AIIMS-2019 PHYSICS (26-05-19) IST SHIFT

PART - A (PHYSICS)

Total Number of Questions (32)

1. If energy of electron in ground state is –13.6 then find out speed of electron in fourth orbit of H-atom

(1) 5.45×10^6 m/s (2) 5.45×10^5 m/s (3) 5.45×10^4 m/s (4) 4.45×10^5 m/s

2. In a LCR oscillatory circuit find the energy stored in inductor at resonance. If voltage of source is 10 V and resistance is 10Ω and inductance = 1H.

(1) 0.5J (2) 2 J (3) 4 J (4) 10 J

3. 15 eV is given to e^- in 4^{th} orbit then find it's final energy when it comes out of H-atom

(1) 14.15 eV (2) 13.6 eV (3) 12.08 eV (4) 15.85

4. For a toroid N = 500, radius = 40 cm, and area of cross section = 10 cm^2. Find inductance

(1) 125 μH (2) 250 μH (3) 0.00248 H (4) zero

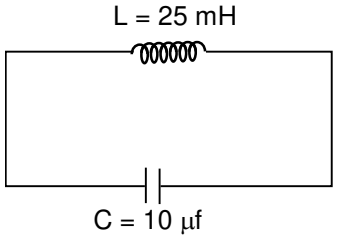
5. Find BE per nucleon of ^{56}Fe where m(^{56}Fe) = 55.936u m_n = 1.00727u, m_p = 1.007274 u

(1) 477.45 MeV (2) 8.52 MeV (3) 577 MeV (4) 10.52 MeV

6. A string wave equation is given y = 0.002 sin (300t – 15x) and mass density is $\left(\mu = \frac{0.1kg}{m}\right)$. Then find the tension in the string

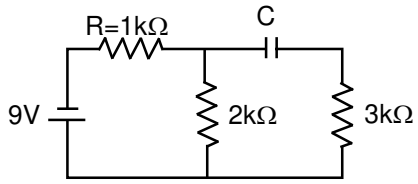
(1) 30N (2) 20 N (3) 40 N (4) 45 N

7. If maximum energy is stored in capacitor at t = 0 then find the time after which current in the circuit will be maximum.



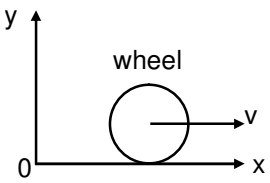
(1) $\frac{\pi}{2}$ ms (2) $\frac{\pi}{4}$ ms (3) π ms (4) 2 ms

8. When capacitor is fully charged, find current drawn from the cell.



(1) 2mA (2)1 mA (3) 3 mA (4) 9 mA

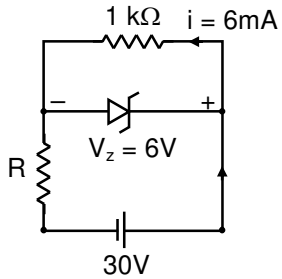
9. Given V_{CM} = 2 m/s, m = 2 kg, R = 4 m



Find angular momentum of ring about origin if it is in pure rolling

(1) 32 kgm^2/s (2) 24 kgm^2/s (3) 16 kgm^2/s (4) 8 kgm^2/s

10. If voltage across zener diode is 6V then find out value of maximum resistance in this condition.

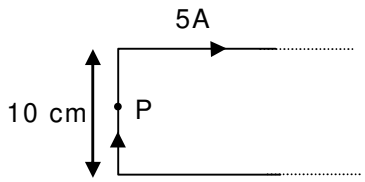


(1) 2kΩ (2) 2kΩ (3) 5kΩ (4) 4kΩ

11. A transformer consists of 500 turn in primary coil and 10 turns in secondary coil with the load of 10 Ω. Find out current in the primary coil when the voltage across secondary coil is 50 V.

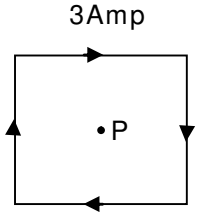
(1) 5A (2) 1A (3) 10A (4) 2A

12. Find force per unit length at P.



(1) 10^{-4} m (2) 10^{-4} N/m (3) 3×10^{-4} N/m (4) 0.3 N/m

13. Find magnetic field at centre P if length of side of square loop is 20 cm.

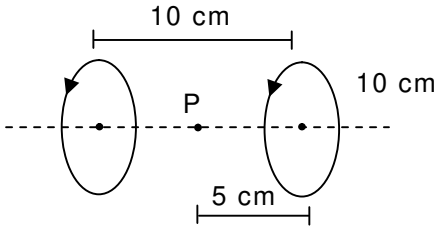


(1) $12\sqrt{2}\times10^{-6}\,T$ (2) $12\times10^{-6}\,T$ (3) $6\times10^{-6}\,T$ (4) $6\sqrt{2}\times10^{-6}\,T$

14. What is the dimension of Luminous flux :

(1) $[cd^1]$ (2) $[cd^1T^{-1}]$ (3) $[cd^1L^{-2}]$ (4) $[cd^1L^1T^{-1}]$

15. Two circular loops having same radius [R = 10 cm] and same current $\frac{7}{2}A$ are placed along same axis as shown. If distance between their centre is 10 cm, find net magnetic field at of point P.

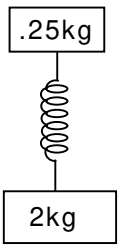


(1) $\frac{50\mu_0}{\sqrt{5}}T$ (2) $\frac{28\mu_0}{\sqrt{5}}T$ (3) $\frac{56\mu_0}{\sqrt{5}}T$ (4) $\frac{56\mu_0}{\sqrt{3}}T$

16. If half life of an element is 69.3 hours then how much of its percent will decay in 10^{th} to 11^{th} hours.
Initial activity = 50 μCi

(1) 1% (2) 2% (3) 3% (4) 4%

17. Initially spring in its natural length now a block at mass 0.25 kg is released than find out maximum force by system on floor?



