Sri Chaitanya Educational Institutions | **Infinity Learn**

NEET 2018

Test Instructions

1. Total duration of this test is **180** minutes.
2. This test has 4 subjects consisting of
   180 questions in total.
3. There are **4** total sections in the test.
4. Sections Info :
   Physics
   - a. **Section A** has **45** questions, compulsory questions **45**. **4** marks will be given for correct attempt and incorrect attempt **-1** .

   Chemistry
   - a. **Section A** has **45** questions, compulsory questions **45**. **4** marks will be given for correct attempt and incorrect attempt **-1** .

   Botany
   - a. **Section A** has **47** questions, compulsory questions **47**. **4** marks will be given for correct attempt and incorrect attempt **-1** .

   Zoology
   - a. **Section A** has **43** questions, compulsory questions **43**. **4** marks will be given for correct attempt and incorrect attempt **-1** .
5. Total marks for this test is **720** marks.
6. No marks will be deducted for unattempted questions.
7. This test can be submitted only once.
8. Once the test has been submitted, you cannot edit the responses.
9. Results will be anounced post test submission.
10. The test will be auto-submitted once the timer ends.

Physics

Section A

1. A student measured the diameter of a small steel ball using a screw gauge of least count 0.001 *cm*. The main scale reading is 5 *mm* and zero of circular scale division coincides with 25 divisions above the reference level. If screw gauge has a zero error of -0.004 *cm* the correct diameter of the ball is

   1. 0.521 *cm*

   2. 0.525 *cm*

   3. 0.053 *cm*

   4. 0.529 *cm*

2. A moving block having mass *m*, collides with another stationary block having mass *4 m*. The lighter block comes to rest after collision. When the initial velocity of the lighter block is *v*, then the value of coefficient of restitution *(e)* will be

   1. 0.5

   2. 0.25

   3. 0.8

   4. 0.4

3. The moment of the force, $\vec{F} = 4\hat{i} + 5\hat{j} - 6\hat{k}$ at (2, 0, -3), about the point (2, -2, -2), is given by:

   1. $-8\hat{i} - 4\hat{j} - 7\hat{k}$

   2. $-4\hat{i} - \hat{j} - 8\hat{k}$

   3. $-7\hat{i} - 8\hat{j} - 4\hat{k}$

   4. $-7\hat{i} - 4\hat{j} - 8\hat{k}$

4. Three objects, A: (a solid sphere), B: (a thin circular disk) and C: (a circular ring), each have the same mass M and radius R. They all spin with the same angular speed ω about their own symmetry axes. The amounts of work (W) required to bring them to rest, would satisfy the relation:

   1. $W_C > W_B > W_A$

   2. $W_A > W_B > W_C$

   3. $W_B > W_A > W_C$

   4. $W_A > W_C > W_B$

5. A solid sphere is in rolling motion. In rolling motion a body possesses translational kinetic energy (K_t) as well as rotational kinetic energy (K_r) simultaneously. The ratio $K_t : (K_t + K_r)$ for the sphere is

   1. 7:10

   2. 5:7

   3. 10:7

   4. 2:5

6. A carbon resistor of $(47 \pm 4.7)\text{k}\Omega$ is to be marked with rings of different colours for its identification. The colour code sequence will be

1. Violet - Yellow - Orange - Silver

2. Yellow - Violet - Orange - Silver

3. Yellow - Green - Violet - Gold

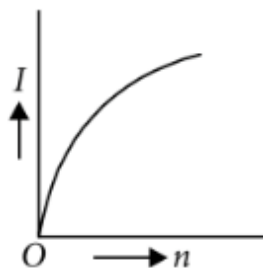4. Green - Orange - Violet - Gold

7. A battery consists of a variable number n of identical cells (having internal resistance r each) which are connected in series. The terminals of the battery are short-circuited and the current I is measured. Which of the graphs shows the correct relationship between I and n ?
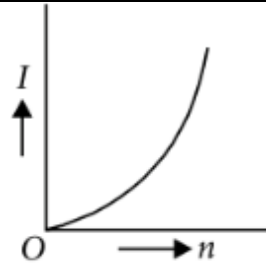
1.
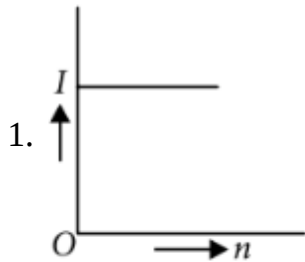
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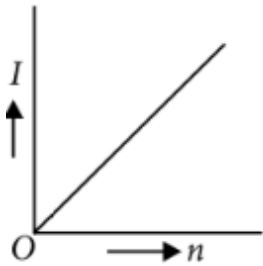
3.

4.

8. Current sensitivity of a moving coil galvanometer is 5 div/mA and its voltage sensitivity (angular deflection per unit voltage applied) is 20 div/V. The resistance of the galvanometer is

   1. 40 Ω

   2. 25 Ω

   3. 250 Ω

   4. 500 Ω

9. A thin diamagnetic rod is placed vertically between the poles of an electromagnet. When the current in the electromagnet is switched on, then the diamagnetic rod is pushed up, out of the horizontal magnetic field. Hence the rod gains gravitational potential energy. The work required to do this comes from

   1. The current source

   2. The magnetic field

   3. The lattice structure of the material of the rod

   4. The induced electric field due to the changing magnetic field

10. An inductor 20 mH, a capacitor 100 μF and a resistor 50 Ω are

connected in series across a source of emf, V=10 sin 314 t. The power loss in the circuit is

