ENGLISH

Form Number : _____

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN)

path to success

CLASSROOM CONTACT PROGRAMME

(Academic Session : 2019-2020)

MHT-CET: ENTHUSE COURSE

Test Type : ONLINE TEST – 04 **Test Pattern : MHT-CET**

TEST DATE : 24-09-2020

PCB GROUP Paper code: CET2012FSPCB924 **Roll No-** | | | | | | | | |

FULL SYLLABUS:

Important Instructions

Do not open this Test Booklet until you are asked to do so.

1. Immediately fill in the form number on this page of the Test Booklet with *Blue/Black Ball Point Pen. Use of pencil is strictly prohibited*.

2. The candidates should not write their Form Number anywhere else (except in the specified space)on the Test Booklet/Answer Sheet.

3. The test is of **3 hours** duration.

4. The Test Booklet consists of **200** questions. The maximum marks are **200.** Duration 180 minutes

5. Question Paper Format :

Physics (50 Questions) Chemistry (50 Questions) carrying 1 mark each questions and **Bio (100 Questions) carrying 1 mark each**.

Each question has four choices (A), (B), (C) and (D) out of which **ONLY ONE** is correct.

Marking scheme: Phy chem. +1 for correct answer and 0 if not Attempted. **No** negative marking.

Bio +1 for correct answer and 0 if not Attempted. **No** negative marking.

6. Use **Blue/Black Ball Point Pen only** for writting particulars/marking responses on **Side–1** and **Side–2** of the Answer Sheet. **Use of pencil is strictly prohibited.**

7. No candidate is allowed to carry any textual material, printed or written, bits of papers, mobile phone any electronic device etc, except the Identity Card inside the examination hall/room.

8. Rough work is to be done on the space provided for this purpose in the Test Booklet only.

9. On completion of the test, the candidate must hand over the Answer Sheet to the invigilator on duty in the Room/Hall. **However, the candidate are allowed to take away this Test Booklet with them.**

10. Do not fold or make any stray marks on the Answer Sheet.

Your Hard Work Leads to Strong Foundation

SECTION – A- PHYSICS

1. A body is just being revolved in a vertical circle of radius R. The string breaks when the body is at the highest point. What is the horizontal distance covered by the body after the string breaks?

a) R **b)** $R\sqrt{2}$ **c)** 4R **d)** 2R

2. What is the height of a geostationary satellite in terms of M, R, G and T? (T = Length of the day and the other symbols have their usual) meanings in the following options.

a) $\left(\frac{GMT^2}{4\pi^2}\right)^{1/3}+R$ **b)** $\left(\frac{GMT^2}{4\pi^2}\right)^{1/3}-R$ **c)** $\left(\frac{4\pi^2GM}{T^2}\right)^{1/3}$ **d)** $\left(\frac{4\pi GM}{R^2}\right)^{1/3}-R$

3. A metre scale is standing vertically on a horizontal table on one of its end. It now falls on the table without slipping. The velocity with which the free end of the metre scale strikes the table is $\left[\text{Given } I=\frac{ML^2}{3}\right]$

a) 9.8 m/s **b)** 1 m/s **c)** 4.5 m/s **d)** 5.4 m/s

4. A particle is performing a linear S.H.M. of amplitude A. It is found that when it is midway between its mean and extreme positions, the magnitudes of its velocity and acceleration are equal. What is the periodic time of S.H.M. ?

a) $\frac{\sqrt{3}}{2\pi}\sec$ **b)** $\frac{1}{2\pi\sqrt{3}}\sec$ **c)** $2\pi\sqrt{3}\sec$ **d)** $\frac{2\pi}{\sqrt{3}}\sec$

5. What is the energy stored per unit volume in a copper wire of uniform cross section and length 1.5m, when it is stretched to a length of 1.51 m by a stress of 3×10^2 N/m^2 ?

a) 0.25 J/m^3 **b)** 0.5 J/m^3 **c)** 0.75 J/m^3 **d)** 1 J/m^3

6. The excess pressure inside a soap bubble of volume V_1 is twice the excess pressure inside a second soap bubble of volume V_2. The value of the ratio $\frac{V_1}{V_2}$ is

a) 1 **b)** $\frac{1}{2}$ **c)** $\frac{1}{4}$ **d)** $\frac{1}{8}$

7. Two sources A and B are sounding notes of frequency 680Hz. A listener moves from A to B with a constant velocity u. If the speed of sound is 340 m/s, what must be the value of u so that he hears 10 beats/second?

a) 3.5 m/s **b)** 3 m/s **c)** 2 m/s **d)** 2.5 m/s

8. The frequency of vibration of an air column in a pipe closed at one end is n_1 and that of another pipe open at both ends is n_2. When both the pipes are joined end to end to for a pipe closed at one end, the fundamental frequency of vibration of the air column in it is (neglect the end correction)

a) $\frac{2n_1 - n_2}{n_1 n_2}$ Hz **b)** $\frac{n_1 n_2}{2n_1 + n_2}$ Hz **c)** $\frac{n_1 + n_2}{n_1 - n_2}$ Hz **d)** $\frac{n_1 n_2}{2n_2 + n_1}$ Hz

9. A body cools from 50^{o}C to 46^{o}C in 5 minutes and to 40^{o}C in the next 10 minutes. The surrounding temperature is

a) 36^{o}C **b)** 32^{o}C **c)** 28^{o}C **d)** 38^{o}C

10. A ray of light is incident on a medium of refractive index $\sqrt{2}$ at an angle of incidence of 45^0. The ratio of the width of the incident beam in air to that refracted beam in the medium is

a) $(3/2)^{1/2}$ **b)** $(2/3)^{1/2}$ **c)** 3/2 **d)** 2/3

11. Wavelengths of light used in a optical instrument are $\lambda_1 = 4000\,\mathring{A}$ and $\lambda_2 = 5000\,\mathring{A}$. What is the ratio of their respective resolving powers ?

a) 4 : 5 **b)** 16 : 25 **c)** 5 : 4 **d)** 9 : 4

12. A capacitor of 20 μF, charged up to 500 V is connected in parallel with another capacitor of 10 μF which is charged upto 200 V. what is common potential ?

a) 500 V **b)** 300 V **c)** 400 V **d)** 200 V

13. In an experiment to measure the internal resistance of a cell by a potentiometer, it is found that the balance point is at a length of 2 m when the cell is shunted by a 5Ω resistance, and is at a length of 3 m when the cell is shunted by a 10Ω resistance. What is the internal resistance of the cell?

a) 5 Ω **b)** 10 Ω **c)** 15 Ω **d)** 7.5 Ω

14. Due to the flow of current in a circular loop of radius R, the magnetic induction produced at the centre of the loop is B. What is magnetic moment of the loop is (μ_0 = permeability constant)

a) $\frac{2\pi BR^2}{\mu_0}$ **b)** $\frac{BR^3}{2\pi\,\mu_0}$ **c)** $\frac{2\pi BR^3}{\mu_0}$ **d)** $\frac{BR^2}{2\pi\,\mu_0}$

15. A solenoid of length 0.4m and having 500 turns of wire carries a current of 3A. A thin coil having 10 turns of wire and of radius 0.01 m carries a current of 0.4 A. what is the torque required to hold the coil in the middle of the solenoid with axis perpendicular to the axis of the solenoid ? (Use $\pi^2 = 10$)

a) 6×10^{6} N-m **b)** 6×10^{-6} N-m **c)** 7.5×10^{-6} N-m **d)** 4.2×10^{-6} N-m

16. An alternating e.m.f. $e=50\sqrt{2}\sin(100t)$, is connected to a capacitor C = 1 μF. Then the reading shown by the a.c. ammeter connected in the circuit is

a) 2.5 mA **b)** $5\sqrt{2}$ mA **c)** 5 mA **d)** $\frac{5}{\sqrt{2}}$ mA

17. When a metal surface is illuminated by light of wavelengths 400 nm and 250 nm, the maximum velocities of the photoelectrons ejected are v and 2v respectively. What is the work function of the metal?

