

(A) $\dfrac{2}{\sqrt{\varepsilon_0 \mu_0}}$

(B) $v = xt + c$

(C) $\sqrt{\varepsilon_0 \mu_0}$

(D) $\dfrac{1}{\sqrt{\varepsilon_0 \mu_0}}$

13. For electromagnetic wave the relation between electrostatic energy density ($U_{electro}$) and magnetic energy density ($U_{magneto}$) is :

(A) $U_{electro} = U_{magneto}$

(B) $U_{electro} > U_{magneto}$

(C) $U_{electro} < U_{magneto}$

(D) $U_{electro} + U_{magneto} = 0$

14. If self-inductance of primary coil is L_p and for secondary coil it is L_s, then mutual inductance M is :

(A) $M = k\sqrt{L_p - L_s}$

(B) $M = k\sqrt{L_p L_s}$

(C) $M = k\sqrt{L_p + L_s}$

(D) $M = k\sqrt{L_p / L_s}$

15. The average or mean value of Alternating emf for one complete cycle is (E_0 = peak AC emf) :

(A) E_0

(B) $4 E_0$

(C) Zero

(D) $E_{0/2}$

16. The instantaneous value of the voltage for an AC supply of 100 volts and 50 Hz is :

(A) $141 \sin 100\pi t$

(B) $141 \sin 50\pi t$

(C) $100 \sin 100\pi t$

(D) $141 \sin t$

17. The hole concentration (P_p) in a p type semiconductor, is (N_A is concentration of acceptor atoms) :

(A) $P_p = 4N_A$

(B) $P_p = N_A$

(C) $P_p = 2N_A$

(D) $P_p = N_A/2$

18. For Ge at room temperature (300 K) if band gap is 0.72 eV, the maximum value of wavelength (λ_{maxi}) emitted by photodiode is :

(A) 0.72 microns

(B) 1.73 microns

(C) 1.41 microns

(D) 2.5 microns

19. Form factor (F) of a half wave rectifier is (when input is sinusoidal) :

(A) 1.57

(B) 1.41

(C) 1.0

(D) Zero

20. The current gain in case of common base transistor configuration in ideal condition is :

(A) nearly equal to one

(B) zero

(C) infinity

(D) 0.5

21. A silicon diode passes a current of 100 mA at 2 volts. The bulk resistance is (given voltage drop across the junction is 0.7 V) :

(A) 100 ohms

(B) 10 ohms

(C) 20 ohms

(D) 13 ohms

22. The S.I. unit of nuclear magnetic moment is :

(A) Joule. sec

(B) Am^2

(C) eV

(D) Amp. Cm^{-2}

23. A Hartley Oscillator has self-inductance of $L_1 = 100$ mH and $L_2 = 1000$ mH, mutual inductance M = 20 mH. The total inductance is :

(A) 1.14 mH

(B) 2.5 mH

(C) 0.15 mH

(D) Zero

24. The pressure exerted by an electromagnetic wave of intensity 'I' on a non-reflecting surface is (if c is speed of light) :

(A) Ic (B) Ic^2

(C) I/c (D) I/c^2

25. The angle of incidence at which reflected light is totally polarised for reflection from air to glass (Refractive Index, n) :

(A) $\sin^{-1}(n)$ (B) $\tan^{-1}(n)$

(C) $\sin^{-1}(1/n)$ (D) $\tan^{-1}(1/n)$

26. A lens of dispersive power 0.025, produces a chromatic aberration of 0.375 cm. The value of mean focal length of the lens is :

(A) 10 cm   (B) 20 cm

(C) 50 cm   (D) 15 cm

27. The relation between phase difference and path difference between two particles or waves is :

(A) Path difference = Phase difference.

(B) Path difference = $\dfrac{2\pi}{\lambda}$ Phase difference

(C) Path difference = $\dfrac{\lambda}{2\pi}$ Phase difference.