(1) 15 N (2) 20 N (3) 25 N (4) 30 N

18. If 7 gm N_2 is mixed with 20 gm Ar, there C_P/C_V of mixture will be :

(1) $\frac{17}{6}$ (2) $\frac{11}{7}$ (3) $\frac{17}{11}$ (4) $\frac{17}{13}$

19. If $f_0 = 5$ cm, $\lambda = 6000$Å, a = 1 cm for a microscope, then what will be its resolving power.
(1) 11.9×10^5/m (2) 10.9×10^5/m (3) 10.9×10^4/m (4) 10.9×10^3/m

20. Distance of 5^{th} dark fringe from centre is 4 mm. If D = 2 m, $\lambda = 600$ nm, then distance between slits is :
(1) 1.35 mm (2) 2.00 mm (3) 3.25 mm (4) 10.35 mm

21. A conducting and closed container of capacity 100 liter contains an ideal gas at a high pressure. Now using a pump, the gas is taken out at a constant rate of 5 liter/sec. Find the time taken in which the pressure will decrease to $\frac{P_{initial}}{100}$? (Assume isothermal condition)

(1) 46 sec (2) 92 sec (3) 118 sec (4) 146 sec

22. How can we change a camera from F/4 to F/5.6?

(1) Increase the aperture to 2 time keeping the focal distance constant.

(2) Increase the aperture to $\sqrt{2}$ time keeping the focal distance constant.

(3) Increase the aperture to $\frac{1}{2}$ time keeping the focal distance constant.

(4) Increase the aperture to $\frac{1}{\sqrt{2}}$ time keeping the focal distance constant.

23. Force on current carrying loop (Radius = R) in uniform magnetic (B) field which is at an angle 30º with the normal will be :-

(1) zero (2) 2πRi B (3) $2\sqrt{3}\ \pi$Ri B (4) πRi B

24. **Assertion :** Sometimes insects can walk on water.
Reason : The gravitational force on insect is balanced by force due surface tension.

25. **Assertion: Incoming** light reflected by earth is partially polarized.
Reason: Atmospheric particle polarize the light.

26. **Assertion :** Photodiode and solar cell work on same mechanism.
Reason : Area is large for solar cell.

27. **Assertion :** ${}_1^3H$ isotope does not undergo fusion of the type ${}_1^3H + {}_1^2H \rightarrow$ as it is rarely found in nature.
Reason : ${}_1^3H$ has half life of ≈ 12 years.

28. **Assertion :** Macro properties of gas are affected with increase in height.
Reason : These properties of gases depend on thermodynamic parameters.

29. **Assertion :** V_{rms} and V_{mean} of gaseous molecules is nearly of the order of velocity of sound.
Reason : The sound travels in air because of vibrational molecular motion.

30. **Assertion :** The kinetic energy does not change when a particle moves in uniform magnetic field.
Reason : The velocity of the particle is not affected by magnetic field.

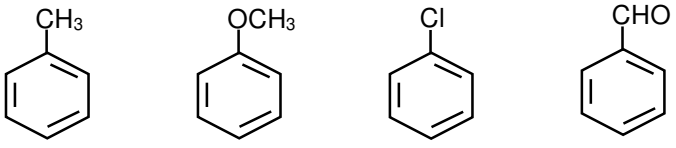
31. **Assertion :** For revolving electron, direction of angular momentum and magnetic moment are opposite.
Reason : Charge of electron is negative.

32. **Assertion :** A metallic surface is moved in and out in magnetic field then emf is induced in it.
Reason : Eddy current will be produced in a metallic surface moving in and out of magnetic field.

PART - B (CHEMISTRY)

Total Number of Questions (49)

33. Correct order of electrophilic substitution reaction is :



(a) (b) (c) (d)

(1) a > b > c > d (2) d > b > a > c (3) b > a > c > d (4) b > a > d > c

34. $A \xrightarrow{Ph-SO_2Cl} B \xrightarrow{KOH} C \xrightarrow{C_2H_5I} D$

'C' is water soluble

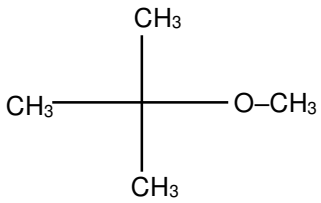
Correct structure of A and D are

(1) $R-NH_2$, , $Ph-SO_2-NR-(C_2H_5)_2{}^+I^-$

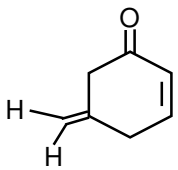
(2) R–NH–R , $Ph-SO_2-NR_2-C_2H_5$

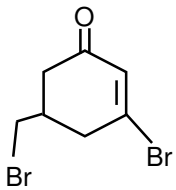
(3) $R-NH_2$, $Ph-SO_2-NR-I$

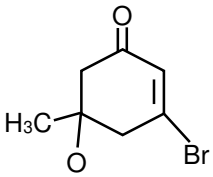
(4) R_2NH , $Ph-SO_2-NR_2-(C_2H_5)^+I^-$

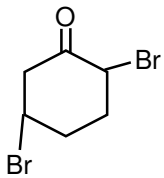
35. **Assertion :**  React with HBr to for $(CH_3)_3CBr$ and CH_3OH