    1. 0.79 W

    2. 0.43 W

    3. 2.74 W

    4. 1.13 W

11. An EM wave is propagating in a medium with a velocity $\overrightarrow{v} = v\hat{i}$. The instantaneous oscillating electric field of this EM wave is along $+y$ axis. Then the direction of oscillating magnetic field of the EM wave will be along

    1. -z direction

    2. +z direction

    3. -y direction

    4. -x direction

12. In Young's double slit experiment the separation d between the slits is 2 mm the wavelength λ of the light used is 5896 $\overset{o}{A}$ and distance D between the screen and slits is 100 cm. It is found that the angular width of the fringes is 0.20^{o}. To increase the fringe angular width to 0.21^{o} (with same λ and D) the separation between the slits needs to be changed to

   1. 1.8 mm

    2. 1.9 mm

    3. 2.1 mm

    4. 1.7 mm

13. Unpolarised light is incident from air on a plane surface of a material of refractive index μ. At a particular angle of incidence i, it is found that the reflected and refracted rays are perpendicular to each other. Which of the following options is correct for this situation?

    1. Reflected light is polarised with its electric vector parallel to the plane of incidence

    2. Reflected light is polarised with its electric vector perpendicular to the plane of incidence

    3. $i = \sin^{-1}\left(\frac{1}{\mu}\right)$

    4. $i = \tan^{-1}\left(\frac{1}{\mu}\right)$

14. The ratio of kinetic energy to the total energy of an electron in a Bohr orbit of the hydrogen atom, is

    1. 1:1

    2. 1:-1

    3. 2:-1

    4. 1:-2

15. In the combination of the following gates the output Y can be written in terms of inputs A and B as
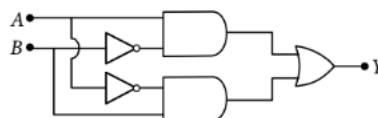
1. $\overline{A \cdot B}$

2. $A \cdot \overline{B} + \overline{A} \cdot B$

3. $\overline{A \cdot B} + A \cdot B$

4. $\overline{A + B}$

16. A toy car with charge q moves on a frictionless horizontal plane surface under the influence of a uniform electric field $\overrightarrow{E}$. Due to the force $q\overrightarrow{E}$, its velocity increases from 0 to 6 m s^{-1} in one second duration. At that instant the direction of the field is reversed. The car continues to move for two more seconds under the influence of this field. The average velocity and the average speed of the toy car between 0 to 3 seconds are respectively

    1. $2 \text{ m s}^{-1}, 4 \text{ m s}^{-1}$

    2. $1 \text{ m s}^{-1}, 3 \text{ m s}^{-1}$

    3. $1 \text{ m s}^{-1}, 3.5 \text{ m s}^{-1}$

    4. $1.5 \text{ m s}^{-1}, 3 \text{ m s}^{-1}$

17. At what temperature will the rms speed of oxygen molecules become just sufficient for escaping from the Earth's atmosphere? (Given : Mass of oxygen molecule $(m) = 2.76 \times 10^{-26}$ kg, Boltzmann's constant $k_B = 1.38 \times 10^{-23} \text{ JK}^{-1}$)

    1. 2.508×10^4 K

    2. 8.360×10^4 K

    3. 5.016×10^4 K

    4. 1.254×10^4 K

18. If the mass of the Sun were ten times smaller and the universal gravitational constant were ten times larger in magnitude, which of the following is not correct?

    1. Raindrops will fall faster

    2. Walking on the ground would become more difficult.

    3. Time period of a simple pendulum on the Earth would decrease.

    4. g on the Earth will not change.

19. An astronomical refracting telescope will have large angular magnification and high angular resolution, when it has an objective lens of

    1. small focal length and large diameter

    2. large focal length and small diameter

    3. large focal length and large diameter

    4. small focal length and small diameter

20. A block of mass m is placed on a smooth inclined wedge $A\,B\,C$ of inclination θ as shown in the figure. The wedge is given an acceleration a towards the right. The relation between a and θ for the block to remain stationary on the wedge is
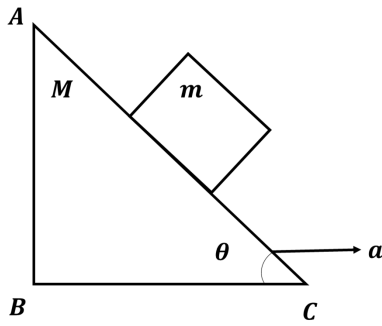
1. $a = \dfrac{g}{\mathrm{cosec}\theta}$

2. $a = \dfrac{g}{\sin\theta}$

3. $a = g\cos\theta$

4. $a = g\tan\theta$

21. Which one of the following statements is incorrect?

   1. Rolling friction is smaller than sliding friction.

   2. Limiting value of static friction is directly proportional to normal reaction.

   3. Frictional force opposes the relative motion.

   4. Coefficient of sliding friction has dimensions of length.

22. A body initially at rest and sliding along a frictionless track from a height h (as shown in the figure) just completes a vertical circle of diameter $AB=D$. The height h is equal to
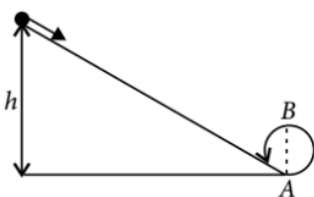

1. $\dfrac{3}{2}D$

2. D

3. $\dfrac{7}{5}D$

4. $\dfrac{5}{4}D$

23. A solid sphere is rotating freely about its symmetry axis in free space. The radius of the sphere is increased keeping its mass same. Which of the following physical quantities would remain constant for the sphere?