(D) Path difference = $\dfrac{1}{2\pi}$ Phase difference

28. What is the effect on fringe width in the YDS experiment when a transparent mica sheet is introduced in the path of any one source ?

(A) Decreases   (B) Increases

(C) Becomes zero   (D) Remains same

29. When a film is exposed by white light, colours are observed in reflected light because path difference between the light rays reflected from top and bottom surface of film is :

(A) $\Delta = 2\mu t \cos\cos r$ (B) $\Delta = \mu t \cos\cos r$

(C) $\Delta = 2\mu \cos\cos r / t$ (D) $\Delta = 2t \cos\cos r / \mu$

30. When Newton ring are formed due to reflected wave of light, then diameter of dark ring, d_n is proportional to ('n' is an integer) :

(A) n^2 (B) $n^{1/2}$

(C) $n^{3/2}$ (D) n

31. The ground state energy of Hydrogen atom is -13.6 eV. When its electron is in the 1st excited state, its excitation energy is :

(A) Zero   (B) 3.4 eV

(C) 6.8 eV   (D) 10.2 eV

32. The separation between two coherent sources formed in a biprism whose inclined faces make an angles of $2°$ with its base is (Given $\lambda = 1.50$, distance between source and biprism is 0.4 m) :

(A) 1.2×10^{-2} m

(B) 1.4×10^{-3} m

(C) 5.0×10^{2} m

(D) 0.5×10^{-4} m

33. In Fraunhofer Diffraction at single slit, the intensity of first secondary maxima is :

(A) 1/3rd times of intensity of central maxima

(B) 1/6rd times of intensity of central maxima

(C) 1/9rd times of intensity of central maxima

(D) same intensity of central maxima

34. The resolving power of a telescope is directly proportional to (where d is diameter of objective lens) :

(A) $1/d^2$ (B) $1/d$

(C) d (D) d^2

35. A plane grating having 5000 lines/inch is illuminated by a parallel beam of monochromatic light and second order spectral line is observed to be deviated through 30°. The value of the wavelength of light used is :

(A) 5600 Å

(B) 6000 Å

(C) 5000 Å

(D) 9000 Å

36. The example of uniaxial positive crystal is :

(A) Calcite

(B) Ruby

(C) Sphire

(D) Quartz

37. The thickness (t) of a quarter wave plate for a negative crystal is (symbols have their usual means) :

(A) $t = \dfrac{\lambda}{4(\mu_o - \mu_e)}$

(B) $t = \dfrac{\lambda}{2(\mu_o - \mu_e)}$

(C) $t = \dfrac{\lambda}{(\mu_o - \mu_e)}$

(D) $t = \dfrac{\lambda}{4(\mu_e - \mu_o)}$

38. The specific rotation (S) of sugar is obtained using Laurent's half shade polarimeter by using the expression (θ polarisation angle, C concentration of solution, L length of tube) :