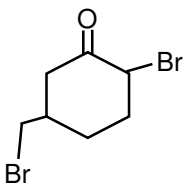
Reason : It follows SN1 mechanism

36.  $\xrightarrow{2-HBr}$ Product is :

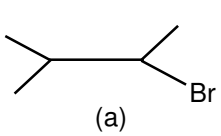
(1) 

(2) 

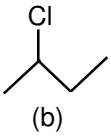
(3) 

(4) 

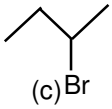
37. Correct order for reaction with alcoholic KOH



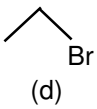
(a)



(b)

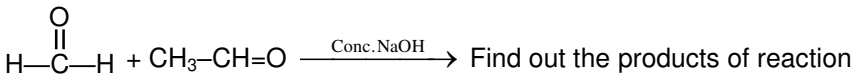


(c)



(d)

(1) a > b > c > d (2) a > c > b > d (3) d > b > c >a (4) a > d > b > c

38.  Find out the products of reaction

(1) CH_3CO_2Na & CH_3OH (2) CH_3CH_2OH + CH_3OH

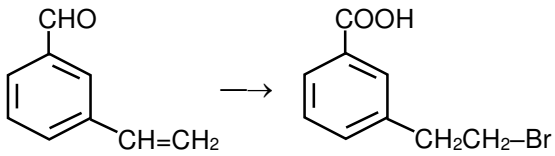
(3) CH_3CH_2OH & HCO_2Na (4) CH_3CO_2Na + HCO_2Na

39. (i) $F_3C–COOH$, (ii) CH_3COOH, (iii) C_6H_5COOH, (iv) CH_3CH_2COOH

Correct order of pK_a value is :

(1) 1 > 3 > 2 > 4 (2) 4 > 2 > 3 > 1

(3) 4 > 3 > 2 >1 (4) 1 > 2 > 4 > 3

40. 

Suitable reagent for following conversion

(1) CH_3MgBr, H_3O^+, I_2/NaOH, H–Br/R_2O_2

(2) $KMnO_4$/NaOH, HBr/R_2O_2

(3) CH_3MgBr, $KMnO_4$, HBr

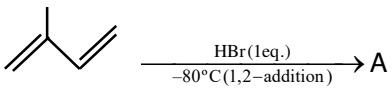
(4) CH_3MgBr, H_3O^+, H–Br, I_2/NaOH

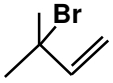
41. **Assertion :** Two sugar units joined by 1,2-glycosidic bond in sucralose.

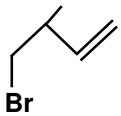
Reason : It contains C_1-glucose and C_2-fructose glycosidic bond

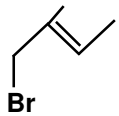
42. **Assertion :** Hydroquinone is more acidic than resorcinol.

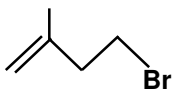
Reason : OH shows –I effect

43. 

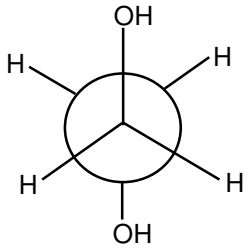
(1) 

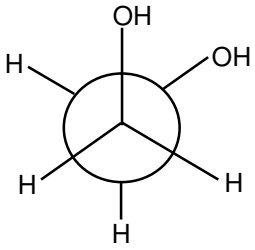
(2) 

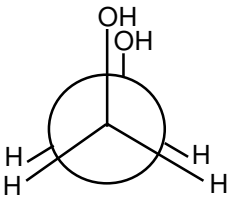
(3) 

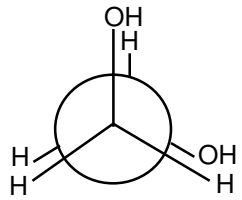
(4) 

44. Which is most stable conformer of ethan-1,2-diol

(1) 

(2) 

(3) 

(4) 

45. **Assertion :** Tert. Butyl amine can be formed by Gabriel phthalimide synthesis
Reason : It follow S_N1 mechanism

46. (1) $C_6H_5–\overset{\overset{O}{\|}}{C}–C_6H_5$

(2) $C_6H_5–CHO$

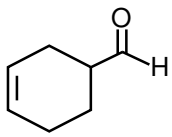
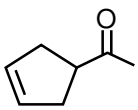
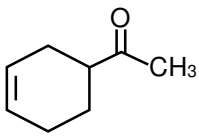
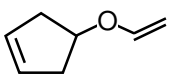
(3) $p–CH_3–C_6H_4–CHO$

(4) $p–CH_3O–C_6H_4–CHO$

Correct order for nucleophilic addition reaction :

(1) 2 > 1 > 3 > 4 (2) 4 > 3 > 2 >1 (3) 2 > 3 > 4 > 1 (4) 4 > 2 > 3 > 1

47. $C_7H_{10}O$ reacts with CH_3MgBr to give a compound $C_8H_{10}O$ which gives the test with iodoform, than fine out structure of A

(1)  (2)  (3)  (4) 

48.

Column – I	**Column - II**
(A) Tyrosine	(P) Essential amino acid
(B) Serin	(Q) Ceric Ammonium Nitrate
(C) Tryptophane	(R) Neutral $FeCl_3$
(D) Proline	(S) Carbaylamine Test - Negative

Select the correct set of answer:

(1) A – R, B – Q, C – P, D – S (2) A – Q, B – R, C – S, D – P

(3) A – R, B – P, C – Q, D – S (4) A – S, B – Q, C – P, D – R

49. **Assertion :** For liquid dishwashing non-ionic type of detergent are used:
Reason : Remove greese and oil by micelle formation.