   1. Angular velocity

   2. Moment of inertia

   3. Rotational kinetic energy

   4. Angular momentum

24. The kinetic energies of a planet in an elliptical orbit about the Sun, at positions A, B and C are K_A, K_B and K_C respectively. AC is the major axis and SB is perpendicular to AC at the position of the Sun S as shown in the figure. Then
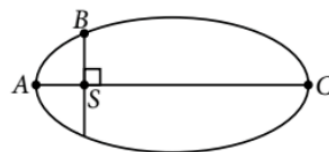
1. $K_A < K_B < K_C$

2. $K_A > K_B > K_C$

3. $K_B < K_A < K_C$

4. $K_B > K_A > K_C$

25. Two wires are made of the same material and have the same volume. The first wire has cross-sectional area A and the second wire has cross-sectional area $3A$. If the length of the first wire is increased by Δl on applying a force F, how much force is needed to stretch the second wire by the same amount?

    1. $9F$

    2. $6F$

    3. $4F$

    4. F

26. A small sphere of radius 'r' falls from rest in a viscous liquid. As a result, heat is produced due to viscous force. The rate of production of heat when the sphere attains its terminal velocity, is proportional to

    1. r^3

    2. r^2

    3. r^5

    4. r^4

27. The power radiated by a black body is P and it radiates maximum energy at wavelength λ_0. If the temperature of the black body is now changed so that it radiates maximum energy at wavelength $\frac{3}{4}\lambda_0$ the power radiated by it becomes nP. The value of n is

    1. $\frac{3}{4}$

    2. $\frac{4}{3}$

    3. $\frac{256}{81}$

    4. $\frac{81}{256}$

28. A sample of 0.1 g of water at 100^0C and normal pressure $\left(1.013 \times 10^5 \text{ N m}^{-2}\right)$ requires 54 cal of heat energy to convert to steam at 100^0C. If the volume of the steam produced is 167.1 cc , the change in internal energy of the sample is

    1. 104.3 J

    2. 208.7 J

    3. 42.2 J

    4. 84.5 J

29. The volume (V) of a monatomic gas varies with its temperature (T) as shown in the graph. The ratio of work done by the gas, to the heat absorbed by it, when it undergoes a change from state A to state B, is
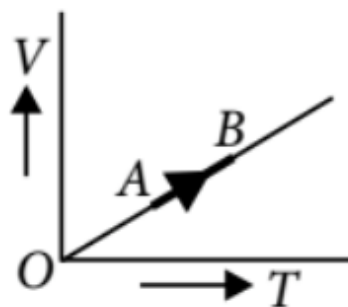
    1. $\frac{2}{5}$

    2. $\frac{2}{3}$

    3. $\frac{1}{3}$

    4. $\frac{2}{7}$

30.

The efficiency of an ideal heat engine working between the freezing point and boiling point of water, is

1. 26.8%

2. 20 %

3. 6.25 %

4. 12.5 %

31. A pendulum is hung from the roof of a sufficiently high building and is moving freely to and fro like a simple harmonic oscillator. The acceleration of the bob of the pendulum is 20 m s^{-2} at a distance of *5 m* from the mean position. The time period of oscillation is

    1. 2πs

    2. πs

    3. 2 s

    4. 1 s

32. The fundamental frequency in an open organ pipe is equal to the third harmonic of a closed organ pipe. If the length of the closed organ pipe is 20 cm, the length of the open organ pipe is

    1. 13.2 cm

    2. 8 cm

    3. 12.5 cm

    4. 16 cm

33. A tuning fork is used to produce resonance in a glass tube. The length

of the air column in this tube can be adjusted by a variable piston. At room temperature of $27^0 C$ two successive resonances are produced at *20 cm* and *73 cm* of column length. If the frequency of the tuning fork is *320 Hz*, the velocity of sound in air at $27^0 C$ is

1. 330 m s^{-1}

2. 339 m s^{-1}

3. 350 m s^{-1}

4. 300 m s^{-1}

34. An electron falls from rest through a vertical distance h in a uniform and vertically upward directed electric field E. The direction of electric field is now reversed, keeping its magnitude the same. A proton is allowed to fall from rest in it through the same vertical distance h. The time of fall of the electron, in comparison to the time of fall of the proton is

    1. smaller

    2. 5 times greater

    3. 10 times greater

    4. equal

35. The electrostatic force between the metal plates of an isolated parallel plate capacitor C having a charge Q and area A, is

    1. Independent of the distance between the plates

2. Linearly proportional to the distance between the plates

3. Proportional to the square root of the distance between the plates

4. Inversely proportional to the distance between the plates

36. A set of n equal resistors, of value R each, are connected in series to a battery of emf E and internal resistance R. The current drawn is I. Now, the n resistors are connected in parallel to the same battery. Then the current drawn from battery becomes $10I$. The value of n is

   1. 10

   2. 11

   3. 20

   4. 9

37. A metallic rod of mass per unit length 0.5 kg m^{-1} is lying horizontally on a smooth inclined plane which makes an angle of 30^0 with the horizontal. The rod is not allowed to slide down by flowing a current through it when a magnetic field of induction 0.25 T is acting on it in the vertical direction. The current flowing in the rod to keep it stationary is

   1. 7.14 A

   2. 5.98 A

   3. 14.76 A

4. 11.32 A

38. The magnetic potential energy stored in a certain inductor is $25\ mJ$, when the current in the inductor is $60\ mA$. This inductor is of inductance

   1. 0.138 H

   2. 138.88 H

   3. 1.389 H

   4. 13.89 H

39. An object is placed at a distance of 40cm from a concave mirror of focal length 15cm. If the object is displaced through a distance of 20cm towards the mirror, the displacement of the image will be