(A) $S = 10\theta/LC^2$

(B) $S = 10\theta/L^2C$

(C) $S = 10\theta/LC$

(D) $S = \theta/LC$

39. The full form of MWCNT is :

(A) Milli Watt Carbon Nano Tube

(B) Micro Watt Composite Nano Tube

(C) Mega Wall Carbon Nano Tube

(D) Multi Wall Carbon Nano Tube

40. The angle of rotation produced by biquartz plate is directly proportional to :

(A) Area of the plates   (B) Thickness of the plates

(C) Angle of incidence   (D) Polarisation angle

41. The crystal lattice cannot have :

(A) Four-Fold Symmetry

(B) Three-Fold Symmetry

(C) Six-Fold Symmetry

(D) Five-Fold Symmetry

42. Hexagonal Lattice is also known as triangular lattice only if :

(A) $a = b$ and $\theta = 60$ (B) $a = b$ and $\theta = 120$

(C) $a = b$ and $\theta = 90$ (D) $a = \bar{b}$ and $\theta = 120$

43. In tetragonal crystal system, the length of primitive vectors is :

(A) $a = b = c$ (B) $a = \bar{b} = c$

(C) $a = b = \bar{c}$ (D) $a = \bar{b} = \bar{c}$

44. The atomic packing fraction in case of face centred cubic lattice is :

(A) 0.52 or 52%

(B) 0.68 or 68%

(C) 0.25 or 25%

(D) 0.74 or 74%

45. The inter plane spacing (*d*) of cubic lattice having plane (1 0 0) is (Lattice constant is '*a*') :

(A) $d = a\sqrt{2}$

(B) $d = a\sqrt{3}$

(C) $d = a\sqrt{6}$

(D) $d = a$

46. In X-ray Diffraction, atomic scattering factor depends on :

(A) $\lambda/2$

(B) $1/\lambda$

(C) $4/\lambda$

(D) λ

47. Essential condition for Bragg's law is (*d* is inter plane spacing, λ is the wavelength of X-ray) :

(A) $\lambda < 4d$

(B) $\lambda > d$

(C) $\lambda > 2d$

(D) $\lambda \, \delta \, d$

48. In the temperature range 0-20 K, lattice heat capacity, C_v for non-metals is proportional to :

(A) $T^{1/2}$

(B) T^2

(C) T^3

(D) T

49. Find the Einstein's frequency for a metal having parameter T_E = 230 K, $h = 6.62 \times 10^{-34}$ Js, $k_B = 1.38 \times 10^{-23}$ Jk^{-1} :

(A) 1.2×10^{12} Hz

(B) 4.8×10^{9} kHz

(C) 1.2×10^{10} Hz

(D) 6.8×10^{-9} kHz

50. As temperature approaches 0 K, lattice contribution to the heat capacity of solid approaches :

(A) Zero

(B) Infinity

(C) Any value between zero to infinity

(D) None of the above

51. Statistics obeyed by phonon is :

(A) Fermi-Dirac

(B) Bose-Einstein

(C) Maxwell distribution

(D) None of these

52. The velocity of electron in nth orbit of hydrogen atoms is (c is velocity of light) :

(A) $v_n = \dfrac{1}{137.29}\dfrac{c}{n}$

(B) $v_n = \dfrac{1}{137.29}\dfrac{cn}{2}$

(C) $v_n = \dfrac{1}{137.29}cn^2$

(D) $v_n = \dfrac{1}{137.29}\dfrac{c^2}{n}$

53. As m_1 represents the magnetic quantum number and if there is no rotation, then value of m_1 is :

(A) 1

(B) Zero

(C) 1/2

(D) Less than zero i.e. negative

54. When angle of angular momentum in an external magnetic field follows the condition $\cos \theta < 1$, then :

(A) Angular momentum is perpendicular to external magnetic field

(B) Angular momentum is parallel to external magnetic field

(C) Angular momentum is antiparallel to external magnetic field

(D) Angular momentum is not parallel or anti-parallel to external magnetic field

55. Magnitude of spin angular momentum 'S' associated with vector atom model of an electron is given by :

(A) $S = \sqrt{S(S+1)} \; \hbar$

(B) $S = 2\sqrt{S(S+1)} \; \hbar$

(C) $S = \sqrt{S(S-1)} \; \hbar$

(D) $S = \sqrt{S(2S+1)} \; \hbar$

56. The total electronic angular momentum of a one electron atom in the state $^2D_{5/2}$ is :

(A) $\sqrt{\dfrac{25}{2}} \, \hbar$

(B) $\sqrt{\dfrac{35}{2}} \, \hbar$

(C) $\sqrt{\dfrac{15}{2}} \, \hbar$

(D) $\sqrt{\dfrac{5}{2}} \, \hbar$

57. The value of Lande's 'g' factor for a doublet term $^2D_{3/2}$ is :

(A) 2.0023

(B) 2.0

(C) 4/5

(D) 6/5

58. D_1 and D_2 lines of sodium correspond to :

(A) Sharp Series

(B) Principal Series

(C) Fundamental Series

(D) Diffuse Series

59. The effect on spectrum due to electric field is called :

(A) Normal Zeeman Effect

(B) Anomalous Zeeman Effect

(C) Stark Effect

(D) Paschen-Back Effect

60. The monochromaticity ($\Delta v/v$) for a well-established laser beam is about (given bandwidth of laser is H 500 Hz, average frequency is 5×10^{14} Hz) :

