NEET SAMPLE PAPER - 1

Maximum Marks: 720

Topics Covered:

Physics	**:Full Syllabus**
Chemistry	**:Full Syllabus**
Biology	**: Full Syllabus**

Important Instruction:

1. Use **Blue / Black Ball** point pen only.
2. There are three sections of equal weightage in the question paper A, B, C (**Physics, Chemistry having 45 questionsand Biology having 90 questions.**
3. You are awarded +4 marks for each correct answer and -1 marks for each incorrect answer.
4. Use of calculator and other electronic devices is not allowed during the exam.
5. No extra sheets will be provided for any kind of work.

Name of the Student : ……Class: ……

Father's Name:……Signature : ……..

Student's Name : ……Roll No……Contact No : ……..

Rough Space

PART – A (PHYSICS)

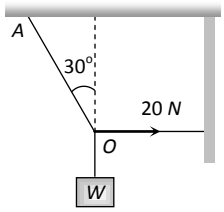
1. As shown in figure the tension in the horizontal cord is 20 *N*. The weight *W* and tension in the string *OA* in Newton are

(a) $30\sqrt{3}, 30$

(b) $20\sqrt{3}, 40$

(c) $60\sqrt{3}, 30$

(d) $40\sqrt{3}, 30$



2. From the dimensional consideration, which of the following equation is correct

(a) $T = 2\pi\sqrt{\frac{R^3}{GM}}$ (b) $T = 2\pi\sqrt{\frac{2GM}{R^3}}$ (c) $T = 2\pi\sqrt{\frac{GM}{R^2}}$ (d) $T = 2\pi\sqrt{\frac{R^2}{GM}}$

3. The velocity of a body depends on time according to the equation $v = 40 + 0.2t^3$. The body is undergoing

(a) Uniform acceleration (b) Uniform retardation

(c) Non-uniform acceleration (d) Zero acceleration

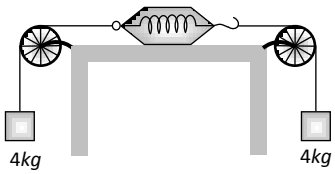
4. A particle undergoes uniform circular motion in a horizontal plane. The radius of the circle is 10 c*m*. The centripetal force acting on the particle is 20 *N*. Its kinetic energy is

(a) 0.1 *J* (b) 0.2 (c) 2.0 *J* (d) 1.0 *J*

5. As shown in the figure, two equal masses each of 4 *kg* are suspended from a spring balance. The reading of the spring balance will be

(a) Zero (b) 2 *kg*

(c) 4 *kg* (d) Between zero and 2 *kg*



6. A child weighing 30 *kg* slides down a rope hanging from the branch of a tall tree. If the force of friction acting against him is 2 *N*, what is the acceleration of the child (Take $g = 10\,m/s^2$)

(a) $22.5\,m/s^2$ (b) $8\,m/s^2$ (c) $5\,m/s^2$ (d) 9.93 m/s^2

Rough Space

7. A body of mass 3 *kg* is under a force, which causes a displacement in it given by S = $\frac{2t^3}{3}$ (in *m*). Find the work done by the force in first 2 seconds

(a) 2 *J* (b) 3.8 *J* (c) 24 *J* (d) 96 *J*

8. If the speed of revolution of a particle on the circumference of a circle and in a separate case, the speed gained in falling through a distance equal to the radius are equal, then the centripetal acceleration will be

(a) $\frac{g}{2}$ (b) $\frac{g}{4}$ (c) $\frac{g}{3}$ (d) 2*g*

9. A uniform circular disc of mass 200 g and radius 4.0 cm is rotated about one of its diameter at an angular speed of 20 rad/s. Find its angular momentum (in kg-m/s) about the axis of rotation.

(a) 16.0×10^{-5} (b) 8.0×10^{-5} (c) 4.0×10^{-5} (d) 10×10^{-5}

10. Time period of revolution of a nearest satellite around a planet of radius *R* is *T*. Period of revolution around another planet, whose radius is 4R but having same density is

(a) *T* (b)4*T* (c) 16*T* (d) $3\sqrt{3}T$

11. The increase in length on stretching a wire is 0.05%. If its Poisson's ratio is 0.2, then its diameter

(a) Reduce by 0.02% (b) Reduce by 0.01%

(c) Increase by 0.02% (d) Decrease by 0.4%

12. If the work done in blowing a bubble of volume *V* is *W*, then the work done in blowing the bubble of volume 2*V* from the same soap solution will be

(a) *W*/4 (b) $\sqrt{3}\,W$ (c) $\sqrt[3]{2}\,W$ (d) $\sqrt[3]{4}\,W$

13. A wooden block of volume 1000 cm^3 is suspended from a spring balance. It weighs 10 *N* in air. It is suspended in water such that half of the block is below the surface of water. The reading of the spring balance is

(a) 10 *N* (b) 9 *N* (c) 8 *N* (d) 5 *N*

14. 1*gm* of ice at 0°*C* is mixed with 2*gm* of water at 100°*C* the resulting temperature will be

(a) 5°*C* (b) 0°*C* (c) 40°*C* (d) ∞

Rough Space

15. A jar has a mixture of hydrogen and oxygen gas in the ratio of 1 : 4. The ratio of mean kinetic energies of hydrogen and oxygen molecules is

(a) 1 : 16 (b) 1 : 4 (c) 1 : 5 (d) 1 : 1

16. Initially the volume of an ideal gas $(\gamma = 1.5)$ is V at which root mean square velocity of the molecules is V_{rms}. If root mean square velocity is reduced so that ratio of two root mean square velocities (initial to final) is r and corresponding ratio of volumes (final to initial volume) is V_r, then

(a) $V_r = (r)^4$ (b) $V_r = (r)^3$ (c) $V_r = (r)^3$ (d) $V_r = r$

17. In a steady state of thermal conduction, temperature of the ends *A* and *B* of a 20 *cm* long rod are $200^{\circ}C$ and $0^{o}C$ respectively. What will be the temperature of the rod at a point at a distance of 6 *cm* from the end *A*of the rod