   1. 30 cm away from the mirror

   2. 36 cm away from the mirror

   3. 30 cm towards the mirror

   4. 36 cm towards the mirror

40. The refractive index of the material of a prism is $\sqrt{2}$ and the angle of the prism is 30°. One of the two refracting surfaces of the prism is made a mirror inwards, by silver coating. A beam of monochromatic light entering the prism from the other face will retrace its path (after reflection from the silvered surface) if its angle of incidence on the prism is

   1. 60^0

2. 45^0

3. 30^0

4. zero

41. When the light of frequency $2\vartheta_0$ (where ϑ_0 is threshold frequency), is incident on a metal plate, the maximum velocity of electrons emitted is v_1. When the frequency of the incident radiation is increased to $5\vartheta_0$, the maximum velocity of electrons emitted from the same plate is v_2. The ratio of v_1 to v_2 is

1. 1:2

2. 1:4

3. 4:1

4. 2:1

42. An electron of mass m with an initial velocity $\overrightarrow{v} = v_0\hat{i}(v_0 > 0)$ enters an electric field $\overrightarrow{E} = -E_0\hat{i}$ $(E_0 = \text{ constant } > 0)$ at t $= 0$. If λ_0 is its de-Broglie wavelength initially, then its de- Broglie wavelength at time t is

1. $\dfrac{\lambda_0}{\left(1+\frac{eE_0}{mv_0}t\right)}$

2. $\lambda_0\left(1 + \frac{eE_0}{mv_0}t\right)$

3. $\lambda_0 t$

4. λ_0

43. For a radioactive material, half-life is 10 minutes. If initially there are 600 number of nuclei, the time taken (in minutes) for the disintegration of 450 nuclei is
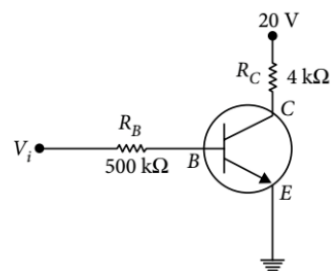
1. 20

2. 10

3. 30

4. 15

44. In a *p-n* junction diode, change in temperature due to heating

1. affects only reverse resistance

2. affects only forward resistance

3. does not affect resistance of p-n junction

4. affects the overall V-I characteristics of p-n junction

45. In the circuit shown in the figure, the input voltage V_i is 20 $V_{BE} = 0$ and $V_{CE} = 0$. The values of I_B, I_C and β are given by

1. $I_B = 40\mu A, I_C = 10 \text{ mA}, \beta = 250$

2. $I_B = 25\mu A, I_C = 5 \text{ mA}, \beta = 200$

3. $I_B = 20\mu A, I_C = 5 \text{ mA}, \beta = 250$

4. $I_B = 40\mu A, I_C = 5 \text{ mA}, \beta = 125$

Chemistry

Section A

46. The correct order of atomic radii in group 13 elements is

    1. $B < Al < In < Ga < Tl$

    2. $B < Al < Ga < In < Tl$

    3. $B < Ga < Al < Tl < In$

    4. $B < Ga < Al < In < Tl$

47. Which of the following molecules represents the order of hybridisation sp^2, sp^2, sp, sp from left to right atoms?

    1. $HC \equiv C - C \equiv CH$

    2. $CH_2 = CH - C \equiv CH$

    3. $CH_2 = CH - CH = CH_2$

    4. $CH_3 - CH = CH - CH_3$

48. Consider the following species :
    CN^+, CN^-, NO and CN .
    Which one of these will have the highest bond order?

    1. NO

    2. CN^-

    3. CN^+

    4. CN

49. The solubility of $BaSO_4$ in water is 2.42×10^{-3} g L^{-1} at 298 K. The value of its solubility product (K_{sp}) will be (Given molar mass of $BaSO_4 = 233$ g mol^{-1})

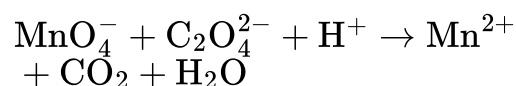   1. 1.08×10^{-10} mol^2 L^{-2}

    2. 1.08×10^{-12} mol^2 L^{-2}

    3. 1.08×10^{-14} mol^2 L^{-2}

    4. 1.08×10^{-8} mol^2 L^{-2}

50. For the redox reaction,

    $$MnO_4^- + C_2O_4^{2-} + H^+ \rightarrow Mn^{2+} + CO_2 + H_2O$$

    The correct coefficients of the reactants for the balanced equation are

    1. $16\,MnO_4^- + 5C_2O_4^{2-} + 2\,H^+$

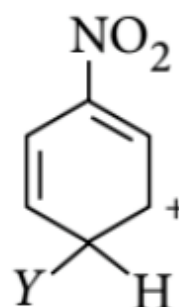   2. $2\,MnO_4^- + 5C_2O_4^{2-} + 16\,H^+$

    3. $2\,MnO_4^- + 16C_2O_4^{2-} + 5\,H^+$

    4. $5\,MnO_4^- + 16C_2O_4^{2-} + 2\,H^+$

51. Which of the following statements is not true for halogens?
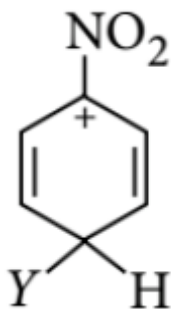
    1. All form monobasic oxyacids.

    2. All are oxidizing agents.

    3. All show positive oxidation states.

    4. Chlorine has the highest electron-gain enthalpy.

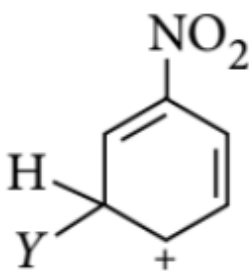52. Which of the following carbocations is expected to be most stable?
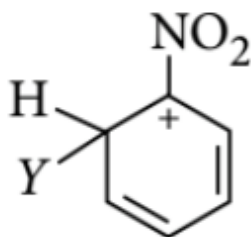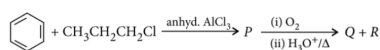
    1.

