UG-QP – 01   *UGQP01*

PART – A

Questions **1 – 10** : Fill in the blanks with the most grammatically correct and meaningful option from those given.

1. I had sent the application five days _____

   A) ago   B) before   C) since   D) hence

2. The maintenance _____ law and order is the state's responsibility.

   A) for   B) of   C) about   D) for

3. It is a month since the holidays _____

   A) has begun   B) may begin   C) began   D) have begin

4. Can you _____ all the questions ?

   A) solved   B) solving   C) able to solved   D) solve

5. Great emphasis has to be _____ on the building of our student's character.

   A) lain   B) laid   C) lied   D) layed

6. Hardly _____ I left the house, when it began to rain.

   A) did   B) do   C) had   D) have

7. Your _____ in class is compulsory.

   A) presence   B) presense   C) present   D) presenting

8. She is absolutely _____in our welfare.

   A) indifferent   B) disinterested   C) unattached   D) reluctant

9. His parents will never give their _____ to such a proposal.

   A) evidence   B) willingness   C) consent   D) agreement

A*   -4-

10. Send in _____ is next in the queue.

    A) whomever   B) whichever   C) who so ever   D) whoever

11. Electricity is produced form dry cell through

    A) Chemical Energy   B) Thermal Energy

    C) Mechanical Energy   D) Nuclear Energy

12. Lift was invented by

    A) J. J. Thompson   B) Mavie Curie   C) E.G. Otis   D) Von-Kleef

13. The science of making maps is called

    A) Morphography   B) Cartography   C) Calligraphy   D) Geography

14. The temple of Buddhists is called

    A) Madrasa   B) Vihara   C) Uplisa   D) Naurau

15. Bodh Gaya is situated in

    A) Nepal   B) Bihar   C) Rajasthan   D) Sri Lanka

16. Chairperson of State Bank of India is

    A) Arundhati Bhattacharya

    B) Naina Lal Kidwai

    C) Kiran Majumdar

    D) Chanda Kocchar

17. Which of the following Sikh Gurus instituted the Khalsa Panth ?

    A) Guru Gobind Singh   B) Guru Teg Bahadur

    C) Guru Arjun Dev   D) Guru Nanak Dev

18. Which of the following is known as "Morning Star" ? A)

Saturn B) Mars C) Mercury D) Venus

19. In a row of boys, A is tenth from the left and B is ninth from the right end. Now if they interchange their positions, A becomes fifteenth from left. The total number of boys in the row is

A) 23 B) 26 C) 27 D) 28

20. The Chairperson of National Human Rights Commission is

A) Mr. K.G. Balkrishnan B) Mr. H.L. Dathu

C) Mr. D.J. Pandian D) Mr. Ashok Chawle

21. The author of the book "The Turbulent Years 1980-1996" is

A) Mr. Kapil Sibal B) Mr. P.V. Narshimha Rao

C) Mr. Pranab Mukharjee D) Mr. Kaushik Besu

22. Which metal was first used by the Vedic people ?

A) Gold B) Silver C) Copper D) Iron

23. Find the next term of the series AOP, CQR, EST, GUV

A) JYZ B) HWX C) IWX D) JWX

24. Shyam started walking from point 'P' towards south. After walking 40 m he turned left, then walked 30 m and reached a point 'Q'. What will be the direction of 'Q' with respect to point 'P' ?

A) North-East B) South -West C) South-East D) North-West

25. A-B means A is the mother of B. A* B means A is father of B and A + B means A is the daughter of B. Now for M-N*T + Q, which of the relation is not true ?

A) T is N's daughter B) N is wife of Q C) M is mother in law of Q D) Q is wife of N

A* -6-

PART – B

Instructions: Part – B consists of four sections i.e. Physics, Chemistry, Mathematics and Biology comprising 25 questions each. A candidate must answer Section – I (Physics) and Section – II (Chemistry). From Section – III (Mathematics) and Section – IV (Biology) only one Section either Mathematics (Section – III) or Biology (Section – IV) should be attempted and answered. In case a candidate answers both Mathematics and Biology Sections, best of three Sections i.e. Section – I, II and either III or IV will be evaluated and considered for result preparation.

SECTION – I
PHYSICS

26. A meson is shot with constant speed 5.0×10^6 m/s in an electric field which produces on the meson an acceleration of 1.25×10^{14} m/s^2 directed opposite to the initial velocity. How far does the meson travel before coming to the rest ?