(h = Plank's constant, C = velocity of light in air)

a) $hC\times10^{6}J$ **b)** $0.5hC\times10^{6}J$ **c)** $2hC\times10^{6}J$ **d)** $1.5hC\times10^{6}J$

18. The circumference of the third Bohr orbit of an electron is $4.5\times10^{-9}m$. What is the De Broglie wavelength of the electron in this orbit?

a) $1.5\times10^{-9}m$ **b)** $3\times10^{-9}m$ **c)** $4.5\times10^{-9}m$ **d)** $6\times10^{-9}m$

19. α and β are the current gains in the CB and CE configurations respectively of a transistor circuit. What is the value of $\frac{\beta-\alpha}{\alpha\beta}$?

a) 2 **b)** 1 **c)** 0.5 **d)** 1.5

20. A modulated carrier wave has maximum and minimum amplitudes of 900 mV and 300 mV respectively. What is the percentage modulation index?

a) 40% **b)** 45% **c)** 50% **d)** 60%

21. The 6000 $\mathring{A}$ line emitted by a gaseous element in a star is found to have a red shift of 15 $\mathring{A}$. What is the speed with which the star is receding from the earth? $\left(c=3\times10^{8}m/s\right)$

a) $5\times10^{5}m/s$ **b)** $6\times10^{5}m/s$ **c)** $7.5\times10^{5}m/s$ **d)** $9\times10^{5}m/s$

22. In a communication system, operating at 1200 nm, only 2% of the source frequency is available for T.V. transmission, having a bandwidth of 5 MHz. The number of T.V. channels that can be transmitted is

a) 1 million **b)** 2 million **c)** 0.5 million **d)** 0.1 million

23. A circular platform of radius r = 2 m and moment of inertia 200 kg m^2 is mounted on a vertical frictionless axle. It is initially at rest. A 70 kg man stand on the edge of the platform and begins to walk along the edge at a constant speed $v_0=1m/s,$ relative to the ground. What is the angular velocity of the platform if initially the platform was at rest?

a) 0.7 rad/s **b)** 0.4 rad/s **c)** 2.0 rad/s **d)** 1.2 rad/s

24. The acceleration due to gravity at a height $\left(\frac{1}{20}\right)^{th}$ of the radius of the earth above the surface of the earth is 9 m/s^2. What is its approximate value at a point at an equal distance below the surface of the earth?

a) 9.5 m/s^2 **b)** $10.5 m/s^2$ **c)** $11.5 m/s^2$ **d)** $8.5 m/s^2$

25. A metal wire P of length L_1 and area of cross –section A is attached to a rigid support in the ceiling of the laboratory. Another metal wire Q of length L_2 and of the same cross sectional area is attached to the free end of P.A body of mass M is then suspended from the free end of Q. Y_1 and Y_2 are the Young's moduli of elasticity of P and Q respectively. What is the effective force constant of the system of P and Q?

a) $\frac{Y_1 Y_2 A}{(Y_1 L_2 + Y_2 L_1)}$ **b)** $\frac{(Y_1 Y_2)^{1/2} A}{(L_1 L_2)^{1/2}}$ **c)** $\frac{Y_1 Y_2 A}{(L_1 L_2)^{1/2}}$ **d)** $\frac{Y_1 Y_2 A}{2(Y_1 L_2 + Y_2 L_1)}$

26. Water rises in a capillary tube upto a height of 2 cm. In another capillary tube whose radius is one third of the first capillary, the rise of water will be

a) *5 cm* **b)** 6 cm **c)** 9 cm **d)** 3 cm

27. The frequencies of three tuning forks A, B and C are related as $n_A > n_B > n_C$. When the forks A and B are sounded together the number of beats produced per second is n_1. When A and C are sounded together the number of beats produced per second is n_2. How many beats are produced per second when B and C are sounded together?

a) $\frac{n_1 + n_2}{2}$ **b)** $n_2 - n_1$ **c)** $n_1 - n_2$ **d)** $n_1 + n_2$

28. A hollow pipe of length 0.8 m is closed at one end. At its open end a 0.5 m long uniform string is vibrating in its second harmonic and it resonates with the fundamental frequency of the pipe. The tension in the wire is 50 N and the speed of sound is 320 m/s. What is the mass of the string?

a) 10 g **b)** 40 g **c)** 5 g **d)** 20 g

29. In Young's double slit experiment, an interference pattern is obtained on a screen by a light of wavelength $6000\,\overset{0}{\text{A}}$ coming from two coherent sources S_1 and S_2. At certain point P on the screen third dark fringe is formed. What is the path difference $S_1P - S_2P$ in micron?

a) *1.5* **b)** 3.5 **c)** 3.0 **d)** 2.5

30. A 4 μF capacitor is charged by a 200 V battery. It is then disconnected from the battery and is connected to another uncharged capacitor of 2 μF . What is the loss of energy during the process?

a) 2.67×10^{-4} J **b)** $3.43\times10^{-2} J$ **c)** $3.43\times10^{-4} J$ **d)** $2.67\times10^{-2} J$

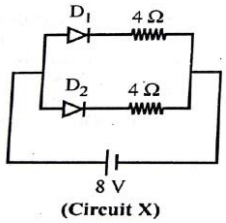
31. V = 100 sin (100t) Volt and I = 70.7 sin $\left(100t+\frac{\pi}{3}\right)mA$ are the instantaneous values of voltage and current in a circuit. What are the rms values of voltage and current?

a) 141.4 V, 100 mA **b)** 70.7 V, 70.7 mA **c)** 100 V, 70.7 mA **d)** 70.7 V, 50 mA

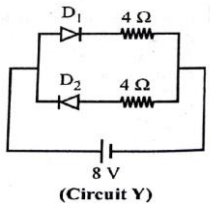
32. An electron in the hydrogen atom jumps form excited state n to the ground state. The wavelength so emitted in this transition illuminates a photosensitive material having work function 2.75 eV. The stopping potential of the photoelectron is 10 V. What is the value of n?

a) 3 **b)** 2 **c)** 5 **d)** 4

33. What are the values of the currents flowing in each of the following diode circuits X and Y respectively? Assume that the diodes are ideal?