50. **Assertion :** Tertbutyl methyl ether React with HBr to form tert. butyl $(CH_3)_3$ C-Br and CH_3–OH methonal
Reason : It follows SN1 mechanism.

51. Which will release NH_3 on Reaction with NaOH.
(1) Hydrazoic acid (N_3H)
(2) ethylene diamine tetra acetic acid.
(3) NH_2–OH
(4) Triethylamine

52. **Assertion :** Ferromagnetic compound is more attracted in mwagnetic field.
Reason : Because all electron are alligned in same direction.

53. **Assertion :** $S_2O_7^{2-}$ & $Cr_2O_7^{2-}$ both exist.
Reason : Both have same valence electrons.

54. **Assertion :** ZrI_4 is useful in purification of Zirconium (Zr)
Reason : ZrI_4 sublimise at room temperature.

55. MnO is :
(1) Ferromagnetic
(2) Antiferromagnetic
(3) Ferrimagnetic
(4) Dimagnetic

56. **Assertion :** Pure N_2 is obtained from $Ba(N_3)_2$ but not from $(NH_4)_2Cr_2O_7$
Reason : On decomposition $(NH_4)_2Cr_2O_7$ gives O_2 gas.

57. Which have melting point below 500ºC

(1) Ag, Cu (2) Zn, Cd (3) Cd, Cu (4) Ag, Zn

58. Strong oxidizing agent used in purification of water

(1) Cl_2O (2) NO_3^- (3) NO_2^- (4) OF_2

59. Which give colored carbonate precipitate?

(1) Hg_2^{2+} (2) Sr^{+2} (3) Bi^{+3} (4) Li^+

60. Yellow color of chlorine water fades because of

(1) Form HCl & HOCl (2) Clhorine gas escapes

(3) $ClO_2 + H_2$ (4) Cl_2O

61. Which has least covalent radius.

(1) Mn (2) Cu (3) Zn (4) Ni

62. Which is least soluble

(1) Na_2S (2) MgS (3) $MgCl_2$ (4) NaCl

63. Which of the following reacts most slowly with nitric acid.

(1) Phosphorus (2) Chlorine (3) Sulphur (4) Iodine

64. In processing of steel which of the following allotropes of carbon is used.

(1) Carbon black (2) Charcoal (3) Coke (4) Graphones

65. **Assertion ;** d^5 configuration is more stable than d^4

Reason : d^5 has more exchange energy as compared to d^4 because 10 & 6 exchanges are possible in d^5 & d^4 respectively.

66. Which of the following is incorrect about cyanogen gas?

(1) It has bent structure

(2) It is psuedohalogen.

(3) Its behavior is similar to halides.

(4) both carbon are sp hybridised

67. **Assertion:** I_2O_5 is used to detect CO.

Reason : In I_2O_5 the oxidation number of I is 5.

68. Which of the following complex is optically inactive

(1) $[RhCl(CO)(PPh_3)(NH_3)]$

(2) $[Fe(C_2O_4)_3]^{3-}$

(3) $[Fe(en)_2\,Cl_2]$

(4) $[Pd\ (en)_2Cl_2]$

69. Correct increasing order for the wavelength of absorption in the visible region for the complexes of Co^{3+} is:

(1) $[Co(CN)_6]^{3-}$, $[Co(NH_3)_6]^{3+}$, $[Co(NH_3)_5(H_2O)]^{3+}$ $[Co(NH_3)_5Cl]^{+2}$

(2) $[Co(CN)_6]^{3-}$, $[Co(NH_3)_5(H_2O)]^{3+}$ $[Co(NH_3)_5Cl]^{+2}$ $[Co(NH_3)_6]^{3+}$,

(3) $[Co(NH_3)_6]^{3+}$, $[Co(CN)_6]^{3-}$, $[Co(NH_3)_5(H_2O)]^{3+}$ $[Co(NH_3)_5Cl]^{+2}$

(4) $[Co(NH_3)_5Cl]^{+2}$, $[Co(NH_3)_5(H_2O)]^{3+}$, $[Co(NH_3)_6]^{3+}$, $[Co(CN)_6]^{3-}$

70. $C + O_2(g) \longrightarrow CO_2$ ..... (i); $\Delta H = -393$ kJ mol^{-1}

$H_2 + 1/2\ O_2 \longrightarrow H_2O$, ... (ii) $\Delta H = -287.3$ kJ mole^{-1}

$2CO_2 + 3H_2O \longrightarrow C_2H_5OH + 3O_2$ ..... (iii) $\Delta H = 1366.8$ kJ mol^{-1}

Find the standard enthalpy of formation of $C_2H_5OH(l)$

(1) 281.1 kJ mol^{-1} (2) -281.1 kJ mol^{-1}

(3) 562.2 kJ mol^{-1} (4) -562.2 kJ mol^{-1}

71. If Boiling point of water is 100ºC. How much gram of NaCl is added in 500 g of water to increase its boiling point of water by approx 1ºC. $(K_b)_{H_2O}$ = 0.52 K x kg/mole.