(A) 10^{12}

(B) 10^{-12}

(C) 10^{23}

(D) 10^{-23}

61. If area of the point spot is A ($= 40 \times 10^{-10}$ m^2 say), then intensity of one watt laser beam is :

(A) 2.5×10^8 W/m^2

(B) 5.0×10^8 W/m^2

(C) 1×10^{10} W/m^2

(D) 2.0×10^{10} W/m^2

62. As laser action depends upon the active medium which consists of atoms, ions or molecules capable of decaying from their higher energy state, E_2 (having population density N_2) to lower energy state E_1 (having population density N_1). So, the necessary condition of action is :

(A) $E_2 > E_1$

(B) $N_1 = >> N_2$

(C) $E_2 < E_1$

(D) $N_1 = << N_2$

63. Energy gap between upper losing level and ground level in a Ruby laser is 1.789 eV. The wavelength of emitted light out of laser is ($h = 6.625 \times 10^{-34}$ Js) :

(A) 694.3 nm
(B) 590.5 nm

(C) 370.23 nm
(D) 6000 Å

64. During photo electric effect, the emission of photo electrons takes place through :

(A) Spontaneous process
(B) Instantaneous process

(C) Compton process
(D) Transmission process

65. The radiations which can be used to demonstrate Compton effect belongs the region :

(A) X-ray region
(B) Visible/ultraviolet region

(C) Infra-red region
(D) Microwave region

66. If the speed of photoelectron is 10 m/s, the frequency of the incident photon on the potassium metal surface is (total energy of incident photon is 3.68×10^{-19} J, $h = 6.62 \times 10^{-34}$ Js) :

(A) 3.0×10^{10} Hz
(B) 4.0×10^{12} Hz

(C) 5.6×10^{14} Hz
(D) 2.3×10^{14} Hz

67. For non-dispersive medium, the relation between phase velocity (V_p) and group velocity (V_g) is :

(A) $V_p = V_g$
(B) $V_p = \lambda \, V_g$

(C) $V_p = (1 - \lambda) \, V_g$
(D) $V_g = V_p - \lambda \, (dV_p/d\lambda)$

68. In any simultaneous determination of the time and energy of the particle, the time-energy uncertainties is :

(A) $\Delta E . \Delta t \geq \dfrac{\hbar}{2}$

(B) $\Delta E / \Delta t \geq \hbar$

(C) $2\Delta E / \Delta t \geq \hbar$

(D) $\Delta E . \Delta t \geq \hbar$

69. An electron has a speed of 1.05×10^4 m/s within an accuracy of 0.01%. The uncertainty in the momentum of electron is :

(A) 1.8×10^{29} kgm/s

(B) 7.7×10^{-23} kgm/s

(C) 9.45×10^{-31} kgm/s

(D) 4.0×10^{-30} kgm/s

70. The rest mass of the photon is equal to :

(A) Mass of proton

(B) Mass of neutron

(C) Mass of neutrino

(D) Zero

71. The time-independent Schrödinger's equation in terms of Hamiltonian operator is :

(A) $(H + V)\psi = E$

(B) $(H - V)\psi = E\psi$

(C) $H\psi = (E + V)\psi$

(D) $H\psi = E\psi$

72. The quantity $|\psi^*(x, t).\psi(x, t)|$ represents :

(A) Momentum

(B) Energy

(C) Probability

(D) Position

73. The lowest energy of an electron confined in a cubical box of each side 1 Å is :

(A) 2.4×10^8 J

(B) 1.8×10^{-17} J

(C) 2.4×10^{-8} J

(D) 1.4×10^{-15} J

74. For perfect transmission of a particle through a potential barrier, the thickness of barrier is (where λ is de-Broglie wavelength and n is an odd integer) :