(Circuit X)



(Circuit Y)

a) 4A, 2A **b)** 2 A, 1 A **c)** 2 A , 4 A **d)** 1 A, 2 A

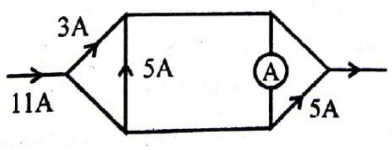
34. A mass of 1 kg suspended from a spring of spring constant 400 N/m, executes simple harmonic oscillations. What is the maximum acceleration experienced by the mass, when the total energy of the oscillator is 2 J?

a) $4m/s^2$ **b)** $20m/s^2$ **c)** $40m/s^2$ **d)** $50m/s^2$

35. A body cools from 60^0C to 55^0C in 30 s, When the surrounding temperature is 45^0C. What is the time taken by the same body to cool from 55^0C *to* 50^0C?

a) 40 s **b)** 55 s **c)** 60 s **d)** 50 s

36. The figure shows a network of wires carrying various currents. What is the current through the ammeter A?



a) 6 A **b)** 2 A **c)** 1 A **d)** 8 A

37. The magnetic induction at the centre of a circular loop of area $\pi m^2 is$ 0.1 T. What is the magnetic moment of the loop?

a) $\frac{0.4\pi}{\mu_0}$ **b)** $\frac{0.2\pi}{\mu_0}$ **c)** $\frac{0.3\pi}{\mu_0}$ **d)** $\frac{0.1\pi}{\mu_0}$

38. Without changing the banking angle, we have to increase the maximum speed with which a vehicle can travel on a curved road by 10 percent. For this the radius of curvature of the road should be changed from 20 m to

a) 18 m **b)** 24.2 m **c)** 30.5 m **d)** 6 m

39. The activity of a radioactive sample is measured as N_0 counts per minute at t = 0 and N_0/e counts per minute at t = 5 minute. What is the time (in minutes) at which the activity of the sample reduces to half of its value?

a) $\log_e\left(\frac{2}{5}\right)$ **b)** $5\log_e 2$ **c)** $\frac{\log e^2}{5}$ **d)** $5\log_{10}2$

40. The frequency of a cyclotron is 10 MHz and the radius of its dees is 0.5 m. What is the kinetic energy of a proton, which is accelerated by the cyclotron? ($m_p = 1.67 \times 10^{-27}$ kg)

a) 20 MeV **b)** 5 MeV **c)** 15 MeV **d)** 10 MeV

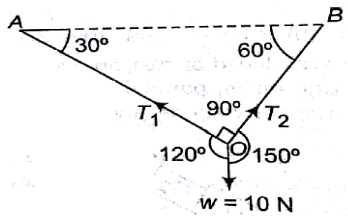
41. A force is applied on a square plate of side L. If the percentage error in the determination of L is 2%. What is the permissible error in pressure?

a) 8% **b)** 6% **c)** 4% **d)** 2%

42. If |A| = 2 and |B| = 4 and angle between them is 60^0, then |A – B| is

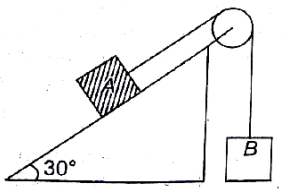
a) $\sqrt{13}$ **b)** $3\sqrt{3}$ **c)** $\sqrt{3}$ **d)** $2\sqrt{3}$

43. A ball of mass 1 kg hangs in equilibrium from a two strings OA and OB as shown in figure. What are the tensions in strings OA and OB? (Take g = 10 m/s^2)



a) 5 N, 5 N **b)** $5\sqrt{3}$ N,$5\sqrt{3}$ N **c)** 5 N,$5\sqrt{3}$ N **d)** $5\sqrt{3}$ N,5 N

44. Two blocks are connected over a massless pulley as shown in figure. The mass of block A is 10 kg and the coefficient of kinetic friction is 0.2. Block A slides down on the inclined plane at constant speed. The mass of block B in k



a) 5.4 **b)** 3.3 **c)** 4.2 **d)** 6.8

45. Light falls on a plane reflecting surface. For what angle of incidence is the reflected ray normal to the incident ray.

a) 60^0 **b)** 45^0 **c)** 90^0 **d)** 30^0

46. Absolute refractive indices of glass and water are $\frac{3}{2}$ and $\frac{4}{3}$. The ratio of velocities of light in glass and water will be

a) 4 : 3 **b)** 9 : 8 **c)** 8 : 9 **d)** 3 : 4

47. The strength of the magnetic field at a distance r near a long straight current carrying wire is B. The field at a distance r/2 will be

a) $\frac{B}{2}$ **b)** $\frac{B}{4}$ **c)** 2B **d)** 4B

48. A current of 0.1 A circulates around a coil of 100 turns and having a radius equal to 5cm. The magnetic field set up at the centre of the coil is ($\mu_0 = 4\pi \times 10^{-7}\, Wb/A-m$)

a) $5\pi \times 10^{-5}$ T **b)** $8\pi \times 10^{-5}$ T **c)** $4\pi \times 10^{-5}$ T **d)** $2\pi \times 10^{-5}$ T

49. The couple acting on a magnet of length 10 cm and pole strength 15 A-m, kept in a field of B = 2 × 10^{-5} T, at an angle of 30^0 is

a) 1.5 × 10^{-5} N-m **b)** 1.5 × 10^{-3} N-m

c) 1.5 × 10^{-2} N-m **d)** 1.5 × 10^{-6} N-m

50. An object is placed at a distance of 30 cm from a concave mirror and its real image is formed at a distance of 30 cm from the mirror. The focal length of the mirror is

a) - 15 cm **b)** - 45 cm **c)** - 30 cm **d)** - 20 cm

SECTION – B- CHEMISTRY

51. 250 mL of 0.1 N solution of HCl contains

a) 0.25 g mole of HCl **b)** 0.025 g mole of HCl **c)** 9.12 g moles of HCl **d)** 0.912 g moles of HCl

52. The density at 20^0C of a 0.5 M solution of acetic acid in water is 1.0042 g/mL. The molality of the solution is

a) 0.50 m **b)** 0.613 m **c)** 0.513 m **d)** 0.48 m

53. When a concentrated sodium chloride solution is electrolysed using steel cathode and graphite anode, the products are

a) Sodium and chloride

b) Hydrogen and oxygen

c) Sodium hydroxide solution

d) Hydrogen, chlorine and sodium hydroxide solution

54. The reaction of aqueous $KMnO_4$ with H_2O_2 in acidic conditions gives

a) Mn^{4+} and O_2 **b)** Mn^{2+} and O_2 **c)** Mn^{2+} and O_3 **d)** Mn^{4+} and MnO_2

55. The method of zone refining of metals is based on the principle of

a) Greater mobility of the pure metal than that of the impurity

b) Higher melting point of the impurity than that of the pure metal

c) Greater solubility of the impurity in the molten state than in the solid

d) Greater noble character of the solid metal than that of the impurity

56. Among the following species, identify the isostructural pairs

$NF_3,\ NO_3^-, BF_3, H_3O^+, HN_3$

a) $[NF_3,\ NO_3^-]$ and $[BF_3, H_3O^+]$

b) $[NF_3, HN_3]$ and $[NO_3^-, BF_3]$

c) $[NF_3, H_3O^+]$ and $[NO_3^-, BF_3]$

d) $[NF_3, H_3O^+]$ and $[HN_3, BF_3]$

57. Hydrogen is not obtained when zinc reacts with

a) Cold water **b)** Hot NaOH solution **c)** dil.H_2SO_4 **d)** dil. HCl

58. Which of the following has abnormally low value of third ionisation enthalpy?

a) Lanthanum **b)** Gadolinium **c)** Lutetium **d)** All of these

59. Low spin complex of d^6-cation in an octahedral field will have the following energy

a) $\frac{-12}{5}\Delta_0 + P$ **b)** $\frac{-12}{5}\Delta_0 + 3P$ **c)** $\frac{-2}{5}\Delta_0 + 2P$ **d)** $\frac{-2}{5}\Delta_0 + P$