(1) 2.812 g (2) 28.12 g (3) 14.06 g (4) 7.03 g

72. In isolated system, find the condition for spontaneous reaction:

(1) $\Delta U = 0, \Delta S = 0, \Delta G = 0$ (2) $\Delta U < 0, \Delta S > 0, \Delta G < 0$

(3) $\Delta U = 0, \Delta S > 0, \Delta G < 0$ (4) $\Delta U < 0, \Delta S < 0, \Delta G < 0$

73. A bulb is emitted electromagnetic radiation of 660 nm wave length. The Total energy of radiation is 3 x 10^{-18} J The number of emitted photon will be : ($h = 6.6 \times 10^{-34}$ J×s, $C = 3 \times 10^8$ m/s)

(1) 1 (2) 10 (3) 100 (4) 1000

74. At 298 K temperature, A hydrogen gas electrode is made by dipping platinum wire in a solution of HCl of pH = 10 and by passing hydrogen gas around the platinum were at one atm pressure. The potential of electrode would be?

(1) 0.59 V (2) 0.118 V (3) 1.18 V (4) 0.059 V

75. The decomposition of NH_3 on Pt surface is a zero order reaction. If the value of rate constant is 2×10^{-4} mole liter^{-1} sec^{-1}. The rate of appearance of N_2 and H_2 are respectively:

	N_2	H_2
(1)	1×10^{-4} mol l^{-1} sec^{-1},	3×10^{-4} mol^{-1} sec^{-1}
(2)	3×10^{-4} mol l^{-1} sec^{-1},	1×10^{-4} mol^{-1} sec^{-1}
(3)	2×10^{-4} mol l^{-1} sec^{-1},	6×10^{-4} mol^{-1} sec^{-1}
(4)	3×10^{-4} mol l^{-1} sec^{-1},	3×10^{-4} mol^{-1} sec^{-1}

76. **Assertion:** Some salts are sparingly soluble at room temperature.
Reason : The entropy increases on dissolving the salts.

77. What is the activation energy (KJ/mol) for a reaction if its rate constant doubles when the temperature is raised from 300 K to 400 K ? (R = 8.314 J mol^{-1} K^{-1})

(1) 68.8 (2) 6.88 (3) 34.4 (4) 3.44

78. When 0.05 M dimethyl amine is dissolve in 0.1 M NaOH solution then the percentage dissociation of dimethyl amine is : $(K_b)_{(CH_3)_2NH} = 5 \times 10^{-4}$

(1) 5×10^{-5} (2) 5×10^{-3} (3) 5×10^{-1} (4) 5×10^{-2}

79. **Assertion:** A spherical water drops become flaton flatter surface.
Reason : It become flat due to gravity.

80. A chemical reaction : A + B $\longrightarrow$ AB , B is acting as limiting reagent then choose the correct option.
The limiting reagent is :

	A	B
(1)	50 atom	100 atom
(2)	100 atom	200 atom
(3)	50 atom	30 atom
(4)	50 atom	200 atom

81. Which of the following can react with $K_2Cr_2O_7$

(1) SO_3^{-2} (2) CO_3^{-2} (3) SO_4^{-2} (4) NO_3^-

PART - C (BIOLOGY)

Total Number of Questions (47)

82. Identify the given diagrams and mark the correct option-

			
A	B	C	D

(1) A, D are compound while B, C are simple leaves

(2) A, D are simple while B, C are compound leaves

(3) A, B are simple while C, D are compound leaves

(4) A, B are compound while C, D are simple leaves

83. Which of the following are plant growth promotors

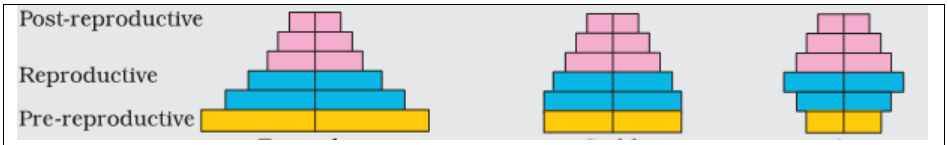
(1) NAA, IBA, Zeatin, GA_3

(2) NAA, ABA, Zeatin, GA_3

(3) IBA, IAA, ABA, 2,4-D

(4) IBA, BAP, ABA, Zeatin

84.



a	b	c

Select the correct option w.r.t. Age pyramids.

(1) a - Expanding, b - stable, c – Declining

(2) a - stable, b - Expanding, c - Declining

(3) a - stable, b - Declining, c – Expanding

(4) a - Declining, b - stable, c - Expanding

85. Match the following

(a)	Protein	(i)	SER
(b)	Lipid	(ii)	Golgi body
(c)	Glycoprotein	(iii)	Lysosome
(d)	Hydrolytic enzyme	(iv)	RER

(1) a - i, b - ii, c - iii, d – iv

(2) a - iv, b -ii, c - i, d - iii

(3) a - iv, b - i, c - ii, d – iii

(4) a - i, b - iii, c - ii, d - iv

86. Select the correct option regarding genetic code of Glycine

(1) GUU, GUC, GUA (2) GAU, GAC, GAA

(3) GGU, GGA, GGC (4) GGU, GGA, GCU

87. Virus free plants can be generated through -

(1) Meristem culture (2) Somatic hybridisation

(3) Callus culture (4) Micropropagation

88. ATP formation occurs through which of the following -

(1) Photophosphorylation (2) Oxidative phosphorylation

(3) Substrate level phosphorylation (4) All of these

89. What are the requirements in Tissue culture

(1) Hormones like auxin, cytokinin, agar-agar (2) Inorganic salt, vitamin, amino acid only

(3) Carbon source like sucrose only (4) All of these

90. Which is wrong about mitochondria

(1) Site of aerobic respiration

(2) Supported by double unit membrane

(3) Infolding of inner membrane forms cristae

(4) Many circular DNA and few ribosomes are found in matrix.