(A) $\dfrac{n\lambda}{2}$

(B) $\dfrac{(2n+1)\lambda}{2}$

(C) $\dfrac{(2n-1)\lambda}{2}$

(D) $n\lambda$

75. Nano-technology is the manipulation of matter with at least one dimension lying in the range :

(A) 100-1000 nm

(B) 500-5000 nm

(C) 1-100 micron

(D) 1-100 nm

76. The particles having zero or integral spin are called :

(A) Fermions

(B) Protons

(C) Neutron

(D) Bosons

77. The nuclear forces are :

(A) Spin dependent

(B) Spin independent

(C) Charge dependent

(D) Central forces

78. The rest mass energy of an electron at rest is given by :

(A) 5×10^5 eV

(B) 511×10^3 eV

(C) 1000 keV

(D) 938 MeV

79. The property which gives information about the shape of the nucleus is :

(A) Dipole moment   (B) Quadrupole moment

(C) Nuclear spin   (D) Nuclear force

80. Which particle is unstable outside the nucleus ?

(A) Proton   (B) Neutron

(C) Electron   (D) Alpha particle

81. The stopping power of the medium is (where Z is the atomic number and v is the velocity of the particle) :

(A) Directly proportional to Z^2 and inversely proportional to v^2

(B) Inversely proportional to Z^2 and directly proportional to v^2

(C) Directly proportional to Z^2 and inversely proportional to v

(D) Directly proportional to Z and inversely proportional to v^2

82. During electron capture decay, there is an emission of :

(A) Proton   (B) Neutron

(C) Neutrino   (D) Alpha particle

83. The velocity of alpha particle is found to be the order of :

(A) 10^{10} m/sec   (B) 10^{-7} m/sec

(C) 10^{-8} m/sec   (D) 10^{7} m/sec

84. The probability of leakage of alfa particle through the potential barrier is called :

(A) Compton effect   (B) Photoelectric effect

(C) Gamow's effect   (D) Tunnel effect

85. Gamma rays are EM radiations of nuclear origin. The absorption of Gamma rays is :

(A) exponential   (B) linear

(C) square of wavelength   (D) square of intensity

86. During the process of pair production, the energy of photon must be at least equal to :

(A) $m_0^2 c$ (B) $m_0 c^2/2$

(C) $m_0 c^2$ (D) $2m_0 c^2$

87. The nano-materials possess different physical properties as compared to bulk materials due to :

(A) Large surface-to-volume ratio

(B) Small surface-to-volume ratio

(C) Infinite volume

(D) Very small surface area

88. During the process of nuclear fission the amount of energy released is given by :

(A) Einstein's mass energy relation   (B) Total kinetic energy

(C) Potential energy   (D) Hamiltonian energy

89. The discovery of Fullerene (C_{60}) was done by Harry Kroto, Richard Smalley, and Robert Curl in :

(A) 1980   (B) 1985

(C) 2012   (D) 1991

90. The physical quantity which is *not* conserved in a nuclear reaction :

(A) Mass number

(B) Electric quadrupole moment

(C) Linear momentum

(D) Charge

91. The protons are accelerated in a cyclotron with dees of radius 32 cm and magnetic field 6500 Gs. The velocity of the proton is (mass of proton is 1.67×10^{-27} kg) :