(a) $-30^{o}C$ (b)$140^{\circ}C$ (c) $5^{o}C$ (d) 15^{0} C

18. The period of oscillation of a simple pendulum of length *L* suspended from the roof of a vehicle which moves without friction down an inclined plane of inclination α, is given by

(a) $2\pi\sqrt{\frac{L}{g\cos\alpha}}$ (b) $2\pi\sqrt{\frac{L}{g\sin\alpha}}$ (c) $2\pi\sqrt{\frac{L}{g}}$ (d) $2\pi\sqrt{\frac{L}{g\tan\alpha}}$

19. The equation of stationary wave along a stretched string is given by $y = 5\sin\frac{\pi x}{3}\cos 40\pi t$ where x and y are in centimetre and t in second. The separation between two adjacent anti nodes is :

(a) 1 cm (b) 2 cm (c) 3 cm (d)1.5 cm

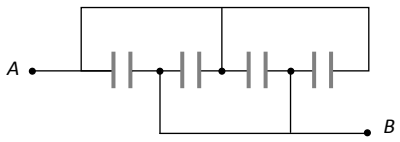
20. A cube of side b has a charge $2q$ at each of its vertices. The electric field due to this charge distribution at the centre of this cube will be

(a) $q/4b^2$ (b) $q/8b^2$ (c)$32q/b^2$ (d) Zero

21. Four condensers are joined as shown in the adjoining figure. The capacity of each is $6\mu F$. The equivalent capacity between the points A and B will be

(a) $24\mu F$ (b) $8\mu F$

(c) $6\mu F$ (d) $16\mu F$



Rough Space

22. A parallel plate condenser is immersed in an oil of dielectric constant 3. The field between the plates is

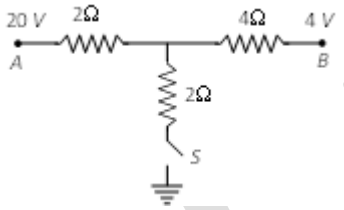
(a) Increased by 3 (b) Decreased by $\frac{1}{3}$

(c) Increased by $\sqrt{2}$ (d) Decreased by $\frac{1}{\sqrt{2}}$

23. The internal resistance of a cell of e.m.f 2*V* is 0.2 Ω. It's connected to a resistance of 4 Ω. The voltage across the cell will be

(a) 0.5 *volt* (b) 1.9 *volt* (c)1.45 *volt* (d) 2 *volt*

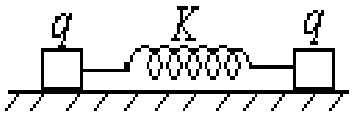
24. As the switch *S* is closed in the circuit shown in figure, current passed through the switch is approximately



(a) 4.5 *A* (b)6.0*A*

(c)3.0 *A* (d)Zero

25.Two identical particles of charge *q* each are connected by a mass less spring of force constant K . They are placed over a smooth horizontal surface. They are released when the separation between them is *r* and spring is in its natural length. If maximum extension of the spring is *r*, the value of $\sqrt{K}$ is (Neglect gravitational effect)



(a) $\frac{q}{4r}\sqrt{\frac{1}{\pi\varepsilon_0 r}}$ (b) $\frac{q}{2r}\sqrt{\frac{1}{\pi\varepsilon_0 r}}$

(c) $\frac{2q}{r}\sqrt{\frac{1}{\pi\varepsilon_0 r}}$ (d) $\frac{q}{r}\sqrt{\frac{1}{\pi\varepsilon_0 r}}$

26. A wire of fixed length is turned to form a coil of one turn. It is again turned to form a coil of four turns. If in both cases same amount of current is passed, then the ratio of the intensities of magnetic field produced at thecentre of a coil will be

(a) 16 times of first case (b) $\frac{1}{9}$ times of first case

(c) 4 times of first case (d) $\frac{1}{3}$ times of first case

Rough Space

27. A proton and an $\alpha-$ particle enter a uniform magnetic field perpendicularly with the same speed. If proton takes $25\mu\sec$ to make 5 revolutions, then the periodic time for the $\alpha-$ particle would be

(a) $25\mu\ sec$ (b) $50\ \mu\ sec$ (c) $10\ \mu\ sec$ (d) $5\mu\ sec$

28. A coil having an area A_0 is placed in a magnetic field which changes from B_0 to $3B_0$ in a time interval *t*. The e.m.f. induced in the coil will be

(a) $\frac{2A_0B_0}{t}$ (b) $\frac{4A_0B_0}{t}$ (c) $\frac{3B_0}{A_0t}$ (d) $\frac{4B_0}{A_0t}$

29. A coil of *Cu* wire (radius-*r*, self inductance-*L*) is bent in two concentric turns each having radius $\frac{r}{2}$. The self inductance now

(a)2*L* (b) 4*L* (c) 6 *L* (d) *L* / 2

30. What is the *r.m.s*. value of an alternating current which when passed through a resistor produces heat which is twice of that produced by a direct current of 2 amperes in the same resistor

(a) 6 *amp* (b) 4 *amp* (c) 2.82 *amp* (d) 0.66 *amp*

31. The resonant frequency of a circuit is *f*. If the capacitance is made 16 times the initial values, then the resonant frequency will become

(a) *f* / 2 (b) 2*f* (c) *f* (d) *f* / 4

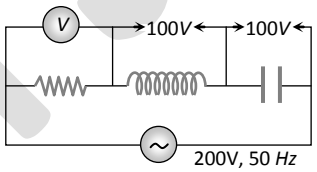
32. In the circuit given below, what will be the reading of the voltmeter

(a) 300 *V*

(b) 900 *V*

(c) 200 *V*

(d) 400 *V*



33. If power factor is 1/2 in a series *RL*circuit $R=200\Omega$, 50 Hz. ac mains is used then *L* is

(a) $\frac{2\sqrt{3}}{\pi}$ *Henry* (b) π *Henry* (c) $\frac{\pi}{\sqrt{3}}$ *Henry* (d) None of these

Rough Space

34. A photon and an electron have equal energy E, then $\lambda_{\text{photon}} / \lambda_{\text{electron}}$ is proportional to

(a) $\sqrt{E^3}$ (b) $1/\sqrt{E}$ (c) $1/E^2$ (d) Does not depend upon *E*

35. The maximum velocity of an electron emitted by light of wavelength λ incident on the surface of a metal of work function ϕ, is