91. m-RNA is formed by

(1) Translation (2) Transcription (3) Duplication (4) capping

92. Match list A and List B and choose correct option

	List-A		**List-B**
(a)	Citrus canker	(i)	Fungi
(b)	Spongiform encephalopathy	(ii)	Prion
(c)	Herpes	(iii)	Virus
(d)	Red rot	(iv)	Bacteria

(1) a - i, b - ii, c - iii, d – iv (2) a - ii, b - iii, c - iv, d - i

(3) a - iv, b - ii, c - iii, d – i (4) a - i, b - iii, c - ii, d - iv

93. The process of removal of anther from the flower bud before it dehisces is called as

(1) Emasculation (2) Bagging

(3) Embryo rescue (4) Budding

94. Which of the following is a sex linked character

(1) White color blindness (2) Red blue colorblindness

(3) Night Blindness (4) Sickle cell anaemia

95. Select the correct match

(I)	**(II)**	**(III)**
(a) +	(i) –	(P) Amensalism
(b) –	(ii) –	(Q) Commensalism
(c) –	(iii) 0	(R) Predation
(d) +	(iv) 0	(S) Competition

(1) a - iv – Q, b - iii – P, c - ii – S, d - i – R (2) a - i – Q, b - ii – P, c - iii – S, d - iv - R

(3) a - i – Q, b - iii – P, c - ii – S, d - iv – R (4) a - iv – Q, b - ii – P, c - iii – S, d - i - R

96. Black rot of mustard is caused by

(1) *Colletrichum falcatum* (2) *Xanthomonas oryzae*

(3) *Xanthomonas campestris* (4) *Phytopthora infestans*

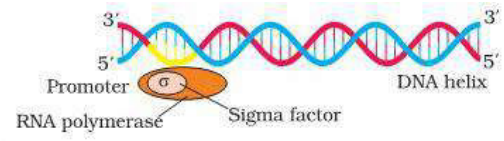
97. Match the following :

Column-I	**Column-II**
(a) Ranthambore National Park	(i) Assam
(b) Kaziranga National Park	(ii) Rajasthan
(c) Jim corbett National Park	(iii) Orissa
(d) Nandan kanan zoological Park	(iv) Uttarakhand

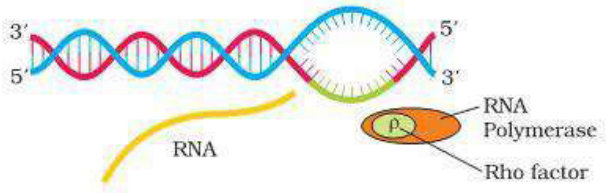
(1) a–i, b–ii, c–iii, d–iv (2) a–ii, b–iii, c–iv, d–i

(3) a–ii, b–i, c–iv, d–iii (4) a–iii, b–ii, c–i, d–iv

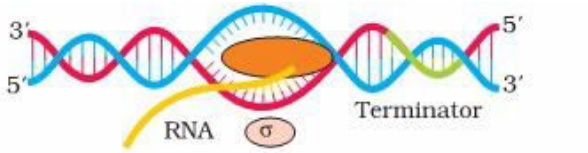
98. **(a)**



(b)



(c)

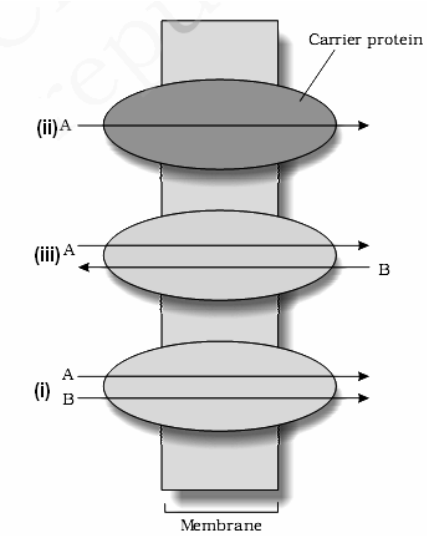


Identify a, b and c

(1) (a) Elongation, (b) Termination, (c) Initiation (2) (a) Initiation, (b) Termination, (c) Elongation

(3) (a) Initiation, (b) Elongation, (c) Termination (4) (a) Termination, (b) Elongation, (c) Initiation

99.



Identify i, ii and iii

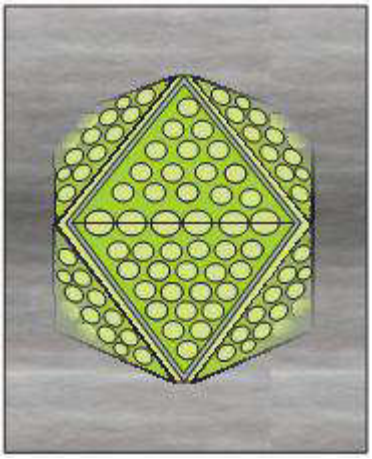
(1) i– uniport, ii– Antiport, iii– symport (2) i– uniport, ii–symport, iii– Antiport

(3) i– Antiport, ii–symport, iii– uniport (4) i– symport, ii– uniport, iii– Antiport

100. How many pyruvate produced by oxidation of 1 glucose molecule ?

(1) Two (2) Three (3) One (4) Four

101. Diagram of Adenovirus



Choose the correct for the given diagram

(1) Bacteriophage - Tobacco mosaic disease (2) Adenovirus - Cause of respiratory disease

(3) Viroid - Potato spindle tumor disease (4) Prion - Alzheimer's disease

102. **Assertion :** Down syndrome, Klinfelter syndrome and Turner syndrome are chromosomal disorders.

Reason : In Klinfelter syndrome females are sterile.

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

103. **Assertion :** Respiratory pathway is considered as an amphibolic pathway

Reason : It involves both anabolism and catabolism.