    A) 100 cm   B) 10 cm   C) 5 cm   D) 1 cm

27. A uniform chain is held on a frictionless table with one-fifth of its length hanging over the edge. If the chain has a length l and mass m, how much work is required to pull the hanging part back on the table ?

    A) mgl B) $mgl/5$ C) $mgl/10$ D) $mgl/50$

28. The electric potential in a region of space is given by $V = (5x – 7x^2 y + 8y^2 + 16yz – 4z)$ volt. The y-component of the electric field at the point (2, 4, -3) is

    A) 7 volt/ m   B) 12 volt/ m   C) 16 volt/ m   D) 31 volt/ m

29. A bullet of mass 10 g moving horizontally with speed of 500 m/s passes through a block wood of mass 1 kg, initially at rest on frictionless surface. The bullet comes out of the block with a speed of 200 m/s. The final speed of the block is

    A) 500 m/s   B) 300 m/s   C) 200 m/s   D) 3 m/s

30. Element from which group of periodic table is to be doped to intrinsic silicon to make it p-type

    A) I   B) III   C) IV   D) V

31. Bragg's diffraction condition is

    A) 2dsin = 3n   B) dsin = 2n   C) 2dsin = n   D) dsin = n

32. The value of the ratio of specific heats of a diatomic gas is

    A) 1.66   B) 1.5   C) 1.4   D) 0.5

A∗

33. An athlete consumes 4000 kilocalories per day through his diet. His power in watt is

    A) 4000 watt   B) 768.56 watt   C) 400 watt   D) 193.5 watt

34. If E_1 and E_2 are the binding energy per nucleon for the parent nuclei and its daughter nuclei, then

    A) $E_1 > E_2$ B) $E_1 = E_2$ C) $E_1 < E_2$ D) $E_1 = 3E_2$

35. An ideal gas used in Carnot engine has adiabatic expansion ratio 32. It's specific heat ratio is 1.40. The efficiency of the engine is

    A) 0.99   B) 0.75   C) 0.5   D) 0.25

36. Light propagates in optical fibers with the optical phenomenon of

    A) total internal reflection   B) refraction
    C) reflection   D) diffraction

37. The surface of a metal is illuminated with the light of 400 nm wavelength. The kinetic energy of the ejected photoelectron is found to be 1.69 eV. The work function of the metal is

    A) 1.41 eV   B) 1.51 eV   C) 1.68 eV   D) 3.09 eV

38. A particle has an initial velocity of $(\hat{i} + \hat{j})$ m/s and an acceleration of $(\hat{i} - 3\hat{j})$ m/s^2. Its magnitude of velocity after 1 second is

    A) $\sqrt{8}$ m/s   B) $\sqrt{6}$ m/s   C) $\sqrt{2}$ m/s   D) 0

39. Bomb of mass 16 kg at rest explodes into two pieces of masses of 4 kg and 12 kg. The velocity of the 12 kg mass is 4 m/s. The kinetic energy of the 4 kg mass is

    A) 144 J   B) 188 J   C) 256 J   D) 288 J

40. The resistance of a bulb filament is 100 Ω at a temperature of 100°C. If its temperature coefficient of resistance be 0.005 per °C, its resistance will become 200 Ω at a temperature of

    A) 200°C   B) 300°C   C) 400°C   D) 500°C

41. The magnetic flux linked with a coil at any instant 't' is given by $\varphi = \left[t_2 - 10t + 50 \right]$ Weber. The induced emf in coil at $t = 2$ second is

    A) 50 V   B) 34 V   C) 6 V   D) 2 V

42. An electric bulb is rated 200 volt –100 watt. The power consumed by it when operated on 100 volt will be

    A) 25 watt   B) 50 watt   C) 75 watt   D) 100 watt

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43. Absolute zero temperature is taken as

   A) 273°C   B) – 273°C   C) 237°C   D) – 373°C.