2.

3.

4.

53. Identify the major products P, Q and R in the following sequence of reactions:

1.
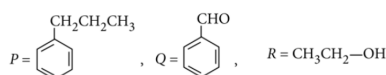
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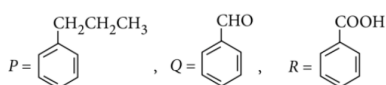
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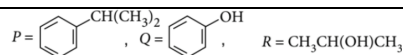
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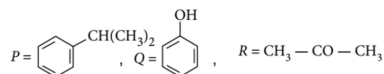
54. Nitration of aniline in strong acidic medium also gives m - nitroaniline because

1. inspite of substituents nitro group always goes to only m -position

2. in electrophilic substitution reactions amino group is meta directive

3. in absence of substituents nitro group always goes to m -position

4. in acidic (strong) medium aniline is present as anilinium ion.

55. Iron exhibits bcc structure at room temperature. Above $900°C$, it transforms to fcc structure. The ratio of density of iron at room temperature to that at $900°C$ (assuming molar mass and atomic radii of iron remains constant with temperature) is

1. $\dfrac{\sqrt{3}}{\sqrt{2}}$

2. $\dfrac{4\sqrt{3}}{3\sqrt{2}}$

3. $\dfrac{3\sqrt{3}}{4\sqrt{2}}$

4. $\dfrac{1}{2}$

56. On which of the following properties does the coagulating power of an ion depend?

1. The magnitude of the charge on the ion alone

2. Size of the ion alone

3. Both magnitude and sign of the charge on the ion

4. The sign of charge on the ion alone

57. Considering Ellingham diagram, which of the following metals can be used to reduce alumina?

   1. Fe

   2. Zn

   3. Mg

   4. Cu

58. Which one of the following ions exhibits d-d transition and paramagnetism as well?

   1. CrO_4^{2-}

   2. $Cr_2 O_7^{2-}$

   3. MnO_4^{-}

   4. MnO_4^{2-}

59. Match the metal ions given in Column I with the spin magnetic moments of the ions given in Column II and assign the correct code :

Column $-$ I   Column $-$ II

A. Co^{3+} (i) $\sqrt{8}$ B.M

B. Cr^{3+} (ii) $\sqrt{35}$ B.M.

C. Fe^{3+} (iii) $\sqrt{3}$ B.M.

D. Ni^{2+} (iv) $\sqrt{24}$ B.M.

   (v) $\sqrt{15}$ B.M.

	A	B	C	D
1.	(iv)	(v)	(ii)	(i)
2.	(i)	(ii)	(iii)	(iv)
3.	(iv)	(i)	(ii)	(iii)
4.	(iii)	(v)	(i)	(ii)

60. The geometry and magnetic behavior of the complex $[Ni(CO)_4]$ are

   1. Square planar geometry and diamagnetic

   2. tetrahedral geometry and diamagnetic

   3. Square planar geometry and paramagnetic

   4. tetrahedral geometry and paramagnetic

61. The type of isomerism shown by the complex $[CoCl_2(en)_2]$ is

   1. geometrical isomerism

   2. coordination isomerism

   3. ionization isomerism

   4. linkage isomerism.

62. The compound C_7H_8 undergoes the following reactions :

$$C_7H_8 \xrightarrow{3Cl_2/\Delta} A \xrightarrow{Br_2/Fe} B \xrightarrow{Zn/HCl} C$$
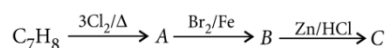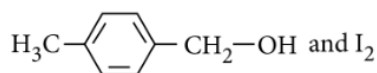
The product C is

   1. m -bromotoluene

   2. o -bromotoluene

   3. 3 -bromo- 2,4,6-trichlorotoluene

   4. p-bromotoluene.

63. The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

   1. $C_2H_5\ OH, C_2H_6, C_2H_5\ Cl$

   2. $C_2H_5\ OH, C_2H_5\ Cl, C_2H_5\ ONa$

   3. $C_2H_5\ Cl, C_2H_6, C_2H_5\ OH$

   4. $C_2H_5\ OH, C_2H_5\ ONa, C_2H_5\ Cl$

64. Compound A, $C_8H_{10}O$, is found to react with $NaOI$ (produced by reacting Y with $NaOH$) and yields a yellow precipitate with characteristic smell. A and Y are respectively

   1.

   $H_3C \!\!-\!\!\bigcirc\!\!-\!\! CH_2-OH$ and I_2

   2.

   $\bigcirc\!\!-\!\! CH_2-CH_2-OH$ and I_2

   3.

   $\bigcirc\!\!-\!\! CH-CH_3$ and I_2, with OH substituent

   4.

   2,4-dimethyl phenol (CH$_3$, CH$_3$ substituents, OH) and I_2
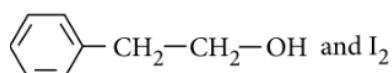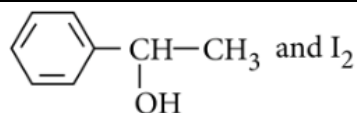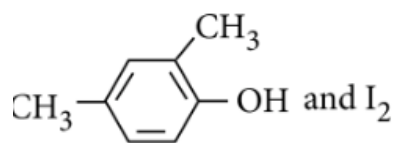
65. The difference between amylose and amylopectin is

   1. amylopectin has $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\alpha$ -linkage

   2. amylose has $1 \rightarrow 4\alpha$ -linkage and $1 \rightarrow 6\beta$ -linkage

   3. amylopectin has $1 \rightarrow 4\alpha$ linkage and $1 \rightarrow 6\beta$-linkage

   4. amylose is made up of glucose and galactose.