(A) 2×10^7 m/s   (B) 2×10^9 m/s

(C) 3×10^9 m/s   (D) 3.2×10^{10} m/s

92. Which one accelerator is *not* used to accelerate positive ions ?

(A) Van de Graaff generator   (B) Cyclotron

(C) Betatron   (D) Synchro cyclotron

93. Which detector is used for the measurement of energy having linear response ?

(A) G. M. detector   (B) Scintillator detector

(C) Semiconductor detector   (D) Ionisation chamber

94. The detector which is used to detect cosmic rays is :

(A) Ionisation Chamber

(B) G. M. Counter

(C) Proportional Counter

(D) Defuse Junction Detector

95. The key factor in determining the properties of nano-materials is :

(A) Size and Shape   (B) Energy and Momentum

(C) Temperature and Volume   (D) Pressure and Temperature

96. The order of exciton Bohr adius is :

(A) ~ 20 nm   (B) ~ 5 nm

(C) ~ 100 nm   (D) ~ 10 nm

97. The de-Broglie wavelength of C_{60} molecule moving at a speed of 220 m/s is :

(A) 0.00252 nm   (B) 1.0052 nm

(C) 60 nm   (D) 58 nm

98. The bound electron-hole pair is called :

(A) Pair production   (B) Inhalation

(C) Compton effect   (D) Exciton

99. When a particle is confined in all three directions, its structure is :

(A) Zero-dimensional nano-structure

(B) One dimensional nano-structure

(C) Two-dimensional nano-structure

(D) Three dimensional nano-structure

100. The density of state in three dimensions is proportional to (E is the energy) :

(A) E^2 (B) $E^{1/2}$

(C) $E^{-1/2}$ (D) E^3

GENERAL APTITUDE

101. Direction : Study the following information carefully and answer the question given below :

It has been given that—

A is + from point B states B is to the North of A.

A is = from point B states B is to the Sourth of A.

A is || from point B states A is to the East of B.

A is * from point B states A is to the West of B.

Now, S is = 20 m from point P. Point Q is = 15 m from point R. Point U is + 15 m from Point V. Point T is ||20 m from point V. Point U is ||16 m from point Q. Point R is ||30 m from point P.

R is in which direction with respect to T ?

(A) North West

(B) South West

(C) South East

(D) North East

102. Complete the series :

54 225 576 729 ? 9

(A) 321

(B) 317

(C) 303

(D) 288

103. Direction : Study the following informations carefully and answer the question given below :

There are two couples in a family. K has two children. M is wife of O, who is brother of B. F is daughter of K. U is sister of S, who is son of O. T is son of B, who is a male.

How is U related to T ?

(A) Mother

(B) Brother

(C) Sister

(D) Cousin

104. Direction : Read the informations carefully and answer the question given below :

In a certain code language,

'speak nicely to all' is coded as "ka cu ma he"

'all are like us' is coded as "si fo he to"

'teach us lesson nicely' is coded as "po ma fo re"

'lesson like all humans' is coded as "he re gu si"

What would be the code for "lesson" ?

(A) fo

(B) re

(C) ma

(D) he

105. Habits : Instinct :: .... : ....
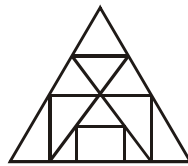
    (A) Work : Play   (B) Birds : Animals

    (C) Training : Heredity   (D) Learning : Force

106. Direction : How many triangles are there in the given figure ?

    (A) 13   (B) 15

    (C) 16   (D) 17

107. Direction : Read the following informations carefully and answer the question given below :

Certain number of persons (that does not exceed 15) are standing in a straight linear row facing towards the North. 5 persons stand between B and E, who is third to the left of A. U is to the right of A. Not more than 3 persons stand between U and T. B is third to the left of U. I is fifth to the right of T. 2 persons stand between E and F, who is sitting at the extreme left end of the row. Three persons stand between A and L, who is towards the right of E.

Which of the following statements is/are true ?

(A) S is on the immediate right of W.

(B) Q is not at any extreme end of the line.

(C) R is between T and S.

(D) U is at the extreme left end of line.

108. In the following question, there is a statement followed by two arguments I and II. Read carefully and choose the right option from the given possible answers :

Given Answers :

(a) Only argument I is strong

(b) Only argument II is strong

(c) Either I or II is strong

(d) Neither I nor II is strong

Statement—Should there be a complete ban on use of pesticides for maintaining fruit-growing plants and trees ?