44. The unit of energy in SI system is

   A) Joule metre (Jm)   B) Watt (W)

   C) Joule/metre (J/m)   D) Joule (J)

45. The electric field intensity at a point situated 4 meters from a point charge is 200 N/C. If the distance is reduced to 2 meters, the field intensity will be

   A) 400 N/C   B) 600 N/C   C) 800 N/C   D) 1200 N/C

46. When 4 volt e.m.f is applied across a 1 farad capacitor, it will store energy of

   A) 2 joules   B) 4 joules   C) 6 joules   D) 8 joules

47. Fleming's left hand rule is used to find

   A) direction of magnetic field due to current carrying conductor

   B) direction of flux in a solenoid

   C) direction of force on a current carrying conductor in a magnetic field

   D) polarity of a magnetic pole

48. Two long parallel conductors carry 100 A current. If the conductors are separated by 20 mm, the force per metre of length of each conductor will be

   A) 100 N   B) 10 N   C) 1 N   D) 0.1 N

49. A 2 meters long conductor moves at right angles to a magnetic field of flux density 1 tesla with a velocity of 12.5 m/s. The induced e.m.f. in the conductor will be

   A) 10 V   B) 15 V   C) 25 V   D) 50V

50. As per Bohr model, the minimum energy (in eV) required to remove an electron from the ground state of doubly ionized Li atom ($Z = 3$) is

   A) 1.51   B) 13.6   C) 40.8   D) 122.4

A*

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SECTION – II
CHEMISTRY

51. When an element of very low ionization potential is reacted with an element of very high electron affinity:

   A) A weak ionic bond is formed

   B) A strong ionic bond is formed

   C) A polar covalent bond is formed

   D) A hydrogen bond is formed

52. Which of the following order is not correct ?

   A) Bond order: $O_2^+ > O_2 > O_2^- > O_2^{2-}$

   B) Boiling point: HF > HCl > HBr > HI

   C) Ionization energy: N > O and Be > B

   D) Electronegativity: N > C > P > Si

53. The complex with highest number of unpaired electrons is

   A) $K_4[Fe(CN)_6]$ B) $K_4[FeF_6]$
   C) $[Ti(H_2O)_6]^{3+}$ D) $[Cr(NH_3)_6]^{3+}$

54. The shape of SF_6 is same as that of
   A) IF_7 B) IF_5 C) CO_2 D) $[FeF_6]^{3-}$

55. Which of the following is not correct ?

   A) The outermost electronic configuration of most electronegative elements is $ns^2 np^5$

   B) Order of size: $O^{2-} > F^- > Na^+ > Mg^{2+} > Al^{3+}$

   C) Conjugate acid/base pair: HCO_3^- / CO_3^{2-}

   D) Inert pair effect causes increase in oxidation state of element

56. The complex which would be colourless
   A) $[Ti(H_2O)_6]^{4+}$ B) $[Cr(NH_3)_6]^{3+}$
   C) $[V(H_2O)_6]^{2+}$ D) $[Mn(H_2O)_6]^{2+}$
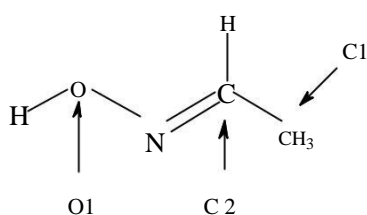
A✳   -10-

57. Lunar caustic is

A) $CuSO_4$ B) $Ca(OH)_2$ C) $AgNO_3$ D) $Pb(OH)_2$

58. "Alums" are double sulphates of

A) Univalent metal and univalent metal

B) Univalent metal and trivalent metal

C) Univalent metal and divalent metal

D) Divalent metal and univalent metal

59. The correct set of approximate bond angles at C1, C2 and O1 for an organic molecule given below is

A) C1-109.5°, C2-120°, O1-104°

B) C1-109.5°, C2-120°, O1-120°

C) C1-120°, C2-109.5°, O1-104°

D) C1-120°, C2-109.5°, O1-120°

60. The difference between a carbene and a carbanion is

A) A carbene is a positively charged species while a carbanion is a neutral species

B) A carbene is an organic molecule used to power green cars while a carbanion is any organic molecule that will not split from its grouping

C) Although both have a lone pair of electrons, a carbene is neutral species while a carbanion has a negative charge

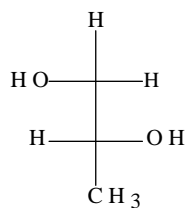D) A carbene remains cohesive while a carbanion is constantly shifting (which is why soda tastes fizzy)