66. Regarding cross-linked or network polymers, which of the following statements is incorrect?

   1. They contain covalent bonds between various linear polymer chains.

   2. They are formed from bi- and tri-functional monomers.

   3. Examples are bakelite and melamine.

   4. They contain strong covalent bonds in their polymer chains.

67. Following solutions were prepared by mixing different volumes of NaOH and HCl of different concentrations:

A) 60 mL $\frac{M}{10}$ HCl $+ 40$ mL $\frac{M}{10}$ NaOH

B) 55 mL $\frac{M}{10}$ HCl $+ 45$ mL $\frac{M}{10}$ NaOH

C) 75 mL $\frac{M}{5}$ HCl $+ 25$ mL $\frac{M}{5}$ NaOH

D) 100 mL $\frac{M}{10}$ HCl $+ 100$ mL $\frac{M}{10}$ NaOH
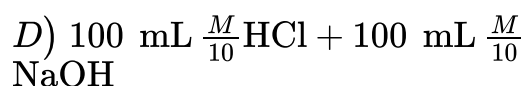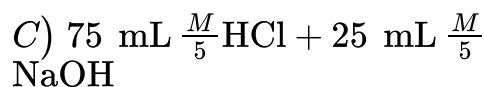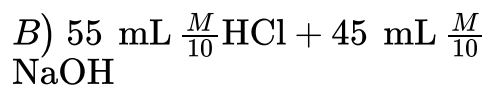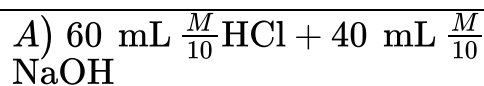
pH of which one of them will be equal to 1?

1. B

2. A

3. D

4. C

68. Magnesium reacts with an element (*X*) to form an ionic compound. If the ground state electronic configuration of (*X*) is $1s^2 2s^2 2p^3$, the simplest formula for this compound is

1. $Mg_2 X_3$

2. MgX_2

3. $Mg_2 X$

4. $Mg_3 X_2$

69. Carboxylic acids have higher boiling points than aldehydes, ketones and even alcohols of comparable molecular mass. It is due to their

1. formation of intramolecular H-bonding

2. formation of carboxylate ion

3. more extensive association of carboxylic acid via van der Waals' forces of attraction

4. formation of intermolecular H-bonding.

70. The correction factor 'a' to the ideal gas equation corresponds to

1. density of the gas molecules

2. volume of the gas molecules

3. electric field present between the gas molecules

4. forces of attraction between the gas molecules.

71. Which one of the following conditions will favour maximum formation of the product in the reaction

$A_{2(g)} + B_{2(g)} \rightleftharpoons X_{2(g)}, \Delta_r H = -X$ kJ?
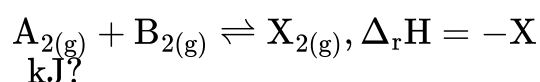
1. Low temperature and high pressure

2. Low temperature and low pressure

3. High temperature and high pressure

4. High temperature and low pressure

72. Which one of the following elements is unable to form MF_6^{3-} ion ?

1. Ga

2. AI

3. B

4. In

73. Which of the following is correct with respect to -I effect of the substituents?(R=alkyl)

   1. $-\mathrm{NH_2} < -\mathrm{OR} < -\mathrm{F}$

   2. $-CH_3 < -\mathrm{OR} < -\mathrm{F}$

   3. $-\mathrm{NH_2} > -\mathrm{OR} > -\mathrm{F}$

   4. $-\mathrm{NR_2} > -\mathrm{OR} > -\mathrm{F}$

74. Hydrocarbon (A) reacts with bromine by substitution to form an alkyl bromide which by Wurtz reaction is converted to gaseous hydrocarbon containing less than four carbon atoms. (A) is

   1. $\mathrm{CH} \equiv \mathrm{CH}$

   2. $\mathrm{CH_2} = \mathrm{CH_2}$

   3. $\mathrm{CH_3} - \mathrm{CH_3}$

   4. $\mathrm{CH_4}$

75. Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and human activity?

   1. $\mathrm{N_2O_5}$

   2. $\mathrm{NO_2}$

   3. $\mathrm{N_2O}$

   4. NO

76. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction

   1. is halved

   2. is doubled

   3. is tripled

   4. remains unchaged

77. The correct difference between first and second order reactions is that

   1. the rate of a first-order reaction does not depend on reactant concentrations; the rate of a second-order reaction does depend on reactant concentrations

   2. the half-life of a first-order reaction does not depend on $[A]_0$ the half-life of a second-order reaction does depend on $[A]_0$

   3. a first-order reaction can be catalysed; a second order reaction cannot be catalysed

   4. the rate of a first-order reaction does depend on reactant concentrations; the rate of a second-order reaction does not depend on reactant concentrations.

78. Iron carbonyl, $\mathrm{Fe(CO)_5}$ is

   1. tetranuclear

   2. mononuclear

3. trinuclear

4. dinuclear.

79. In the reaction,

OH + $CHCl_3$ + NaOH $\longrightarrow$ $\bar{O}Na^+$, —CHO
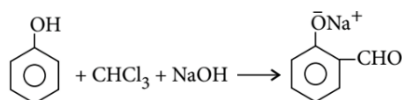
the electrophile involved is

1. dichloromethyl cation $\left(\overset{+}{C} HCl_2 \right)$

2. formyl cation $(\overset{+}{C}HO)$

3. dichloromethyl anion $\left(\overline{C} HCl_2 \right)$

4. dichlorocarbene $(: CCl_2)$

80. Which of the following compounds can form a zwitter ion?

1. Aniline

2. Acetanilide

3. Benzoic acid

4. Glycine

81. The bond dissociation energies of X_2, Y_2 and XY are in the ratio of $1 : 0.5 : 1$. ΔH for the formation of XY is -200 kJ mol^{-1}. The bond dissociation energy of X_2 will be

1. 200 kJ mol^{-1}

2. 100 kJ mol^{-1}

3. 800 kJ mol^{-1}

4. 400 kJ mol^{-1}

82.