60. Which of the following represents the correct order of the acidity in the given compounds?

a) $FCH_2COOH > CH_3COOH > BrCH_2COOH > ClCH_2COOH$

b) $BrCH_2COOH > ClCH_2COOH > FCH_2COOH > CH_3COOH$

c) $FCH_2COOH > ClCH_2COOH > BrCH_2COOH > CH_3COOH$

d) $CH_3COOH > BrCH_2COOH > ClCH_2COOH > FCH_2COOH$

61. Phenol when nitrated with conc.HNO_3 in presence of conc.H_2SO_4 forms

a) *o*-nitrophenol **b)** *m*-nitrophenol **c)** *p*-nitrophenol **d)** picric acid

62. If heat of dissolution of anhydrous $CuSO_4$ and $CuSO_4.5H_2O$ are -15.89 kcal and + 2.80 kcal respectively, then the heat of hydration of $CuSO_4$ to form $CuSO_4.5H_2O$ is

a) – 13.09 kcal **b)** – 18.69 kcal **c)** + 13.09 kcal **d)** + 18.69 kcal

63. 28 g of N_2 gas at 300 K and 20 atm was allowed to expand isothermally against a constant external pressure of 1 atm, q for the gas is (R = 0.082)

a) 2495 J **b)** 7473 J **c)** 2367 J **d)** 2570 J

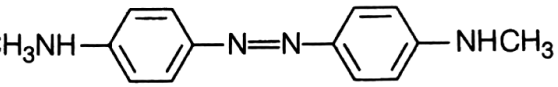
64. The number of steps in which orthophosphoric acid ionizes is/are

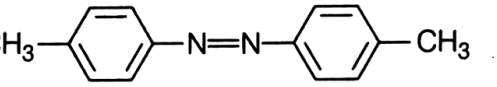
a) 3 **b)** 1 **c)** 4 **d)** 2

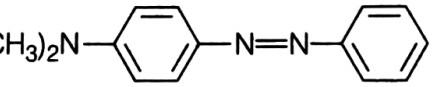
65. Which one of the following is a cellulose fibre?

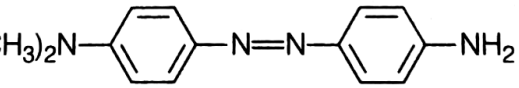
a) Hair **b)** Wool **c)** Cotton **d)** Silk

66. Aniline when diazotised in cold $NaNO_2$ nad then treated with dimethylaniline gives a colouredproduct, whose structure would be

a) 

b) 

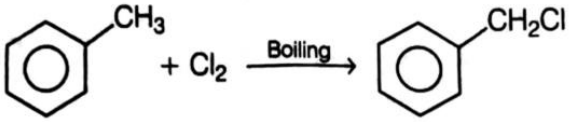
c) 

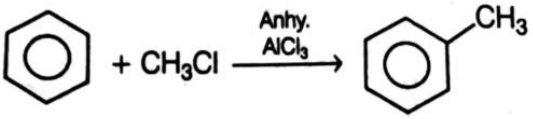
d) 

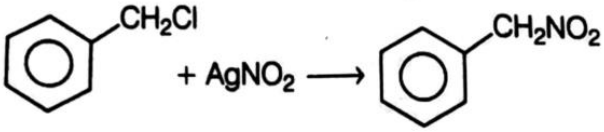
67. Amoxillin is semi synthetic modification of

a) penicillin **b)** streptomycin **c)** tetracycline **d)** chloramphenicol

68. Which of the following is a free radical substitution reaction?

a) 

b) 

c) 

d) $CH_3CHO + HCN \longrightarrow CH_3CH(OH)CN$

69. The electrode potential $E_{(Zn^{+2}/Zn)}$ of a zinc electrode or 25^{0}C with an aqueous solution of 0.1 M $ZnSO_4$ is $[E_{(Zn^{+2}/Zn)} = -0.76V]$ [assume $\frac{2.303RT}{F} = 0.06$ at 298k]

a) + 0.73 V **b)** – 0.79 V **c)** – 0.82 V **d)** – 0.70 V

70. The enzyme which can catalyse the conversion of glucose to ethanol is

a) zymase **b)** invertase

c) maltase **d)** diastase

71. A first order reaction is 75% completed after 32 min. When was 50% of the reaction completed?

a) 16 min **b)** 8 min **c)** 4 min **d)** 40 min

72. Ellingham diagram represents

a) change of ΔG with temperature **b)** change of ΔH with temperature

c) change ΔG with pressure **d)** change of (ΔG -TΔS)

73. Potassium has a bcc structure with nearest neighbouring distance 4.52 A^{o}. Its atomic mass is 39. Its density will be

a) 454 kg/m^3 **b)** 804 kg/m^3 **c)** 852 kg/m^3 **d)** 910 kg/m^3

74. Which one of the following orders is not proper?

a) $F_2 > Cl_2 > Br_2 > I_2$: Electronegativity

b) $F_2 > Cl_2 > Br_2 > I_2$: Bond dissociation energy

c) $F_2 > Cl_2 > Br_2 > I_2$: Oxidising power

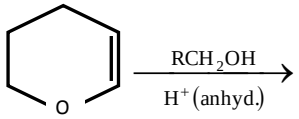
d) HI > HBr > HCl > HF : Acidic property in water

75. When neopentyl bromide is subjected to Wurtz reaction, the product formed is

a) 2,2,4,4-tetramethyl hexane **b)** 2,2,4,4-tetramethyl pentane

c) 2,2,5,5-tetramethyl hexane **d)** 2,2,3,3-tetramethyl hexane

76. Major product in the following reaction are

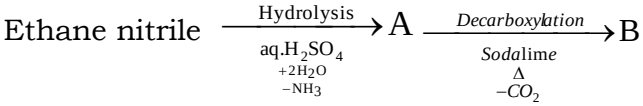


a) hemiacetal **b)** an ester **c)** an ether **d)** an acetal

77. Which of the following reagent is capable of converting ethyl acetate to ethanol

a) Zn – Cu/H_2O **b)** P/HI **c)** $LiAlH_4$ **d)** None of these

78. Identify A and B in the reaction given below



a) acetic acid, methanol **b)** acetone, methane

c) ethanoic acid, ethane **d)** ethanoic acid, methane

79. Correct statement among the following is

a) All macromolecules are polymers

b) Physical and mechanical properties of a polymer are similar to its monomer

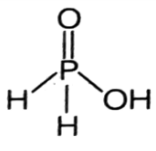
c) Majority of bonds in polymer molecule are covalent

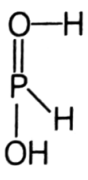
d) Vitamins are polymers

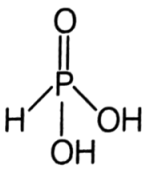
80. The stability of arenediazonium ion is due to resonating structures.