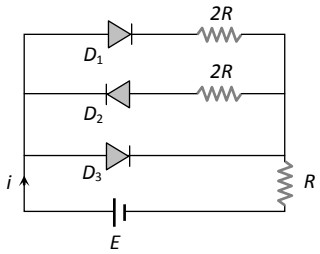
(a) $\left[\frac{2(hc+\lambda\phi)}{m\lambda}\right]^{1/2}$ (b) $\frac{2(hc-\lambda\phi)}{m}$ (c) $\left[\frac{2(hc-\lambda\phi)}{m\lambda}\right]^{1/2}$ (d) $\left[\frac{2(h\lambda-\phi)}{m}\right]^{1/2}$

Where *h* = Planck's constant, *m* = mass of electron and *c* = speed of light.
When a point source of monochromatic

36. The ratio of areas within the electron orbits for the first excited state to the ground state for hydrogen atom is

(a) 16 : 1 (b) 20 : 1 (c) 4 : 1 (d) 8 : 1

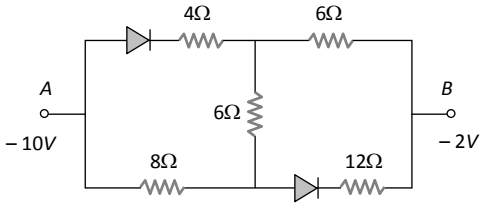
37. In the following circuit of *PN* junction diodes D_1, D_2 and D_3 are ideal then *i* is



(a) *E/R* (b) *E*/2*R*

(b) 2*E*/3*R* (d) Zero

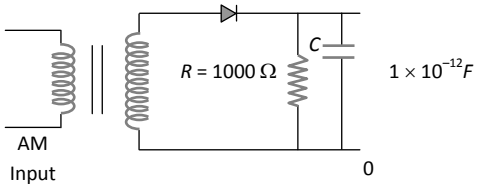
38. In the following circuit the equivalent resistance between *A* and *B* is



(a) $\frac{20}{3}\Omega$ (b) 10 Ω

(c) 20 Ω (d) 5Ω

39. In the given detector circuit, the suitable value of carrier frequency is



(a) << 10^9*Hz* (b) 1 k*Hz*

(c) >> 10^9*Hz* (d) 10 kHz

Rough Space

40. A compound microscope has a magnifying power 30. The focal length of its eye-piece is 5 *cm*. Assuming the final image to be at the least distance of distinct vision. The magnification produced by the objective will be

(a) +5 (b) – 5 (c) +4 (d) – 4

41. In YDSE, a thin mica sheet of thickness $2\times10^{-6}\,m$ and refractive index (μ = 1.5) is introduced in the path of the wave in front of the slit above the central line of the screen. The wavelength of the wave used is 5000*Å*. The central bright maximum will shift

(a) 2 fringes upward (b) 2 fringes downward

(c) 4 fringes upward (d) 4 fringes downward

42. If two waves represented by $y_1 = 4\sin\omega t$ and $y_2 = 3\sin\left(\omega t + \frac{\pi}{3}\right)$ interfere at a point, the amplitude of the resulting wave will be about

(a) 4 (b) 6 (c) 8 (d) 3

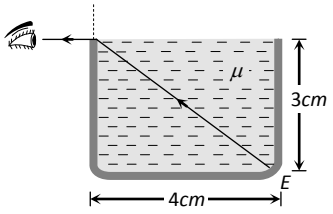
43. The path difference between two interfering waves of equal intensities at a point on the screen is $\frac{\lambda}{4}$. The ratio of intensity at this point and that at the central fringe will be

(a) 1 : 1 (b) 1 : 2 (c) 4 : 1 (d) 1 : 8

44. When the rectangular metal tank is filled to the top with an unknown liquid, as observer with eyes level with the top of the tank can just see the corner *E*; a ray that refracts towards the observer at the top surface of the liquid is shown. The refractive index of the liquid is

(a) 1.25 (b) 1.60

(c) 1.85 (d) 2.12



45. The half-life period of a radio-active element X is same as the mean life time of another radioactive element Y. Initially they have the same number of atoms. Then

(a) X and Y decay at same rate always (b) X will decay faster than Y

(c) Y will decay faster than X (d) X and Y have same decay rate initially

Rough Space

PART – B (CHEMISTRY

46. By what factors does the average velocity of a gaseous molecule increase when the temperature (in Kelvin) is doubled?

(a) 1.4 (b) 2.0 (c) 2.8 (d) 4.0

47. Which of the following is correct option for free expansion of an ideal gas under adiabatic condition?

(a) q=o, $\Delta T<0$, $w \neq 0$ (b) q=0, $\Delta T \neq 0$, w=0

(c) $q \neq 0$, $\Delta T=0$, w=0 (d) q=0, $\Delta T=0$, w=0

48. The energies E_1 and E_2 of two radiations are 25 eV and 50 eV respectively. The relation between their wavelengths i.e. λ_1 and λ_2 will be:

(a) $\lambda_1 = 1/2\ \lambda 2$ (b) $\lambda_1 = \lambda_2$ (c) $\lambda_1 = 2\lambda_2$ (d) $\lambda_1 = 4\lambda_2$

49. If n = 6, the correct sequence of filling of electrons will be

(a) ns → np→(n -1)d → (n - 2)f (b) ns → (n - 2)f → (n -1)d → np

(c) ns → (n -1)d → (n - 2)f → np (d) ns → (n - 2)f → np → (n -1)d

50. Oxidation states of P in $H_4P_2O_5$, $H_4P_2O_6$, $H_4P_2O_7$ are respectively:

(a) +3, +5, +4 (b)+5, +3, + 4 (c)+5, +4, +3 (d) +3, +4, +5

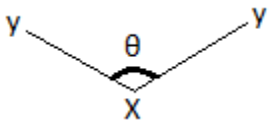
51. Total number of elements out of first 100 elements possessing 3 d electrons are:

(a) 10 (b)20 (c) 40 (d) 80

52. Which bond angle θ would result in the maximum dipole moment for the triatomic molecule XY_2?

(a) 90^0 (b) 120^0

(c)150^0 (d) 180^0



53.With which of the following solutions lead cannot be precipitated as $PbCl_2$, Ksp=2.4 x 10^{-4}, when equal concentration of $Pb(NO_3)_2$ is mixed with equal volume of:

(a)0.5 N HCl (b) 0.05 N HCl (c)1.0 N HCl (d) 2.0 N HCl

Rough Space

54. Perhydrol is

(a) The addition compound of H_2O_2 and urea

(b) The compound formed when acidified TiO_2 reacts with H_2O_2

(c) 100 Volumes of H_2O_2 solution

(d) Mixture of H_2O_2 and carbon dioxide

55. Which of the following gas is liberated when $NaNO_3$ salt is heated

(a) NO_2 (b) NO (c) N_2 (d) O_2

56. 'Anodisedaluminiumis aluminium:

(a) obtained on anode (b) electrolytically coated with Aluminium oxide

(c) alloy of Al containing 95% (d) none

57. Carbogen is:

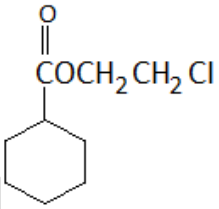
(a) apure form of C (b) $COCl_2$ (c) mixture of CO and CO_2 (d) mixture of O_2 and CO_2

58. Flagpole-flogpole interaction is present in:

(a) chair form of cyclohexane (b) boat form of cyclohexane

(c) twist boat form of cyclohexane (d) half chair form of cyclohexane

59.The IUPAC name of the given compound is:



(a) 2-chloroehtyl benzoyl ether (b) 2-benzoyloxy-1-chloroethane

(c) 1-chloro-2-benzoylethane (d) 2-chloroethyl benzoate

60. Consider the following carbocations:

I. Cl_3C^+ II. Cl_2CH^+ III. $ClCH_2^+$ IV. CH_3^+.

The stability sequence follows the order:

(a) IV<I<II <III (b) I < II < III < IV (c) IV < I < III < II (d) IV< II < I < III

Rough Space

61. The Lassaigne's extract is boiled with conc. HNO_3 while testing for halogens. By doing so it:
(a) increases the concentration of ions (b) decomposes Na_2S and NaCN, if formed
(c) helps in the precipitation of AgCl (d) increases the solubility product of AgCl

62. For an endothermic reaction, energy of activation is 'Ea' and enthalpy of reaction is ΔH (both of these in kJ/mol). Minimum value of 'Ea' will be:
(a) less than ΔH (b) equal to ΔH (c) more than ΔH (d) equal to zero

63. Mole fraction of the solute in a 1.00 molal aqueous solution is:
(a) 1.7700 (b) 0.1770 (c) 0.0177 (d) 0.0344

64. Standard electrode potential for Sn^{4+}/Sn couple is +0.15 V and that for theCr^{3+}/Cr couple is –0.74 V. These two couples in their standard state are connected to make a cell. The cell potential will be:
(a) +1.83 V (b) +1.19 V (c) +0.89 V (d) +0.18 V

65.In a coagulation experiment , 5 ml of As_2S_3 is mixed with 0.1 M solution of an electrolyte 'AB' so that the total volume is 10 mL. It was found that all solution coagulates leaving 'AB' equivalent to 0.4 mL of 0.1 M solution. What is the flocculation value of AB for As_2S_3 sol?
(a) 4.6 (b) 46 (c) 460 (d) 4600

66. Presence of nitro group in a benzene ring:
(a) renders the ring basic
(b) deactivates the ring towards nucleophilic substitution
(c) deactivates the ring towards electrophilic substitution
(d) activates the ring towards electrophilic substitution

67. Which one of the following is employed as a Tranquilizer drug?
(a) Promethazine (b) Valium (c) Naproxen (d) Mifepristone.

68. Which of the following pairs of metals is purified by van Arkel method?
(a) Ni and Fe (b) Ga and In (c) Zr and Ti (d) Ag and Au

69. The alkyl halide that can be made by free radical halogenation of alkanes are:
(a) RCl and RBr but not RF and RI (b) RF, RCl and RBr but not RI
(c) RF, RCl, RBr and RI (d) RF, RBr and RI but not RCl

Rough Space

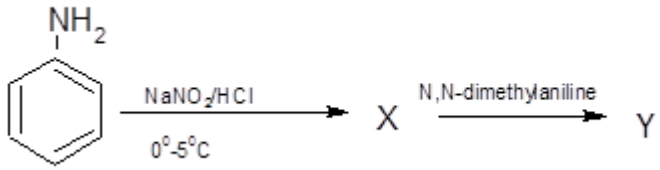
70. Alkyl chloride and bromides can be converted into alkanes on treatment with Zn-Cu couple and alcohol due to reduction by:

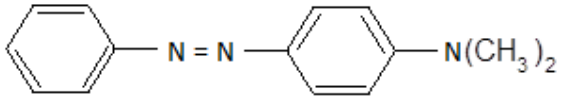
(a) molecular hydrogen
(b) nascent hydrogen
(c) electron transfer from the metal to the alkyl halide followed by addition of proton from alcohol
(d) all statements are correct

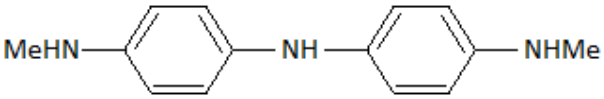
71. Which of the following alkaline earth metal sulphates has hydration enthalpy higher than the lattice enthalpy?