Consider the change in oxidation state of bromine corresponding to different emf values as shown in the given diagram :

BrO_4^- $\xrightarrow{1.82\,V}$ BrO_3^- $\xrightarrow{1.5\,V}$ HBrO

Br^- $\xleftarrow{1.0652\,V}$ Br_2 $\xleftarrow{1.595\,V}$
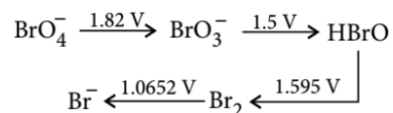
Then the species undergoing disproportionation is

1. BrO_3^-

2. BrO_4^-

3. Br_2

4. HBrO

83. In which case is number of molecules of water maximum?

1. 18 mL of water

2. 0.18 g of water

3. 0.00224 L of water vapours at 1 atm and 273 K

4. 10^{-1} mol of water

84. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. $H_2 SO_4$. The evolved gaseous mixture is passed through KOH pellets. Weight (in g) of the remaining product at STP will be

1. 1.4

2. 3.0

3. 2.8

4. 4.4

85. Which one is a wrong statement?

    1. Total orbital angular momentum of electron in s -orbital is equal to zero.

    2. An orbital is designated by three quantum numbers while an electron in an atom is designated by four quantum numbers.

    3. The electronic configuration of N atom is
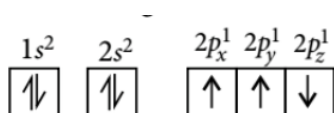
    4. The value of m for d_z^2 is zero .

86. Which of the following oxides is most acidic in nature?

    1. MgO

    2. BeO

    3. BaO

    4. CaO

87. Among CaH_2, BeH_2, BaH_2, the order of ionic character is

    1. $BeH_2 < CaH_2 < BaH_2$

    2. $CaH_2 < BeH_2 < BaH_2$

    3. $BeH_2 < BaH_2 < CaH_2$

    4. $BaH_2 < BeH_2 < CaH_2$

88. Given van der Waals' constant for NH_3, H_2, O_2 and CO_2 are respectively 4.17, 0.244, 1.36 and 3.59, which one of the following gases is most easily liquefied?

    1. NH_3

    2. H_2

    3. O_2

    4. CO_2

89. The correct order of N-compounds in its decreasing order of oxidation states is

    1. $HNO_3, NO, N_2, NH_4 Cl$

    2. $HNO_3, NO, NH_4 Cl, N_2$

    3. $HNO_3, NH_4 Cl, NO, N_2$

    4. $NH_4 Cl, N_2, NO, HNO_3$

90. In the structure of ClF_3, the number of lone pairs of electrons on central atom 'Cl' is

    1. one

    2. two

    3. four

    4. three

Botany

Section A

91. Casparian strips occur in

    1. epidermis

    2. pericycle

    3. cortex

    4. endodermis

92. Which of the following organisms are known as chief producers in the

oceans ?

1. Dinoflagellates

2. Diatoms

3. Cyanobacteria

4. Euglenoids

93. Select the **incorrect** match.

1. Lamp brush chromosomes - Diplotene bivalents

2. Allosomes - Sex chromosomes

3. Sub-metacentric chromosomes - L-shaped chromosomes

4. Polytene chromosomes - Oocytes of amphibians

94. Select the correct match

1. Ribozyme - Nucleic acid

2. F_2 x Recessive parent- Dihybrid cross

3. T.H. Morgan - Transduction

4. G. Mendel - Transformation

95. Which of the following characteristics represent 'inheritance of blood groups' in humans?
(i) Dominance
(ii) Co-dominance
(iii) Multiple allele
(iv) Incomplete dominance
(v) Polygenic inheritance

1. (ii), (iii) and (v)

2. (i), (ii) and (iii)

3. (ii), (iv) and (v)

4. (i), (iii) and (v)

96. Stomatal movement is not affected by

1. temperature

2. light

3. O_2 concentration

4. CO_2 concentration

97. Which of the following pairs is wrongly matched?

1. Starch synthesis in pea: Multiple alleles

2. ABO blood grouping : Co-dominance

3. XO type sex determination: Grasshopper

4. T.H. Morgan: Linkage

98. Ciliates differ from all other protozoans in

1. using flagella for locomotion

2. having a contractile vacuole for removing excess water

3. using pseudopodia for capturing prey

4. having two types of nuclei

99. The Golgi complex participates in

1. fatty acid breakdown

2. formation of secretory vesicles

3. respiration in bacteria

4. activation of amino acid

100. Which of the following statements is correct?

   1. Ovules are not enclosed by ovary wall in gymnosperms

   2. *Selaginella* is heterosporous, while *Salvinia* is homosporous.