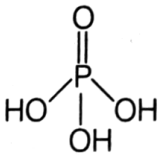
a) 1 **b)** 3 **c)** 5 **d)** 7

81. The structural formula of hypophosphorous acid is

a) 

b) 

c) 

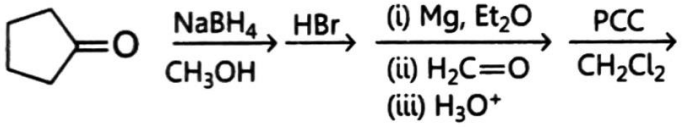
d) 

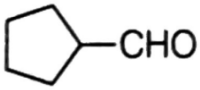
82. The standard emf of a galvanic cell can be calculated from

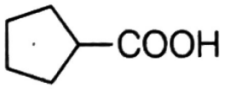
a) The size of the electrode **b)** The pH of the solution

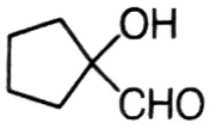
c) The amount of metal in the anode **d)** The E^0 values of the half-cells

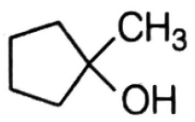
83. What is the product of the following sequence of reactions?



a) 

b) 

c) 

d) 

84. The paramagnetic oxides of nitrogen are

a) Dinitrogen monoxide and nitrogen monoxide

b) Nitrogen monoxide and nitrogen dioxide

c) Nitrogen dioxide and dinitrogen trioxide

d) Dinitrogen trioxide and dinitrogen tetraoxide

85. The rate equation for the reaction 2A+B→C is found to be rate =k[A][B].The correct statement in relation to this reaction is that the

a) Units of k must be s^{-1}

b) $t_{1/2}$ is constant

c) Rate of formation of C is twice the rate of disappearance of A

d) Value of k is dependent of the initial concentration of A and B

86. Primary amine and aldehyde react to give

a) amide **b)** imine **c)** nitrite **d)** nitro compound

87. When Cl_2 gas reacts with hot and concentrated sodium hydroxide solution, the oxidation number of chloride changes from

b) zero to +1 and zero to -5 **c)** zero to -1 and zero to +5

d) zero to -1 and zero to +3 **e)** zero to +1 and zero to -3

88. Which of the following cannot be explained by CFT?

a) Electrovalency **b)** Covalency **c)** Secondary valency **d)** Oxidation number

89. Among the acids which have lowest pK_a value?

a) CH_3COOH **b)** $CH_3 - CH_2 - COOH$

c) $CH_3 - \underset{\displaystyle NO_2}{\underset{|}{CH}} - COOH$ **d)** $CH_3 - \underset{\displaystyle COOH}{\underset{|}{CH}} - COOH$

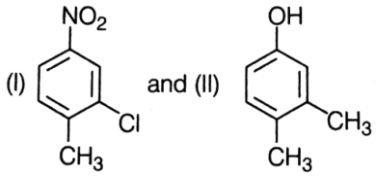
90. The metal commonly present in brass and german metal is

a) Mg **b)** Sn **c)** Cu **d)** Al

91. 60 mL of $\frac{N}{5} H_2SO_4$, 10 mL of $\frac{N}{2} HNO_3$, 30 mL of $\frac{N}{10}$ HCl are mixed together. The strength of the resulting mixture is

a) 0.10 N **b)** 0.2 N **c)** 0.3 N **d)** 0.4 N

92. Write the correct IUPAC name of the following



a) 2-chloro-1 methyl-4nitrobenzene and 3,4-dimethylphenol

b) 4- methyl -5 chloro nitrobenzene and 3,4-dimethylphenol

c) 2-methyl-1-chloro-5-nitrobenzene and-dimethylphenol

d) 3-chloro-4-methyl nitrobenzene and dimethylphenol

93. The order of acidic strength of boron trihalides

a) $BF_3 < BCl_3 < BBr_3 < BI_3$ **b)** $BI_3 < BBr_3 < BCl_3 < BF_3$

c) $BBr < BCl_3 < BF_3 < BI_3$ **d)** $BF_3 < BI_3 < BCl_3 > BBr_3$

94. The increase in boiling points of noble gases from He to Xe is due to the

a) decrease in ionisation energy **b)** increase in Polarisability

c) increase in electron affinity **d)** increase in atomic volume

95. Mendius reaction involves the reduction of

a) Cyanoalkanes **b)** Alkyl isocyanides

c) Oximes **d)** Nitroalkanes

96. Hydrogen peroxide is used as an antiseptic under the name of

a) iodoform **b)** perhydrol **c)** hydrol **d)** None of these

97. Which is NOT true in case of an ideal gas?

a) It cannot be converted into a liquid

b) There is no interaction between the molecules

c) All molecules of the gas move with same speed

d) At a given temperature, PV is proportional to the amount of the gas.

98. Consider the following reaction

$$xMnO_4^- + yC_2O_4^{2-} + zH^+ \longrightarrow xMn^{2+} + 2yCO_2 + z/2H_2O$$

The values of x, y and z in the reaction are _____ respectively

a) 5, 2 and 8 **b)** 5, 2 and 16 **c)** 2, 5 and 8 **d)** 2, 5 and 16

99. The amount of electrolytes required to coagulate a given amount of AgI colloidal solution (-ve charge) will be in the order _____

a) $NaNO_3 > Al(NO_3)_3 > Ba(NO_3)_2$ **b)** $Al(NO_3)_3 > Ba(NO_3)_2 > NaNO_3$

c) $Al(NO_3)_3 > NaNO_3 > Ba(NO_3)_2$ **d)** $NaNO_3 > Ba(NO_3)_2 > Al(NO_3)_3$

100. Which one of the following has sp^3, sp^2, sp hybrid orbitals in the ratio 6 : 3 : 2?

a) $H_3C - CH = CH - CH_2 - C \equiv C - CH_3$ **b)** $H_3C - CH = CH - CH_2 - C \equiv CH$

c) $H_3C - CH_2 - C \equiv C - CH = CH_2$ **d)** $H_3C - CH = CH - C \equiv CH$

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101. Chances of segregation of alleles in gametes are

a) 25% **b)** 35% **c)** 50% **d)** 75%

102. 3:1 ratio in F_2-generation is explained by

a) Law of partial dominance **b)** Law of dominance

c) Law of incomplete dominance **d)** Law of purity of gametes

103. The ABO blood group are controlled by

a) I-gene **b)** C-gene **c)** B-gene **d)** N-gene

104. Which one of the following pairs of features is a good example of polygenic inheritance?

a) Human height and skin colour

b) ABO blood group in humans and flower colour of Mirabilis jalapa

c) Hair pigment of mouse and tongue rolling in humans

d) Human eye colour and sickle-cell anaemia

105. In DNA of certain organisms, guanine constitutes 20% of the bases . What percentage of the bases would be adenine?

a) 0% **b)** 10% **c)** 20% **d)** 30%

106. Identify the incorrect difference from the following given difference between leading and lagging strand and select the correct option.