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61. Which is the strongest acid amongst the compounds mentioned below ?
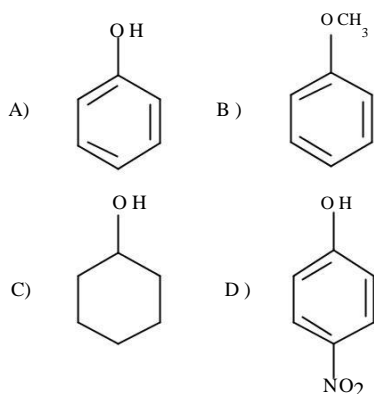
62. Correct IUPAC name of the following molecule is

A) (1R,2R)-Propanediol

B) (R)-1,2-Propanediol

C) (1S,2S)-Propanediol

D) (S)-1,2-Propanediol

63. In the nitration of benzene, which of the following statements is not true ?

A) Conc. H_2SO_4 helps in producing NO_2^{+}

B) A non-aromatic intermediate is formed

C) Benzene acts as an electrophile

D) A proton is lost in the final step

A*

64. Reaction of acetamide with solution of bromine in sodium hydroxide to give methyl amine is known as

A) Gabrial Synthesis   B) Hofmaan rearrangement

C) Curtius rearrangement   D) Reductive amination

65. The pair of reactants for a Grignard reaction that does not give 2-phenylbutan-2-ol after an aqueous workup is

A)

B)

C)

D)
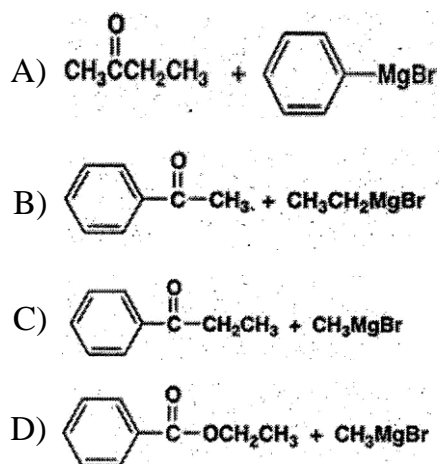
66. Reaction of dimethyl terephthalate (DMT) and ethylene glycol produces

A) Dacron   B) PVC

C) polyester   D) nylon-6

67. The standard equation of Van der Waals (real) gas is

A) $P + \dfrac{na}{v^2}(v - nb) = nRT$

B) $P + \dfrac{n^2 a}{v^2}(v - b) = nRT$

C) $P + \dfrac{n^2 a}{v}(v - nb) = nRT$

D) $P + \dfrac{n^2 a}{v^2}(v - nb) = nRT$

68. Two moles of ideal gas expand in to vacuum; the work done is

   A) 2J   B) 4J   C) zero   D) 10J

69. A crystal with $a = b \ \overline{} \ c$ and $= = \gamma = 90°$ is

   A) cubic   B) tetragonal   C) monoclinic   D) orthorhombic

70. If the activation energy for forward reaction is lower than for backward reaction, then the reaction is

   A) Endothermic   B) Exothermic

   C) Chain   D) Steady state

71. Number of translation, rotational and vibrational degrees of freedom for CO_2, respectively is

   A) 3,3,3   B) 3,2,4   C) 3,3,6   D) 4,2,3

72. In metal and graphite, the conductance is due to the flow of

   A) Cations   B) Anions

   C) Electrons   D) Both A) and B)