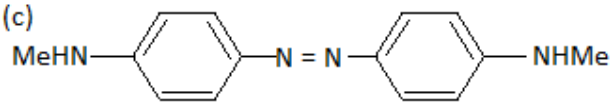
(a) $CaSO_4$ (b) $BeSO_4$ (c) $BaSO_4$ (d) $SrSO_4$

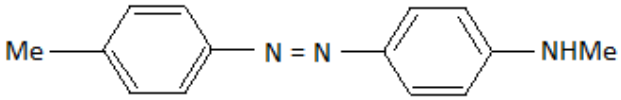
72. Aniline in a set of the following reactions yielded a coloured product 'Y'.
Compound Y is:



(a) 

(b) 

(c) 

(d) 

73.In the oxoacids of chlorine,Cl-O bond contains:

(a) dπ-pπ bonding (b) pπ-dπ boding (c) pπ-pπ bonding (d) none

74. Phenol is heated with a solution of mixture of KBr and $KBrO_3$. The major product is:

(a) 3-bromophenol (b) 4-bromophenol (c)2,4,6-tribromophenol (d) 2-bromophenol

75. In the Duma's method for the estimation of nitrogen, 0.84 g of an organic compound Gave 448 mL of nitrogen at STP. The % of N in the compound is:

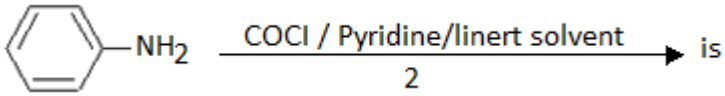
Rough Space

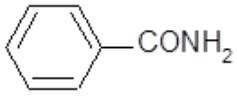
(a) 33.3% (b) 66.7% (c)50% (d) 60%

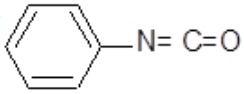
76. If $N_1, N_2, ----N_i$ are the number of molecules with molecular masses $M_1, M_2 -----M_i$ respectively, then the weight average molecular mass(M_W) is expressed as:

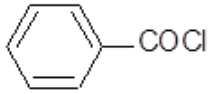
(a) $\frac{\Sigma NiMi^2}{\Sigma NiMi}$ (b) $\frac{\Sigma NiMi}{\Sigma Ni}$ (c) $\frac{\Sigma Mi^2}{\Sigma Ni}$ (d) $\frac{\Sigma\, NiMi}{\Sigma Mi}$

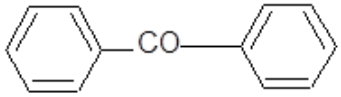
77. The product of the following reaction:



(a) 

(b) 

(c) 

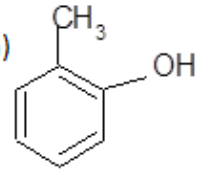
(d) 

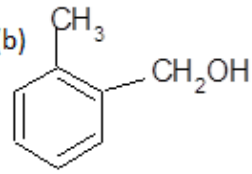
78. The geometry of XeF_6 molecule and itshybridisation are:

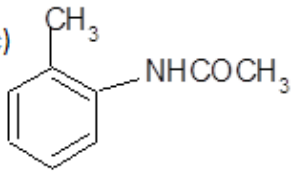
(a) tetrahedral, sp^3 (b) pentagonal bipyramidal, sp^3d^3

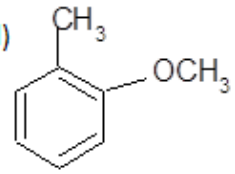
(c) octahedral, sp^3d^2 (d) square planar , sp^3d^2

79. Which one is most reactive towards electrophilic reagent?

(a) 

(b) 

(c) 

(d) 

80. Consider the following sequence of the reaction:

Rough Space

$C_4H_6O_4$ (A) $\xrightarrow{\Delta}$ $C_3H_6O_2$ (B) $\xrightarrow{\text{sodalime}}$ C_2H_6, then A & B respectively are

(a) CH_3-CH(COOH)$_2$,CH_3CH_2COOH (b) CH_2-COOH , HCOOH

CH_2-COOH

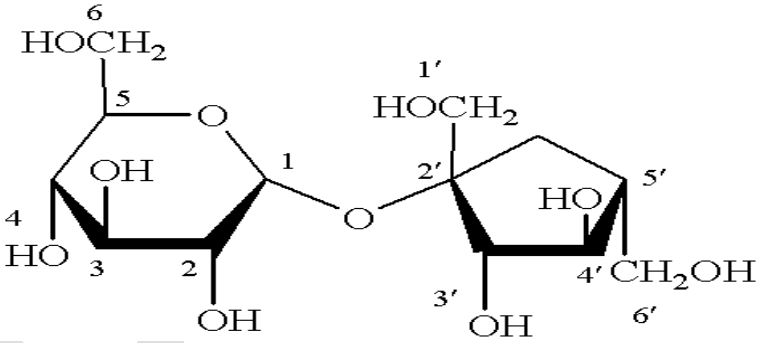
(c) COOCH$_3$,CH_3COOCH_3 (d) $COOC_2H_5$, H-$COOC_2H_5$

COOCH$_3$ COOH

81. A gaseous mixture was prepared by taking equal mole of CO and N_2. If the total pressure of the mixture was found 1 atmosphere, the partial pressure of the nitrogen (N_2) in the mixture is
(a) 1 atm (b) 0.5 atm (c) 0.8 atm (d) 0.9 atm

82. Identify the reagent which can easily distinguish between 1-butyne and 2-butyne:
(a) bromine in CCl_4 (b) H_2, Lindlar catalyst
(c) dilute H_2SO_4, $HgSO_4$ (d) ammoniacal Cu_2Cl_2

83. Structure of a disaccharide formed by glucose and fructose is given below. Identify theAnomeric carbon atoms in monosaccharide units:



(a) 1 carbon of glucose and 1′ carbon of fructose (b) 1 carbon of glucose and 5′ carbon of fructose
(c) 1 carbon of glucose and 2′ of fructose (d) 5 carbon of glucose and 5′ of fructose

84. Which one of the following statements for the order of a reaction is incorrect?
(a) Order of reaction is always whole number

Rough Space

(b) Order can be determined only experimentally
(c) Order is not influenced by stoichiometric coefficient of the reactants
(d) Order of reaction is sum of power to the concentration terms of reactants to express the rate of reaction

85. How many grams of concentrated nitric acid should be used to prepare 250 mL of 2.0MHNO_3 ? Given the acid is 70% HNO_3
(a) 45 g (b) 90 g (c) 70 g (d) 54 g

86. Lanthanoid contraction is caused due to:
(a) The same effective nuclear charge from Ce to Lu
(b) The imperfect shielding on outer electrons by 4f electrons from the nuclear charge
(c) The appreciable shielding on outer electrons by 4f electrons from the nuclear charge
(d) Since lanthanoids are rare earths