Leading strand	Lagging strand
a) It grows continuously as a single piece	It is formed initially as short segments, called Okazaki segments
b) It needs a single RNA primer to start its growth	Each segment needs a separate RNA primer to start
c) It does not need DNA ligase	DNA ligase is needed to join Okazaki fragments
d) Direction of growth is 3'→5'	Direction of growth of each Okazaki fragment is 3' → 5'

107. Work of Beadle and Tatum on Neurospora crassa proved that

a) Replication of DNA is semi-conservative **b)** Viruses have genetic material

c) Every gene is responsible for specific enzymes **d)** Plant cells are totipotent

108. 70 S ribosome and 80 S ribosome respectively are found in

a) Prokaryotes and eukaryotes **b)** Eukaryotes and prokaryotes

c) Only Prokaryotes **d)** Only Eukaryotes

109. Repressor proteins of lac operon bind to

a) Exons **b)** Introns

c) Operator **d)** Structural genes

110. In a 3.2 Kbp long piece of DNA, 820 adenine bases were found. What would be the number of cytosine bases ?

a) 780 **b)** 1560 **c)** 740 **d)** 1480

111. Which of the following is not contained in a eukaryotic nucleus?

a) Nucleosome **b)** Nucleolus **c)** Chromatin **d)** Circular DNA molecules

112. Restriction enzymes are used to cut

a) Single-stranded RNA **b)** Double-stranded DNA

c) Single-stranded DNA **d)** Double stranded RNA

113. GAATTC is the recognition site for the restriction endonuclease

a) Eco RI **b)** Hind II **c)** Eco RII **d)** BAM HI

114. PCR proceeds in three distinct step governed by temperature, they are in order of

a) Denaturation, annealing, synthesis **b)** Synthesis, annealing, denaturation

c) Annealing ,synthesis, denaturation **d)** Denaturation , synthesis , annealing

115. Golden rice was created by transforming rice with two beta-carotene biosynthesis genes , namely

a) Psy and Cry 1 genes

b) LCY-e

c) CHY-1

d) CHY-2

116. Cry I endotoxins obtained from Bacillus thuringiensis are effective against

a) Nematodes **b)** ballworms

c) mosquitoes **d)** flies

117. Most widely used bioweapon is

a) Bacillus subtilis **b)** Pseudomonas putida **c)** Bacillus anthracis **d)** None of these

118. Match the following columns.

Column I	Column II
A. Plasmids	1.Natural polymer of D- galactose
B. Bacteriophages	2. Hybrid vector derived from plasmids
C. Cosmids	3. Virus infecting bacteria
D. Agarose	4. Circular extrachromosomal DNA

Codes

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
a)	2	1	3	4	**b)**	4	3	2	1	**c)**	3	2	1	4	**d)**	1	4	3	2

119. Aim of the plant breeding is to grow

a) Disease-free varieties **b)** High yielding varieties

c) Early maturing varieties **d)** All of above

120. Study the following columns.

Column I	Column II
A. Usage of bisexual flowers as female parents	**1.** Clonal selection
B. Incorporation of several desirable characters into a single variety	**2.** Pure line selection
C. Exploiting hybrid vigour for many generations	**3.** Emasculation
D. Improving local varieties of self pollinated crop	**4.**Hybridisation
	5. Polyploidy breeding

Codes

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
a)	4	5	3	1	**b)**	2	3	4	5	**c)**	3	4	1	2	**d)**	1	5	2	4

121. Plants having similar genotypes produced by plant breeding are called

a) Haploid **b)** Autoploid **c)** Clone **d)** None of these

122. In tissue culture , roots can be induced by

e) Lower concentration of cytokinin and higher concentration of auxins

f) Only cytokinin and no auxins

g) No cytokinin and only auxins

h) Higher concentration of cytokinin and lower concentration of auxins

123. Triticum *aestivum* , the common breed of wheat is

a) Triploid with 21 chromosome

b) Tetraploid with 28 chromosomes

c) Hexaploid with 42 chromosomes

d) Diploid with 14 chromosomes

124. Match the following columns.

Column I	Column II
A. Mutation breeding	1. Laborious and expensive process to obtain gene variation
B. Selection	2. Hybrid vigour can be maintained for several generations
C. Hybridisation	3. Simplest and easiest method of plant improvement
D. Introduction	4. Oldest breeding method
	5. Quick method to obtain gene variation

Codes

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
a)	5	4	1	2	**b)**	5	4	1	3	**c)**	4	2	3	1	**d)**	1	2	4	5

125. Hidden hunger can be defined as

a) Majority people are unable to buy enough fruits, vegetables, legumes , fish and meat and thus suffer from deficiency

b) People are unable to buy healthy drink item and thus suffer from deficiency

c) People are unable to buy vitamin and minerals medicines and thus suffer from deficiency

d) All of the above

126. Flocs' is

a) The primary sludge produced in sewage treatment

b) A type of biofortified food

c) A mesh-like structure formed by the association of bacteria and fungal filaments in sewage treatment

d) The effluent in primary treatment tank obtained during sewage treatment

127. Methanogens growing anaerobically on cellulosic material produce.

a) Methane

b) Methane and carbon dioxide

c) Methane and hydrogen

d) Methane, carbon dioxide and hydrogen

128. Which of the following plant are used as green manure in crop fields and in sandy soils?

a) Crotalaria juncea and Alhagi camelorum

b) Calotropis procera and phyllanthus niruri

c) Sachharum munja and lantana camara

d) Dischanthum annulatum and Acacia nilotica

129. Main biosynthetic pathway for CO_2 fixation in C_4-plant is

a) C_4-plant is **b)** C_3-pathway

c) C_2-pathway **d)** Both (a) and (b)

130. Photorespiration is favoured by

a) High oxygen and low carbon dioxide **b)** High carbon dioxide and low oxygen

c) High temperature and low oxygen **d)** High humidity and temperature

131. In C_4-pathway , the CO_2 fixation in mesophyll cells is carried out by the enzyme

a) Pyruvate dehydrogenase **b)** Pyruvate decarboxylase

c) PEP carboxylase **d)** RuBsiCo

132. Which one is essential for the respiration as well as photosynthesis?

a) RnBisCo **b)** Plastocyanin **c)** Ubiquinone **d)** Cytochrome

133. Release of energy by breaking down of C-C bond of various organic molecules by oxidation process for cellular use is known as

a) Respiration **b)** Photorespiration **c)** Oxidative phosphorylation **d)** Combustion

134. Which one of the following reaction is an example of oxidative decarboxylation ?

a) *Conversion of succinate to fumarate*

b) Conversion of fumarate to malate

c) Conversion of pyruvate to acetyl Co-A

d) Conversion of citrate to isocitrate

135. In aerobic respiration , citric acid cycle takes place in

a) Cytosol **b)** Mitochondria

c) Peroxisome **d)** Endoplasmic reticulum

136. Refer the give equation .

$2(C_{51}H_{98}O_6) + 145\ O_2 \rightarrow 102\ CO_2 + 98\ H_2O$ + Energy

The respiratory quotient in this case is

a) 1 **b)** 0.7 **c)** 1.45 **d)** 1.62

137. A scientist added a chemical (cyanide) to an animal cell to stop aerobic respiration. Which of the following is most likely to have been affected by this treatment ?

a) Active transport of substances across the plasma membrane

b) Passive transport of substances across the plasma membrane

c) Diffusion of substances across the plasma membrane

d) The thickness of the plasma membrane

138. Match the compounds given in column I with the number of carbon atoms present in them which are listed under column II. Choose the answer which gives the correct combination of alphabets of the two columns.