73. Ten moles of ideal gas expand in to vacuum; the work done is

   A) 1 J   B) infinity   C) zero   D) 10 J

74. The unit of rate constant of a first order reaction is

   A) $mol \ L^{-1} s^{-1}$ B) s^{-1}

   C) $L \ mol^{-1} s^{-1}$ D) $mol^{-1/2} L^{-1/2} s^{-1}$

75. Mark the solution having highest specific conductance.

   A) 1 M KCl   B) 0.1 M KCl

   C) 0.01 M KCl   D) 0.001 M KCl

SECTION – III
MATHEMATICS

76. If A, B and C are sets and * stands for complementation then

    $\{(A \cap B) \cup C\}* =$

    A) $A* \cap (B* \cup C*)$ B) $A* \cap (B \cup C)*$

    C) $(A* \cap C*) \cup (B* \cap C*)$ D) $(A* \cap B*) \cup (A* \cap C*)$

77. If the roots of the equation $ax^2 + bx + c = 0$ where $a \neq 0$ and $c \neq 0$ and α and β then

    the equation whose roots are $1/\alpha^2$ and $1/\beta^2$ is

    A) $c^2 x^2 - (b^2 - 2ac) x + a^2 = 0$

    B) $c^2 x^2 - (b^2 - 2ac) x - a^2 = 0$

    C) $c^2 x^2 + (b^2 + 2ac) x + a^2 = 0$

    D) $c^2 x^2 - (b^2 + 2ac) x - a^2 = 0$

78. The equations $3x - 7y + k = 0$ and $12x - ly + 36 = 0$ have infinitely many solutions if

    A) $l = 28, k \neq 9$ B) $l = 28, k = 9$

    C) $l \neq 28, k = 9$ D) $l \neq 28, k \neq 9$

79. If $p = 10.235235235……$ then p =

    A) $\dfrac{10,235}{1000}$ B) $\dfrac{10,235}{999}$

    C) $\dfrac{10,225}{1000}$ D) $\dfrac{10,225}{999}$

80. Which of the following sets of ordered pairs is a function from *A* onto *B* where

    A = {2, 4, 6, 8}, B = {1, 3, 5}

    A) {(2, 1), (4, 5), (6, 3), (8, 1)}

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

    C) {(2, 1), (4, 3), (4, 8), (8, 5)}

    D) {(8, 1), (6, 3), (2, 3), (6, 5)}

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81. A cube root of i is

A) $\dfrac{1+\sqrt{3}i}{2}$ B) $\dfrac{1+i}{\sqrt{2}}$ C) $\dfrac{\sqrt{3}+i}{2}$ D) $\dfrac{\sqrt{3}}{2}+i$

82. The coefficient of x^4 in the series expansion of e^{1-2x} is

A) $\dfrac{-2e}{3}$ B) $\dfrac{2e}{3}$ C) $4e$ D) $-4e$

83. The solution (x, y, z) of the system $3x - 2y + z = 2, 2x - y + 3z = 9, 5x - 3y + 4z = 10$ is

A) $(2, 2, 0)$ B) $(1, 2, 0)$

C) $(1, 2, 3)$ D) non existent

84. $A = \begin{matrix} 5 & 0 & 0 & 1 \\ 0 & 2 & 4 & 3 \\ 6 & 1 & 0 & 0 \end{matrix}$ $B = \begin{matrix} 1 & 3 \\ 0 & 4 \\ 2 & 0 \\ 1 & 2 \end{matrix}$ and $AB = C = (c_{ij})$ then the second row of C is

A) 14, 11 B) 17, 6 C) 22, 6 D) 11, 14

85. If $A = \begin{matrix} 3 & 1 & 2 \\ 4 & 0 & 5 \\ -1 & 3 & -4 \end{matrix}$, $A^{-1} = B = (b_{ij})$ then b_{32} is

A) 2/5 B) 7/10 C) 1 D) – 6/5

86. From a box containing three pink, four orange and two blue marbles, two marbles are picked at random. Then the probability that one is pink and the other blue is

A) 1/3 B) 1/2

C) 1/6 D) 2/3

87. $\overline{\left(\dfrac{2\,\textbf{\textit{cis}}\,30^{o}}{4\,\textbf{\textit{cis}}\,60^{o}}\right)^{2}}{}_{3}$ is equal to

A) $\dfrac{1-\sqrt{3}\,i}{32}$ B) $\dfrac{-1 \sqrt{3}\,i}{32}$

C) $\dfrac{1 \sqrt{3}\,i}{32}$ D) $\dfrac{-1 -\sqrt{3}\,i}{32}$

A*

88. If $1 + 5 + 9 + \ldots.x = 780$ then x is

  A)   20   B) 77

  C)   78   D) 39

89. The length of a tangent drawn from the point $(-2, -4)$ to the circle $x^2 + y^2 - 4x - 6y - 3 = 0$ is

  A) 7   B) 5

  C) 4   D) 2

90. For the ellipse $9x^2 + 36y^2 = 324$ the eccentricity, length of the major and minor axes are respectively

  A) $\dfrac{\sqrt{3}}{4}; 12, 2$ B) $\dfrac{\sqrt{3}}{2}; 6, 3$

  C) $\dfrac{\sqrt{3}}{2}; 12, 6$ D) $\dfrac{\sqrt{3}}{4}; 6, 3$

91. $\lim \dfrac{|x|}{x}$ as $x \rightarrow 0$ is

  A)   1   B) – 1

  C) 0   D)   non existent

92. The value of c and k that make the function

$$f(x) = \begin{cases} x\ 2c, & x\ -2 \\ 3cx\ k, & -2\ x\ 1 \\ 3x - 2k, & 1\ x \end{cases}$$