87. The complex, [Pt (Py) (NH_3) Br Cl] will have how many geometrical isomers?
(a) 2 (b)1 (c)3 (d) 4

88. Which of the following elements is present as the impurity to the maximum extent in the pig iron?
(a) Phosphorus (b) Manganese (c) Carbon (d) Silicon

89. The smog is essentially caused by the presence of
(a) O_2& O_3 (b) O_3& N_2 (c) oxides of S & N (d) O_2& N_2

90. AB crystallizes in a body centred cubic lattice with edge length 'a' equal to 387 pm. The distance between two oppositely charged ions in the lattice is:
(a) 335 pm (b) 250 pm (c) 200 pm (d) 300 pm

PART – C (BIOLOGY)

Rough Space

91. Largest spermatozoids in plant kingdom
(a) Pinus (b) Selaginella (c) Dryopteris (d) Cycas

92. Thallophyta includes
(a) Fungi and bacteria (b) Algae, fungi, bacteria and lichens
(c)Algae, fungi and lichens (d) Algae and fungi

93. A unicellular organism often considered connecting link between plants and animals is
(a) Monocystis (b) Paramecium (c) Euglena (d) Entamoeba

94. Match the columns and choose the correct option

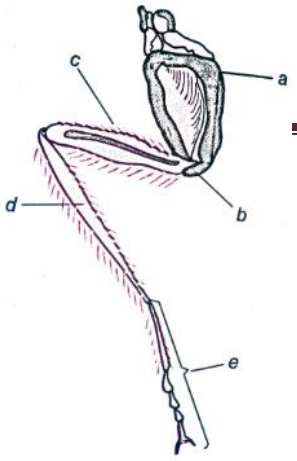
	I		II
a	Ernst Mayr	1	Discovered viroids
b	Whittaker	2	Gave the name virus
c	Pasteur	3	Proposed five kingdom classification
d	Diener	4	Darwin of 20th century

(a) a-4, b-3, c-2, d-1 (b) a-3, b-4, c-2, d-1 (c) a-2, b-3, c-4, d-1 (d) a-1, b-2, c-3, d-4

95. Capitulum inflorescence is found in
(a) Malvaceae (b) Fabaceae (c) Liliaceae (d) Compositae

96. Blood does not transport oxygen due to absence of respiratory pigment in
(a) Cockroach (b) Earthworm (c) Frog (d) Rabbit

97. In the following diagram of a leg of Cockroach parts have been indicated by alphabets. Choose the answer in which these alphabets have been correctly matched with the parts which they indicate



Rough Space

(a) a-coxa, b-tibia, c-tarsus, d-femur, e-trochanter

(b) a-coxa, b-femur, c-trochanter, d-tarsus, e-tibia

(c) a-coxa, b-tarsus, c-femur, d-tibia, e-trochanter

(d) a-coxa, b-trochanter, c-femur, d-tibia, e-tarsus

98. Bond between two residues of carbohydrates is
(a) Amide (b) Phosphodiester (c) Glycosidic (d) Hydrogen bond

99. A unit membrane is absent over
(a) Lysosome (b) Microbody (c) Golgi apparatus (d) Ribosome

100. Synaptonemal complex is site of
(a) Spindle attachment (b) Replication
(c) Chromatid separation (d) Chromosome alignment and recombination

101. Fermentation products of yeast are
(a) $H_2O + CO_2$ (b) Methyl alcohol + CO_2
(c) Methyl alcohol + H_2O (d) Ethyl alcohol + CO_2

102. Pellagra is caused due to the deficiency of
(a) Ascorbic acid/Vit C (b) Nicotinic acid/ Vit B_3/Niacin
(c) Pantothenic Acid (d) Folic Acid

103. In C_4 plants, synthesis of sugars / final CO_2 fixation occurs in
(a) Palisade cells (b) Spongy cells
(c) Undifferentiated mesophyll cells (d) Bundle sheath cells

104. Gastric juice contains
(a) Pepsin, Lipase and Rennin (b) Trypsin, Lipase and Rennin
(c) Trypsin, Pepsin and Lipase (d) Trypsin, Pepsin and Rennin

Rough Space

105. Element involved in the opening and closing of stomata, stomatal regulation is
(a) Zinc (b) Magnesium (c) Potassium (d) Iron

106. The amount of air that moves in and out of the lungs, with each normal inspiration and expiration is called
(a) Residual volume (b) Vital capacity (c) Tidal volume (d) Tidal capacity

107. Number of Calvin cycles required to generate a molecule of Hexose is
(a) 2 (b) 4 (c) 6 (d) 8

108. In germinating seed , RQ falls when there is shift from
(a) Carbohydrate to fat as substrate (b) Fat to carbohydrate
(c) Aerobic to anaerobic respiration (d) Protein to carbohydrate

109. Find out the correct matching
(a) Thyroid – hyperactivity in young children causes cretinism
(b) Parathyroid – secretes parathormone which promotes movement of calcium ion from blood into bones during calcification
(c) Thymus – starts undergoing atrophy after puberty
(d) Pancreas – delta cells of Islets of Langerhans secrete a hormone which stimulates glycolyisis in the liver.

110. Entry of pollen tube through micropyle is
(a) Chalazogamy (b) Mesogamy (c) Porogamy (d) Pseudogamy

111. Sarcomere is distance between
(a) Two I – bands (b) A and I bands (c) Two Z – lines (d) Z and A bands

112. Which one of the following has minimum pH?
(a) Bile (b) Pancreatic juice (c) Saliva (d) Gastric juice

113. How many chromosomes will the cell have at G_1 ,after S and M phase respectively if it has 14 chromosomes at interphase?
(a) 7,14,14 (b) 14,14,14 (c) 14,14,7 (d) 7,7,7

114. Fluid mosaic model of cell membrane was put forward by
(a) Danielli and Daveson (b) Singer and Nicolson

Rough Space

(c) Garner and Allard (d) Watson and Crick

115. When stamens are fused by their anthers and their filaments are free, the condition is called
(a) Monadelphous (b) Synandrous (c) Syngenesious (d) Epipetalous