Column I	Column II
A. Oxaloacetate	1. 6-C compound
B. Phosphoglyceraldehyde	2. 5-C compound
C. Isocitrate	3. 4-C compound
D. α Ketoglutarate	4. 3-C compound
	5. 2-C compound

Codes

	A	B	C	D
a)	4	5	2	3
b)	3	4	1	2
c)	3	5	1	2
d)	2	1	5	3

139. Which of the following is the site of respiration in bacteria?

a) Episome **b)** Ribosome **c)** Mesosome **d)** Microsome

140. Transfer of pollen grains from the anther to the stigma of another flower of the same plant.

a) Xenogamy **b)** Geitonogamy **c)** Karyogamy **d)** Autogamy

141. In some organisms karyokinesis is not followed by cytokinesis as a result of which multinucleate condition arises leading to the formation of syncytium the perfect example for this is

a) Appearance of a furrow in cell membrane **b)** Liquid endosperm in coconut

c) Sexual reproduction **d)** fertilisation

142. In the fully organised Polygonum type of embryo sac, what is the ratio of haploid, diploid and triploid nuclei?

a) 3:1:3 **b)** 6:0:1 **c)** 6:1:0 **d)** 3:2:3

143. Scutellum is

a) Cotyledon in dicots **b)** Cotyledon in gymnosperm

c) Monocot root **d)** Cotyledon in grass family

144. In Albizzia, vegetative propagation takes place with the help of

a) Fasciculated tuberous roots **b)** Epiphyllous buds

c) Subaerial branches **d)** Non-fleshy roots

145. Through which cell of the embryo sac, does the pollen tube enter sac?

a) Egg cell **b)** Central cell **c)** Persistant synergid **d)** Degenerated synergid

146. An angiospermic plant has 24 chromosomes in microspore mother cells. The number of chromosomes in its endosperm will be

a) 12 **b)** 24 **c)** 36 **d)** 48

147. Bright colouration of flowers is an adaption for

a) *Anemophily* **b)** Hydrophily **c)** Malacophily **d)** entomophily

148. In a stable ecosystem which of the following limits the number of trophic levels?

a) Biomass

b) The number of nutrients

c) Availability of nutrients

d) Presence of contaminants that increase in concentration along the food chain.

149. Energy transferred from one trophic level to another is

a) 5% **b)** 10% **c)** 15% **d)** 20%

150. Match the following columns.

Column I	Column II
A. Xeroseres	1. Ecological succession starts on terrestrial habitat
B. Hydroseres	2. Succession begins from open water
C. Lithoseres	3. Succession begin on sand
D. Pasammoseres	4. Succession start on bare rock

Codes

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
a)	3	1	2	4	**b)**	4	3	1	2	**c)**	4	2	1	3	**d)**	2	4	3	1

151. Polyblend is

a) A magnetic substance **b)** Fine powder of recycled modified plastic

c) Magnetic substance **d)** Melted rubber

152. Chipko movement is concerned with

a) Conservation of natural resources **b)** Plant/forest Conservation

c) Plant hybridisation **d)** Environmental pollution

153. NEERI is

a) National Ethological and ecological research **b)** National eugenics and ecological research institute

c) National ecological and environment research **d)** National environmental engineering research

154. The first living beings were

a) Chemoheterotrophs **b)** Chemoautotrophs

c) Oxygenic photoautotrophs **d)** Anoxygenic phtoautrophs

155. A baby has been born with small tail. It is the case exhibiting

a) Retrogressive evolution **b)** Multation

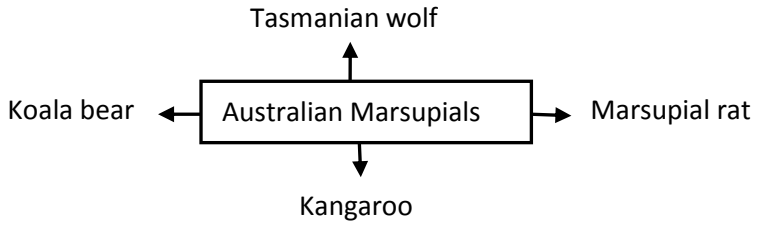
c) Atavism **d)** metamorphosos

156. Match the following columns.

Column I	Column II
A. Genetic drift	1. Change in the population's allele frequency due to chance alone
B. Natural Selection	2. Difference in survival individuals
C. Gene Flow	3. Succession begin on sand
D. Mutation	4. Source of the new alleles

Codes	A	B	C	D
a)	1	2	3	4
b)	1	2	4	3
c)	1	4	2	3
d)	4	2	1	3

157. Identify what the given diagram indicates?



a) Convergent evolution **b)** Divergent evolution

c) Recapitulation **d)** Parallel evolution

158. Female characteristics in males is a common feature seen in

a) Down's syndrome **b)** Turner's syndrome **c)** PKU **d)** Klinefelter's syndrome

159. Which of the following is correct match?

Column I	column II	Column III
a) Thalassemia	A. XO	(i) Flat nose, simian crease
b) Down's syndrome	B. 42 AA+ XY	(ii) Webbing of neck
c) Turner's syndrome	C. 44 AA + XXX	(iii) Anaemia, jaundice
d) Klinefelter's syndrome	D. 44 AA + XXY	(iv) Tall thin eunuchoid

160. Which of the following recombinant protein is used to prevent clots?

a) TGE-B **b)** TPA **c)** Blood clotting factor VII **d)** Human Growth Hormone

161. Match the following columns.

Column I	Column II
A. VNTR	1. Largest gene
B. Introns and exons	2. DNA fingerprinting
C. Dystrophin	3. Bulk DNA
D. Satellite DNA	4. Splicing

Codes

A B C D	A B C D	A B C D	A B C D
a) 3 4 1 2	**b)** 2 4 1 3	**c)** 2 1 4 3	**d)** 4 1 2 3

162. Which of the following is utilised to promote growth and formation of new blood vessels so as to heal wounds?

a) Humulin **b)** TPA **c)** TGF-β **d)** $\alpha-1-antitryp\sin$

163. The full form of SCID is

a) Secondary Communicable internal Disease

b) Secondary Community infectious Disease

c) Severe Combined immune Deficiency

d) Severe Communicable infectious Disease

164. A male showing aggressiveness, mood swings, depression, reduction of size of the testicles, decreased sperm production, breast enlargement premature baldness. Possibly he is taking

a) Anabolic steroids **b)** heroin **c)** marijuana **d)** morphine

165. Match the following columns.

Column I	**Column II**
A. Physical barriers	1. Interferon
B. Physiological barriers	2. Leukocytes
C. Cellular barriers	3. Tears
D. Cytokinin barriers	4. Skin

Codes

A B C D	A B C D	A B C D	A B C D
a) 3 2 1 4	**b)** 2 1 4 3	**c)** 1 4 3 2	**d)** 4 3 2 1

166. Match the following columns.

Column I	Column II
A. Vector borne diseases	1. Pneumonia and common cold
B. Air boron diseases	2. Dengue and chikengunya
C. Through contaminated food and water	3. Ringworm
D. Fungal disease	4. Typhoid and amoebiasis

Codes

A B C D	A B C D	A B C D	A B C D
a) 2 1 4 3	**b)** 1 4 3 2	**c)** 4 2 1 3	**d)** 2 1 3 4