Continuous on $(-\infty, \infty)$ are respectively

  A) $\dfrac{1}{3}, \dfrac{2}{3}$ B) $\dfrac{1}{3}, \dfrac{-2}{3}$

  C) $\dfrac{1}{3}, \dfrac{2}{3}$ D) 0,   0

93. A ball is thrown vertically from the top of a house 112 ft high. Its equation of motions is $s = -16t^2 + 96\ t$ where s ft. is the directed distance of the ball from the starting point at t secs. Then the maximum height in feet attained by the ball and the time in seconds it takes to hit the ground are respectively

  A) 128, 7   B) 144, 7

  C) 144, 3   D) 128, 3

         A*

94. If $f(x) = (x - 4)^2 (x + 2)$, then which only one of the following statements is true ?

   A) $f(x)$ is decreasing if $x < 0$

   B) $f(x)$ is increasing for $0 < x < 4$

   C) $f(x)$ has a relative maximum at $x = 0$

   D) The graph of $f(x)$ has a horizontal tangent at $x = 2$

95. The volume of the solid obtained by revolving the curve $y = x^3$ about x – axis between the lines $x = 0$ and $x = 2$ is

   A) $\dfrac{64\pi}{7}$ B) $\dfrac{128\pi}{7}$ C) $\dfrac{256\pi}{7}$ D) $\dfrac{320\pi}{7}$

96. The center of mass of three particles having masses of 1, 2 and 3 units located at points $(-1, 3)$, $(2, 1)$ and $(3, -1)$ respectively is located at

   A) $\dfrac{7}{3}, \dfrac{4}{3}$ B) $1, \dfrac{4}{3}$ C) $2, \dfrac{1}{3}$ D) $2, \dfrac{-1}{3}$

97. The volume of the parallelepiped having vertices at $P(5, 4, 5)$, $Q(4, 10, 6)$, $R(1, 8, 7)$ and $S(2, 6, 9)$ and edges PQ, PR and PS is

   A) 52 unit   B) 60 units   C) 100 units   D) 108 units

98. A particle is moving along the curve $\overline{r}t = \cos t \, \overline{i} + \sin t \, \overline{j} + t\overline{k}$, starting at $t = 0$. Then its velocity and speed at time $t = $ are given by

   A) $\overline{j}, \sqrt{2}$ B) ▮▮   C) $-\overline{j} + \overline{k}, \sqrt{2}$ D) $\overline{j} + \overline{k}, \sqrt{2}$

99. If $\dfrac{dy}{dx} = x^2 - 2x - 4$, $y(3) = -6$, then $3y$ is equal to

   A) $x^3 + 3x^2 + 12x - 18$ B) $x^3 - 3x^2 + 12x + 18$

   C) $x^3 + 3x^2 + 12x + 18$ D) $x^3 - 3x^2 - 12x + 18$

100. A unit vector parallel to the xz– plane and perpendicular to the vector $4i + \overline{j} - 3\overline{k}$ is

   A) $\dfrac{-3\overline{i}}{5} + \dfrac{4}{3}\overline{k}$ B) $\dfrac{3}{5}\overline{i} + \dfrac{4}{5}\overline{k}$

   C) $\dfrac{4}{5}\overline{i} + \dfrac{3}{5}\overline{k}$ D) $\dfrac{4}{5}\overline{i} - \dfrac{3}{5}\overline{k}$

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SECTION – IV
BIOLOGY

101. The triplet codons UGA, UAG and UAA are termed as termination codons because they

   A) Do not allow ribosomes to bind with mRNA

   B) Do not specify any amino acid

   C) Prevent binding of tRNA anticodons with mRNA

   D) Stop mRNA synthesis

102. Segment of single-stranded RNA(<1500 nts) that remain associated with other virus for its replication and causes various diseases are commonly known as

   A) Satellite RNA

   B) Helper retrovirus

   C) Micro RNA

   D) Heterogeneous RNA

103. Which of the following ecological pyramids will be inverted in shape ?

   A) Ecological pyramids of number in a parasitic food chain of a tree ecosystem

   B) Ecological pyramids of biomass in a parasitic food chain of a tree ecosystem

   C) Ecological pyramids of number of a pond ecosystem

   D) Ecological pyramids of number of a grassland ecosystem

104. When the enzyme Ribulose-1,5-bisphosphate carboxylase/oxygenase(RuBisCO) fails to distinguish its substrates CO_2 and O_2, the condition is often refereed as