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

104. **Assertion :** Biofortified crop is a source of higher protein, minerals and healthier fats.

Reason : Azolla is biofertilizer.

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

105. **Assertion :** Gibberellin is useful in early seed production in conifers.
Reason : Ethephon is responsible for early ripening in tomato and apple
(1) If both assertion and reason are true and reason is the correct explanation of assertion.
(2) If both assertion and reason are true but reason is not the correct explanation of assertion.
(3) If assertion is true but reason is false.
(4) If both assertion and reason are false.

106. **Assertion :** Heterospory and retention of female gametophyte are responsible for origin of seed habit in *Selaginella*
Reason : *Psilotum* is a living fossil
(1) If both assertion and reason are true and reason is the correct explanation of assertion.
(2) If both assertion and reason are true but reason is not the correct explanation of assertion.
(3) If assertion is true but reason is false.
(4) If both assertion and reason are false.

107. **Assertion :** Archaebacteria are more similar to eukaryotes rather than eubacteria.
Reason : Archaean genome is more similar to eukaryotic genome rather than bacterial genome
(1) If both assertion and reason are true and reason is the correct explanation of assertion.
(2) If both assertion and reason are true but reason is not the correct explanation of assertion.
(3) If assertion is true but reason is false.
(4) If both assertion and reason are false.

108. Amylopectin is
(1) Soluble in H_2O and have α-1-4 and α - 1,6 glycosidic bond
(2) Insoluble in H_2O and have α-1-4 and α - 1,6 glycosidic bond
(3) Soluble in H_2O and have α - 1,6 glycosidic bond
(4) Soluble in H_2O and have α-1-4 glycosidic bond

109. In cockroach
(1) Ejaculatory duct opens in phallic gland
(2) Phallic gland stores sperms
(3) Vas deferens opens in phallic gland
(4) Phallic gland opens in left phallomere

110. Plasmid of which bacterium was first time used in recombinant DNA technology?
(1) *E.coli*
(2) *Salmonella typhimurium*
(3) *Haemophilus influenzae*
(4) *Streptococcus pneumoniae*

111. Which fat soluble vitamin is necessary for blood clotting

(1) A (2) D (3) E (4) K

112. Choose the correct option

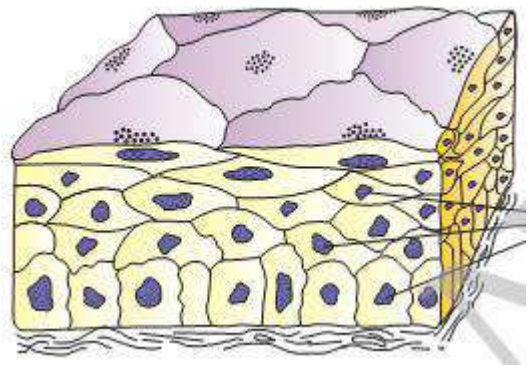
(1) Amphibia –Frog, Salamender, Bufo, Ichthyophis

(2) Reptiles – Lizard, Turtle, Hyla, Ichthyophis

(3) Birds – Pigeon, Parrot, Balaenoptera, Flying fox

(4) Arthropods – Apis, Ancylostoma, Laccifer, Nereis

113. Identify the diagram and related function



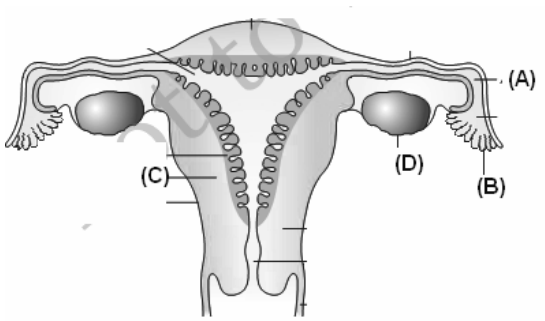
(1) Simple cuboidal epithelium – Diffusion

(2) Simple Squamous epithelium – Secretion and absorption

(3) Compound epithelium – Protection

(4) Compound epithelium – Diffusion

114. Choose the correct



(1) (A) Ampulla – Site of blastocyst implantation

(2) (B) Fimbriae – Collect ova

(3) (C) Myometrium – Shed during menstrual bleeding

(4) (D) Ovary – Secrete HCG

115. Acidic pH of muscles is due to -

(1) Lactic acid (2) CO_2 (3) Arginine (4) Ketones

116. Glucose on reacting with benedict solution may give the following precipitates except

(1) Violet precipitate (2) Orange red precipitate

(3) Brick red precipitate (4) Green/yellow precipitate

117. Acquired Immunity mediated by which of the following

(1) Antibody formation by T-lymphocytes (2) Antibody formation by B- lymphocytes

(3) HCl by stomach (4) Bite by snake

118. Blood circulation in earthworm is :

(1) Closed type (2) Open type

(3) Haemoglobin is present in RBC (4) Oxygen not transported by blood

119. Given below are the life span of the organisms. Find the correct option :

(1) Fruitfly – 1 week

(2) Dog – 20-30 year

(3) Butterfly – 1-2 months

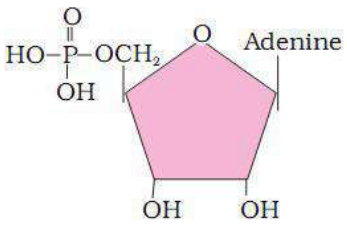
(4) Cat – 1 year

120. Find the correct palindromic sequence :

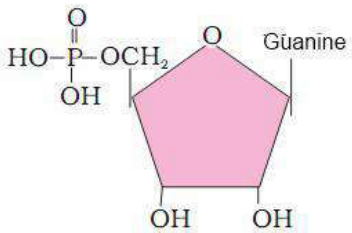
5'ATTGCAAT3'