167. After drinking alcohol, a person walks clumsily because, the alcohol affects his

a) cerebellum **b)** cerebrum **c)** medulla oblongata **d)** spinal cord

168. Ergot of fungus produces

a) charas **b)** LSD **c)** marijuana **d)** ganja

169. Match the following columns.

Column I	Column II
A. Brown Swiss	1. Indian cattle breed
B. Aseel	2. Indian fowl breed
C. New Hampshire	3. Exotic cattle breed
D. Hallikar	4. Exotic fowl breed

Codes

A B C D	A B C D	A B C D	A B C D
a) 3 2 4 1	**b)** 1 4 3 2	**c)** 2 4 3 1	**d)** 4 3 1 2

170. Hissardale is obtained by crossing

a) Horse with donkey **b)** Marino ewes with Bikaneri rams

c) Superior bull with superior cow **d)** Bikaneri ewes with Merino Rams

171. Which of the following stage is suitable for obtaining silk?

a) Adult **b)** Cocoon **c)** Egg **d)** Caterpillar

172. The impulse of heartbeat originates from

a) SA node **b)** Vagus nerve **c)** Cardiac nerve **d)** AV node

173. The heart of a healthy man beats normally per minute

a) 60-70 times **b)** 70 – 80 times **c)** 80 – 90 times **d)** 85 – 95 times

174. Match the following columns.

Column I	Column II
A. Polyuria	1. WBCs or pus in urine
B. Pyuria	2. High level of urine acid in blood
C. Gout	3. Excess of urine output
D. Haematuria	4. Presence of blood (RBCs) in urine

Codes

A B C D	A B C D	A B C D	A B C D
a) 3 1 2 4	**b)** 2 3 1 4	**c)** 1 2 3 4	**d)** 4 3 2 1

175. The difference between blood and lymph is

a) Blood has RBCs and WBCs, while lymph has no cells

b) Blood has RBCs and WBCs, while lymph has only WBCs

c) Blood has WBCs, while lymph has RBCs

d) Blood has dissolve salt, while lymph has no cells

176. Which of the following animal has enucleated erythrocytes?

a) Earthworm **b)** Sepia **c)** Frog **d)** Rat

177. Blocking of arteries due to the deposition of fats and calcium is called

a) Arterosclerosis **b)** Atherosclerosis **c)** Emphysema **d)** Heart syndrome

178. Cardiac output is determined by

a) Heart rate **b)** Stroke volume **c)** Blood flow **d)** Both (a) and (b)

179. Green glands present in some arthropods help in

a) respiration **b)** excretion **c)** digestion **d)** reproduction

180. In 24 hours, total glomerular filtrate formed in human kidney is

a) 1.8 L **b)** 8L

c) 18 L **d)** 180 L

181. Function of ADH is

a) Reabsorption of water **b)** Reabsorption of sodium

c) Diluting the urine **d)** Increasing sugar level in urine

182. Ammonia is converted into urea in

a) kidney **b)** lungs **c)** liver **d)** spleen

183. The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus, etc. form a complex structure called

a) arbor vitae **b)** limbic lobe/limbic system

c) corpora quadrigemina **d)** reticular system

184. Pneumotaxic centre which can moderate the functions of the respiratory rhythm centre is present at

a) Pons region of brain **b)** Thalamus

c) Spinal cord **d)** Right cerebral hemisphere

185. Brain and spinal cord, combinely form the

a) CNS **b)** PNS **c)** Both (a) and (b) **d)** Neural system

186. Blind spot is called so because of

a) The presence of photoreceptor cells **b)** Presence of optics nerves

c) The absence of photoreceptor cells **d)** None of the above

187. Match each hormone (Column I) with its effect on target cells (Column II) and the gland where it is produced (Column III). Then choose the correct option from the codes given below.

Column I	Column II	Column III
1. Thyroxine	A. Lowers Blood glucose	P. Pineal gland
2. Insulin	B. stimulates ovary	Q. Testes
3. PTH	C. Triggers 'fight or flight'	R. Parathyroid
4. Epinephrine	D. Promotes male traits	S. Adrenal medulla
5. Melatonin	E. Regulate metabolism	T. Hypothalamus
6. ADH	F. Related to daily rhythm	U. Pancreas
7. Androgen	G. Rises blood Ca^{2+} level	V. Anterior pituitary
8. FSH	H. Boost water retention	W. Thyroid gland

a) 1 – E, W; 2 – A, U; 3 – G, R; 4 – C, S; 5 – F, P; 6 – H, T; 7 – D, Q; 8 – B, V

b) 1 – E, W; 2 – A, R; 3 – V, R; C, U; 5 – F, T; 6 – H, S;7 – D, Q;8 – B, P

c) 1 – B, V; 2 – E,U; 3 – G, W; 4 – C, S; 5 – A, P; 6 – H, T; 7 – D, Q; 8 – F, R

d) 1 – A, W; 2 – C, U; 3 – G,R; 4 – E, S; 5 – F, P; 6 – H, T; 7 – D, Q; 8 – B, V

188. Which of the following is a motor nerve?

a) Glossopharyngeal **b)** Vagus

c) Abducens **d)** Olfactory

189. Hormone, which is responsible for contraction of uterus is

a) Vasopressin **b)** Oxytocin **c)** Thyrotropin **d)** Gonadotropin

190. Pituitary gland is derived from

a) ectoderm **b)** endoderm **c)** mesoderm **d)** None of these

191. Layers of an ovum from outside to inside is

a) corona radiata, zona pellucida and vitelline membrane

b) zona pellucida, corona radiata and vitelline membrane

c) vitelline membrane, zona pellucida and corona radiata

d) zona pellucida, vitelline membrane, and corona radiata

192. The cells of the trophoblast in contact with inner mass of cells are called

a) cells of embryo **b)** cells of rauber

c) cells of organogenesis **d)** cells of blastula

193. The technique called Gamete Intra Fallopian Transfer (GIFT) is recommended for the females

a) Who can't produce an ovum

b) Who can't retain the foetus inside the uterus

c) Whose cervical canal is too narrow to allow the passage for the sperms

d) Who can't provide suitable environment for fertilisation

194. Oral contraceptives have hormonal preparation of

a) progesterone **b)** oestrogen

c) Both (a) and (b) **d)** None of these

195. One of the legal methods of birth control is

a) Abortion by taking an appropriate medicine

b) By abstaining from coitus from day 10-17 of the menstrual cycle

c) By having coitus at the time of day break

d) By a premature ejaculation during coitus

196. ICSH acts on

a) Spermatogonia **b)** Nurse cells **c)** Leydig cells **d)** Primary spermatocytes

197. The first milk is called

a) Colostrum **b)** Rostrum **c)** Baby's milk **d)** None of these

198. The interaction between which one of the following pairs is an example for commensalim?

a) Wasps and fig tree **b)** Cuckoo and crow

c) Cattle of sheep and grass **d)** Orchid and mango tree

199. A scrubber in the exhaust of a chemical industrial plant removes

a) Gases like sulphur dioxide

b) Particulate matter of the size 5 micrometer or above

c) Gases like ozone and methane

d) Particulate matter of the size 2.5 micrometer or less

200. In 1984, the Bhopal gas tragedy took place because methyl isocyanate

a) Reacted with DDT **b)** Reacted with ammonia

c) Reacted withCO_2 **d)** Reacted with water

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