116. Binomial nomenclature was introduced by
(a)De Vries (b) Carl Linnaeus (c) Huxley (d) John Ray

117. In Whittaker's classification, non-nucleated unicellular organisms/prokaryotes are included under
(a) Plantae (b) Monera (c) Protista (d) Animalia

118. Filariasis is transmitted through / secondary host of Wuchereria is
(a) Anopheles (b) Culex (c) Tse-tse fly (d) Sand fly

119. Taxonomy based on determination of genetic relationships is
(a) Cytotaxonomy (b) Numerical taxonomy
(c) Biochemical taxonomy (d) Experimental taxonomy

120. Quiescent center in the middle of the root apical meristem was discovered by
(a) Eames (b) Schmidt (c) Clowes (d) Hanstein

121. Characteristic free swimming larvae of Coelenterates is
(a) Oncosphere (b) Rhabditiform (c) Planula (d) Cysticercus

122. Velamen occurs in
(a) Epiphytes (b) Mesophytes (c) Hydrophytes (d) Xerophytes

123. Striated and voluntary muscles occur in
(a) Trachea (b) Lungs (c) Gall bladder (d) Limbs

124. Streaming of cytoplasm within a living cell is
(a) Homeostasis (b) Cyclosis (c) Diffusion (d) Osmoregulation

125. Storage product of most algae is
(a) Fat (b) Starch (c) Glycogen (d) Cellulose

Rough Space

126. Polymorphic cell organelle is
(a) Glyoxysome (b) Peroxisome (c) Lysosome (d) Golgi complex

127. A prehensile tail in Chameleon is an adaptation for
(a) Swimming (b) Sliding (c) Grasping (d) Climbing

128. Spindle fibres arise from
(a) Centrioles (b) Centromeres (c) Nucleus (d) Mitochondria

129. Combination of apoenzyme and coenzyme produces
(a) Prosthetic group (b) Holoenzyme
(c) Enzyme-substrate complex (d) Enzyme-product complex

130. Melanocyte stimulating hormone (MSH) is secreted by pituitary
(a) Anterior lobe (b)Intermediate lobe
(c) Posterior lobe (d) Not any particular lobe

131. The hormone melatonin, which is involved in skin blanching in lower vertebrates, is released from the
(a)anterior pituitary gland (b)pineal gland (c)melanocytes (d)hypothalamus

132. Polygonum type of embryo sac / typical female gametophyte of angiosperm is
(a)7 – celled, 7 – nucleate (b) 7 – celled, 8 – nucleate
(c) 8 – celled, 7 – nucleate (d) 8 – celled, 8 – nucleate

133. Which is the correct sequence in spermatogenesis?
(a) Spermatogonia→ spermatids → secondary spermatocytes → primary spermatocytes → sperms
(b) Spermatogonia→ spermatids →primary spermatocytes→ secondary spermatocytes → sperms
(c) Primary spermatocytes → secondary spermatocytes → spermatids →spermatogonia→ sperms
(d) Spermatogonia→ primary spermatocytes → secondary spermatocytes → spermatids → sperms

134. Which one prevents blood clotting in the blood vessels?
(a) Heparin (b) Fibrinogen (c) Albumins (d) Globulin

135. Type of pollination that brings genetically different types of pollen grains to the stigma of the plant is
(a) Xenogamy (b) Geitonogamy (c) Chasmogamy (d) Autogamy

Rough Space

136. Hamburger's phenomenon is also known as

(a) HCO_3 shift (b) Na^+ shift (c) H^+ shift (d) Chloride shift

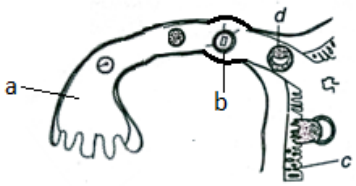
137. What do a, b, c and d represent?

(a) Infundibulum, fertilization, myometrium, morula

(b) Infundibulum , fertilization, endometrium , blastocyst

(c) Isthmus, fertilization, myometrium, blastocyst

(d)Isthmus, fertilization, endometrium ,morula



138. Barr body represents

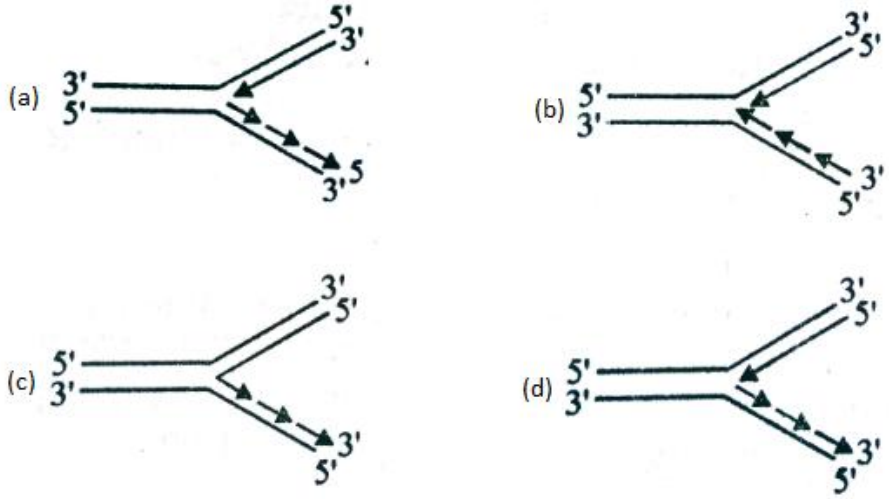
(a) Heterochromatin in male and female cells

(b) All heterochromatin in female cells

(c) One of the two X – chromosomes in somatic cells of female

(d) Y – chromosome in somatic cells

139. Which one represents the correct manner of DNA replication?



140. Presence of tail and coarse hair in human baby is

(a) Radiation (b) Atavism (c) Mutation (d) Crossing over

Rough Space

141. Citric acid is got from
(a) Aspergillusniger (b) Rhizobium nigricans
(c) Penicilliumcitrinum (d) Lactobacillus bulgaricus

142. Restriction enzymes are used in genetic engineering because they
(a) Can join DNA fragments (b) Cut DNA at specific base sequences
(c) Cut DNA at variable sites (d) Are proteolytic enzymes which degrade harmful proteins