   A) Cellular oxidation   B) C3 Photosynthesis

   C) C4 Photosynthesis   D) Photorespiration

105. Fetal hemoglobin consist of

   A) One   chain and twoβ chains

   B) Two   chain and twoβ chains

   C) Two   chain and two   chains

   D) Twoβ chain and two   chains

A✱

106. The Bursa of Fabricius serves as site of hematopoiesis in

   A) Bats   B) Crow

   C) Starfish   D) Lizards

107. Red Data Book was prepared to essentially list some animals, plants and fungi, which are

   A) Most abundant of a given area

   B) Less abundant plants of a given area

   C) Endangered species

   D) Already Extinct

108. Which of the following activities will be severally affected if a patient has injury in abducens nerves ?

   A) Swallowing for food and water

   B) Movement of eye balls

   C) Movement of jaws

   D) Movement of tong

109. The number of Barr Body in a human female with 46, XX karyotype can be _____ per somatic cells.

   A) 22   B) 4   C) 2   D) 1

110. Animals can be categorized into different species, if they

   A) Differ in food habits

   B) Fail to inter breed naturally

   C) Differ in eye, hair and skin color

   D) Are geographically isolated

111. Which of the following may not play crucial role in the process of evolution ?

   A) Mutation

   B) Genetic drift

   C) Genetic recombination

   D) Somatic adaptation

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112. What would the probability of getting a normal son from hemophilic mother and hemophilic father ?

   A) 2.5%   B) 50%

   C) 75%   D) 0.0%

113. The food materials in *Chlorophycean* algea usually stored in the form of

   A) Starch   B) Cellulose

   C) Oil droplets   D) Glycogen

114. A DNA consists of 35% of adenine what would be the percentage of cytosine

   A) 35%   B) 25%

   C) 65%   D) 15%

115. The major function of macula densa in nephron is

   A) To regulate blood pressure for optimum filtration

   B) Selective absorption of water

   C) Selective absorption of proteins and monosaccharides

   D) All of the above

116. Which of the following features is predominantly responsible for widespread distribution of angiospermic plants ?

   A) Well-developed vascular system

   B) Presence of fruit

   C) Presence of seed

   D) Presence of leaves

117. Select the statement which is not correct for family Asteraceae

   A) Ray florets are zygomorphic

   B) Usually disk florets are incomplete flowers

   C) Only ray florets are ligulated

   D) Disc florets are actinomorphic

118. Casparian strips are present in the cells of

    A) Exodermis

    B) Pericycle

    C) Endodermis

    D) Cortex

119. The major function of hydathodes is

    A) Oil secretion

    B) Water secretion

    C) Mucilage secretion

    D) All of the above

120. Which of the following is an important function of velamen tissue ?

    A) Absorption of CO_2

    B) Absorption of O_2

    C) Absorption of atmospheric moisture

    D) Respiration

121. Amphivasal vascular bundles are present in

    A) *Dracaena marginata*

    B) *Oryza sativa*

    C) *Hibiscus sps*

    D) All of the above

A*

122. Which of the following display negative geotropism ?

    A) Fibrous root of *Cynodondactylon*

    B) Aerating roots of *Sonneratiacaseolaris*

    C) Crown roots of *Zea mays*

    D) Areal root of *Ficusbenghalensis*

123. Stimulus in *Mimosa pudica* generally transduce due to

    A) Hormones

    B) cAMP

    C) Change in turgor pressure

    D) Signal transduction

124. Hemoglobin differs from myoglobin in terms of

    A) O_2 binding is more tightly in hemoglobin than myoglobin

    B) Myoglobin possesses quaternary structure whereas hemoglobin possesses tertiary structure

    C) Hemoglobin display allosteric effect during O_2 binding and myoglobin does not

    D) Myoglobin can bind with CO_2 more efficiently than hemoglobin

125. Which of the following is not an essential function of human skin ?

    A) Regulation of body temperature

    B) Absorption of atmospheric O_2

    C) Immunity

    D) Excretion

SPACE FOR ROUGH WORK

A∗ -24-