(1) 5'AACGTTA3' (2) 3'TAACGTTA5' (3) 5'TAACGTTA3' (4) 3'ATTGCAAT3'

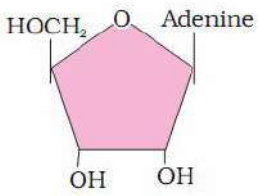
121. Which two are nucleotides :



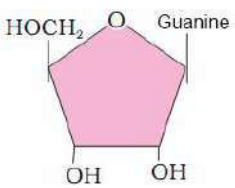
(A)



(B)



(C)



(D)

(1) A & B (2) C & D (3) A & D (4) B & C

122. Cocaine is obtained from :

(1) *Papaver sominiferum* (2) *Erythroxylum coca*

(3) *Atropa belladona* (4) *Datura*

123. Myosin head separates from actin when :

(1) ATP hydrolysis (2) When ATP attached to myosin head

(3) When ATP releases from myosin head (4) When ATP releases from Actin

124. Position of testis in *Periplaneta americana*

(1) 7^{th}, 8^{th}, 9^{th} abdominal segments (2) 4^{th}, 5^{th}, 6^{th} abdominal segments

(3) 8^{th}, 9^{th}, 10^{th} abdominal segments (4) 5^{th}, 6^{th} abdominal segments

125. Activity of phagocytosis occurs through

(1) Neutrophils and monocytes (2) Basophils and monocytes

(3) Eosinophils and monocytes (4) Lymphocytes and neutrophils

126. **Assertion :** Gastrin is a hormone that is released from the gastrointestinal tract and helps in digestion

Reason : It promotes secretion of HCl and trypsinogen

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

127. **Assertion :** Type-I diabetes is caused by destruction of B cells of islets of Langerhans.

Reason : Insulin can be taken as pills.

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

128. **Assertion :** Pituitary gland releases a hormone which is helpful in child birth.

Reason : Pituitary gland releases vasopressin and anti diuretic hormone which helps in child birth.

(1) If both assertion and reason are true and reason is the correct explanation of assertion.

(2) If both assertion and reason are true but reason is not the correct explanation of assertion.

(3) If assertion is true but reason is false.

(4) If both assertion and reason are false.

PART - D (GENERAL KNOWLEDGE) & (APTITUDE & LOGICAL THINKING)

Total Number of Questions (18)

129. For how many seats does the parliament hold Elections?

130. Who is the present Chief Election Commissioner?

131. Which country has not yet conducted Anti Satellite missile test?
(1) India (2) US (3) Russia (4) France

132. Arrange the cities from East to West
(1) Cairo (2) Tehran (3) Tripoli (4) Baghdad

133. Facebook : Alphabet :: Twitter : ?
(1) Bird (2) Elephant (3) Tiger (4) Animal

134. What will be the next number in the series?
10, 9, 7, 4, ?

135. Ram is the brother of Seema & Ram is married to Radhika. Seema has two Sons Raushan & Manu. What is Raushan to Radhika.
(1) Niece (2) Nephew (3) Cousin (4) None of These

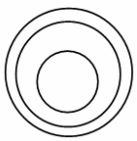
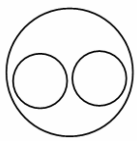
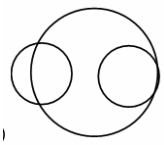
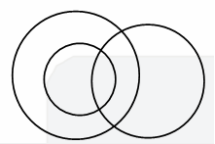
136. Which of the following states is odd one out in terms of International border?
(1) Rajasthan (2) Gujarat (3) Punjab (4) Himachal Pradesh

137. A, B, C, D, E, F & G are sitting in a row facing northwards. F is sitting immediate right of E. G is 4^{th} left of E. B & D are next to C. Third left to D is a corner. Who is in the middle of row?

138. Neerav Modi is associated with
(1) Share Market (2) Oil (3) Diamond (4) Gold

139. A Barrel is completely filled with acetone. 20% of the acetone is replaced by Water. This is done 2 more times. What is the final % of acetone remaining in the barrel?

140. Which of the following Van diagram represents relations between
Female : Sister :: Parents

(1)  (2)  (3)  (4) 

141. In a class, 70% students knew python language, 60% knew C++ & 10% knew NO language, then how many students knew both languages?

142. A Seller sells his product on 14% profit of the market price. If the selling price is 3420 then find the market price.

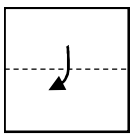
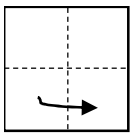
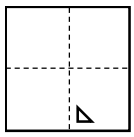
143. In a class of 140 students, those who opted Science, Social Science & languages were represented by 4:2:1 ratio. If a batch of 20 new students come & opt Science then what will be the new ratio?

144. The 4 letters in a box have certain relationship then what will replace question mark

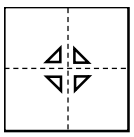
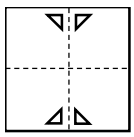
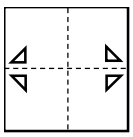
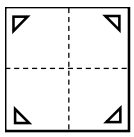
D	E
G	J

K	L
N	Q

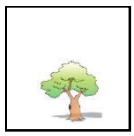
G	H
?	M

145. (A)  (B)  (C) 

The following paper is folded and cut as shown. Find the pattern on unfolded paper

(1)  (2)  (3)  (4) 

146.

(1)  (2)  (3)  (4)