143. Chipko movement is connected with
(a) Conservation of natural resources (b) Plant/forest conservation
(c) Plant breeding (d) Project Tiger

144. Nutrient enrichment of water bodies causes
(a) Stratification (b) Eutrophication (c) Succession (d) None of the above

145. Secondary productivity is rate of formation of new organic matter by
(a) Decomposers (b) Producers (c) Parasites (d) Consumers

146. Cerebral malignant malaria is caused by
(a) Plasmodium ovale (b) Plasmodium vivax
(c) Plasmodium falciparum (d) Plasmodium malariae

147. Bt in popular Bt-Cotton/Bt-Brinjal stands for
(a) Biotechnology (b) Bacillus tomentosa
(c) Bacillus thuringiensis (d) Best type

148. Formation of mRNA over DNA template is
(a) Translation (b) Transcription (c) Reverse transcription (d) Transduction

149. A color blind woman marries a normal visioned male. In the offspring
(a) Both sons and daughters are color blind (b) All daughters are color blind
(c) All sons are normal (d) All sons are color blind and daughters are carriers

150. Gaseous mixture used by Miller for the synthesis of amino acids through heat and electric discharge included

Rough Space

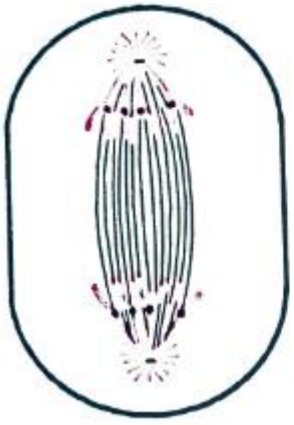
(a) Methane, ammonia, hydrogen and water vapours
(b) Methane, ammonia, nitrogen and water vapours
(c) Nitrogen , methane , oxygen and water
(d) Ammonia, carbon dioxide, nitrogen and water vapours

151. In angiosperms, the number of meiotic divisions required to produce 100 microspores is
(a) 125 (b) 100 (c) 50 (d) 25

152. Element playing important role in Nitrogen fixation is
(a) Mn (b) Mo (c) Zn (d) Cu

153. Which of the following is a natural growth inhibitor?
(a) NAA (b) ABA/Ethylene (c) IAA (d) GA

154. Which stages of cell division do the following figures a and b represent respectively



(a) Telophase – Metaphase (b) Late Anaphase – Prophase
(c) Prophase – Anaphase (d) Metaphase – Telophase

155. Juxtaglomerular cells of kidney produce a peptide hormone
(a) Gastrin (b) Secretin (c) Estradiol (d)Erythropoietin

156. Corpus callosum is found in

Rough Space

(a) Medulla oblongata (b) Pons (c) Cerebrum (d) Cerebellum

157. The term new systematics was given by Julian Huxley in
(a) 1809 (b) 1901 (c) 1840 (d) 1940

158. In *Ruscus* , the stem modification is called
(a) Phylloclade (b) Cladode (c) Phyllode (d) Sucker

159. Copper T / loop prevents
(a) Ovulation (b) Fertilization (c) Zygote formation (d) Cleavage

160. Human eggs are
(a) Alecithal (b) Microlecithal (c) Mesolecithal (d) Macrolecithal

161. DNA segment cleaved by EcoRIis
(a) ATTCGA TAAGCT (b) GAATTC CTTAAG (c) GCTTAA CGAATT (d) GTTCAA CAAGTT

162. Genetically modified crops can be produced by
(a) Recombinant DNA technology (b) Somatic hybridization
(c) Cross breeding (d) Micro propagation

163. Which animal has become extinct from India?
(a) Snow Leopard (b) Hippopotamus (c) Wolf (d) Cheetah

164. Who proposed the term ecosystem?
(a) Odum (b)Gardner (c) Warming (d) Tansley

165. 'Golden Age of Dinosaurs' / Age of Reptiles was
(a) Mesozoic (b) Coenozoic (c) Palaeozoic (d) Psychozoic

166. Crop rotation is employed for
(a) Increasing nitrogen content of soil (b) Checking soil erosion
(c) Community development (d) Enhancing soil fertility

167. A polygenic inheritance in human beings is
(a) Skin color (b) Phenylketonuria (c) Color blindness (d) Sickle cell anaemia

Rough Space

168. A gene pair hides the effect of another. The phenomenon is
(a) Epistasis (b) Dominance (c) Mutation (d) None of the above

169. Cross between hybrid and recessive parent is
(a) Back cross (b) Test cross (c) Monohybrid cross (d) Dihybrid cross

170. Dihybrid test cross ratio is
(a) 9 : 3 : 3 : 1 (b) 1 : 1 : 1 : 1 (c) 3 : 1 (d) 1 : 1

171. DNA fingerprinting was developed by
(a) Jeffrey et al (b) Schleiden and Schwann
(c) Boysen and Jensen (d) Edwards and Steptoe

172. Silencing of mRNA/RNA interference has been used in development of plant resistance to
(a) Viruses (b) Insects (c) Fungi (d) Nematodes

173. A nonsense / termination codon is
(a) UUU (b) GCG (c) UAG/UAA (d) CCC

174. Remnants of nucellus present in seed of Black Pepper and Beet are called
(a) Pericarp (b) Periderm (c) Endosperm (d) Perisperm

175. Hormone responsible for ovulation and development of Corpus Luteum
(a) FSH (b) LH (c) LTH (d) ICSH

176. Passive immunity is obtained through injecting
(a) Antibiotics (b) Vaccines (c) Antibodies (d) Antigens

177. Exotic breed of cattle is
(a) Friesian (b) Holstein (c) Jersey (d) All of the above

178. The pyramid which cannot be inverted in a stable ecosystem is that of
(a) Biomass (b) Number (c) Energy (d) All of the above

179. A treeless biome is
(a) Tundra (b) Grassland (c) Desert (d) All of the above

Rough Space

180. Endosperm is found in angiosperms due to double fertilization. It is however absent in certain seeds due to lack of

(a) Certain enzymes
(b) Growth hormones
(c) Dicotyledenous hormones
(d) Nutrient

Rough Space