Arguments—

I.   No, all these plants and trees will get destroyed by the attacks of the pests causing severe financial loss to the farmers.

II. Yes, the hazardous chemicals used in the pesticides find their way into the fruits causing serious health hazard to all those who consume these fruits.

(A) (a)
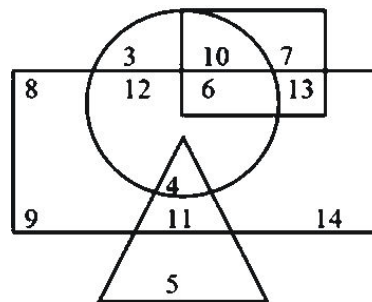
(B) (b)

(C) (c)

(D) (d)

109. In the following figure,

Rectangle represents males

Triangle represents educated

Circle represents urban

Square represents civil servants

Who among the following is a female urban resident and also a civil servant ?

(A) 6

(B) 7

(C) 10

(D) 13

110. Arrange the words given below in a meaningful sequence :

1. Probation

2. Interview

3. Selection

4. Appointment

5. Advertisement

6. Application

(A) 5, 6, 2, 3, 4, 1

(B) 5, 6, 3, 2, 4, 1

(C) 5, 6, 4, 2, 3, 1

(D) 6, 5, 4, 2, 3, 1

GENERAL ENGLISH

111. Direction : Which of the phrases given below should replace the phrase given in bold in the following sentence to make the sentence grammatically correct ?

The plastic ban introduced by the municipality has been a total failure as there **has been no reducing** in the usage of polybags.

(A) is no reduce

(B) has been no reduction

(C) have been no reduced

(D) is not any reduced

112. The four sentences (labelled 1, 2, 3, 4) below, when properly sequenced would yield a coherent paragraph. Decide on the proper sequencing of the order of the sentences and key in the sequence of the four numbers as your answer :

1. While you might think that you see or are aware of all the changes that happen in your immediate environment, there is simply too much information for your brain to fully process everything.

2. Psychologists use the term 'change blindness' to describe this tendency of people to be blind to changes though they are in the immediate environment.

3. It cannot be aware of every single thing that happens in the world around you.

4. Sometimes big shifts happen in front of your eyes and you are not at all aware of these changes.

(A) 1432

(B) 1234

(C) 1324

(D) 1342

113. Fill in the blank :

I owe a large sum.........................the bank.

(A) to   (B) on

(C) in   (D) with

114. Direction : Select the option which contains the part of the sentence which has an error (spelling, grammatical or contextual) :

E.M. Forster wrote his novel (A)/ A Passage to India after multiple trips(B)/ to the country (C)/ through his early life.(D)/

(A) E.M. Forster wrote his novel

(B) A Passage to India after multiple trips

(C) to the country

(D) through his early life.

115. Direction : The following question has two blanks, each blank indicating that something has been omitted. Choose the set of words for each blank that best fits in the context of the sentence :

The activities approved for toting up a teacher's..................performance indicator are many,..................beyond teaching and research.

(A) popularity, training

(B) academic, extending

(C) cuteness, going

(D) strength, power

116. Find the correctly spelt word :

(A) Nauseous   (B) Nauseius

(C) Nausious   (D) Neuseous

117. In the following question, out of the four alternatives, select the alternative which best expresses the meaning of the idiom/phrase.

Discretion is the greater part of valour

(A) to be brave in any situation

(B) caution is preferable to rash bravery

(C) a genuinely brave person is always humble

(D) if you are over-cautious then you cannot achieve great things

118. Out of the four alternatives choose the one which can be substituted for the given words/sentence in the question :

Placing thing beside another

(A) Juxtapose   (B) Warble

(C) Spot   (D) Repository

119. Find the antonym of BANAL :

(A) Sincere   (B) Wealthy

(C) Trustworthy   (D) Extraordinary

120. Find the synonym of PROFFER :

(A) Mendicant   (B) Wastrel

(C) Predict   (D) Tender