   3. Horsetails are gymnosperms

   4. Stems are usually unbranched in both *Cycas* and *Cedrus*.

101. Winged pollen grains are present in

   1. Mustard

   2. *Cycas*

   3. Mango

   4. *Pinus*

102. All of the following are part of an operon except

   1. an operator

   2. structural genes

   3. an enhancer

   4. a promoter

103. What is the role of NAD^+ in cellular respiration?

   1. It functions as an enzyme

   2. It functions as an electron carrier

   3. It is a nucleotide source for ATP synthesis.

   4. It is the final electron acceptor for anaerobic respiration.

104. Secondary xylem and secondary phloem in dicot stem are produced by

   1. vascular cambium

   2. phellogen

   3. apical meristem

   4. axillary meristem

105. Match the items given in column I with those in column II and select the correct option given below.

Column I		Column II
A. Herbarium	(i)	It is a place having a collection of preserved plants and animals.
B. Key	(ii)	A list that enumerates methodically all the species found in an area with brief description aiding identification
C. Museum	(iii)	Is a place where dried and pressed plant specimens mounted on

Column I	Column II
	sheets are kept.
	A booklet containing a list of characters and their
D. Catalogue (iv)	alternates which are helpful in identification of various taxa.

	A	B	C	D
1.	i	iv	iii	ii
2.	iii	ii	i	iv
3.	ii	iv	iii	i
4.	iii	iv	i	ii

  1. 1

  2. 2

  3. 3

  4. 4

106. Oxygen is not produced during photosynthesis by

  1. green sulphur bacteria

  2. *Nostoc*

  3. *Cycas*

  4. *Chara*

107. Sweet potato is a modified

  1. stem

  2. adventitious root

  3. tap root

  4. rhizome

108. Pneumatophores occur in

  1. halophytes

  2. free-floating hydrophytes

  3. carnivorous plants

  4. submerged hydrophytes

109. Which one is wrongly matched?

  1. Uniflagellate gametes - *Polysiphonia*

  2. Biflagellate zoospores - Brown algae

  3. Gemma cups - *Marchantia*

  4. Unicellular organism - *Chlorella*

110. Which of the following is not a product of light reaction of photosynthesis of higher plants?

  1. ATP

  2. NADH

  3. NADPH

  4. Oxygen

111. Stomata in grass leaf are

  1. dumb-bell shaped

  2. kidney-shaped

  3. rectangular

  4. barrel-shaped.

112.

Many ribosomes may associate with a single mRNA to form multiple copies of a polypeptide simultaneously. Such strings of ribosomes are termed as

1. polysome

2. polyhedral bodies

3. plastidome

4. nucleosome

113. Which of the following elements is responsible for maintaining turgor in cells?

1. Magnesium

2. Sodium

3. Potassium

4. Calcium

114. In which of the following forms is iron absorbed by plants?

1. Ferric

2. Ferrous

3. Free element

4. Both ferric and ferrous

115. Which technique was employed while proving the semi-conservative mode of replication of DNA for the first time?

1. Paper chromatography

2. Density gradient centrifugation

3. Mass spectroscopy

4. Electrophoresis

116. Which of these statements is **incorrect**?

1. Most of the enzymes of TCA cycle are present in mitochondrial matrix.

2. Glycolysis occurs in cytosol.

3. Glycolysis operates as long as it is supplied with NAD that can pick up hydrogen atoms.

4. Oxidative phosphorylation takes place in outer mitochondrial membrane.

117. Select the correct statement.

1. Franklin Stahl coined the term "linkage".

2. Punnett square was developed by a British scientist.

3. Spliceosomes take part in translation.

4. Transduction was discovered by S. Altman

118. Offsets are produced by

1. meiotic divisions

2. mitotic divisions

3. parthenocarpy

4. parthenogenesis

119.

Pollen grains can be stored for several years in liquid nitrogen having a temperature of

    1. -120°C

    2. -80°C

    3. - 196°C

    4. - 160°C

120. Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other?

    1. *Hydrilla*

    2. *Yucca*

    3. Banana

    4. *Viola*

121. Which of the following has proved helpful in preserving pollen as fossils?

    1. Pollen kitt

    2. Cellulosic intine

    3. Oil content

    4. Sporopollenin

122. Double fertilisation is

    1. fusion of two male gametes of a pollen tube with two different eggs

    2. fusion of one male gamete with two polar nuclei

    3. fusion of two male gametes with one egg

    4. syngamy and triple fusion

123. AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA?

    1. AGGUAUCGCAU

    2. UGGTUTCGCAT

    3. ACCUAUGCGAU

    4. UCCAUAGCGUA

124. Select the wrong statement.

    1. Cell wall is present in members of fungi and plantae.

    2. Mushrooms belong to basidiomycetes.

    3. Pseudopodia are locomotory and feeding structures in sporozoans.

    4. Mitochondria are the powerhouse of the cell in all kingdoms except monera.

125. Which of the following events does **not** occur in rough endoplasmic reticulum?

    1. Protein folding

    2. Protein glycosylation

    3. Cleavage of signal peptide

    4. Phospholipid synthesis

126. Which of the following flowers only once in its lifetime?

    1. Bamboo species

    2. Jackfruit

    3. Mango

    4. Papaya

127. Which of the following is commonly used as a vector for introducing a DNA fragment in human lymphocytes?

    1. Retrovirus

    2. Ti plasmid

    3. λ phage

    4. pBR322

128. Which among the following is not a prokaryote?

    1. *Saccharomyces*

    2. *Mycobacterium*

    3. *Nostoc*

    4. *Oscillatoria*

129. After karyogamy followed by meiosis, spores are produced exogenously in

    1. *Neurospora*

    2. *Alternaria*

    3. *Agaricus*

    4. *Saccharomyces*

130. Plants having little or no secondary growth are

    1. grasses

    2. deciduous angiosperms

    3. conifers

    4. cycads

131. The stage during which separation of the paired homologous chromosomes begins is

    1. pachytene

    2. diplotene

    3. diakinesis

    4. zygotene

132. Select the correct match

    1. Alec Jeffreys - *Streptococcus pneumoniae*

    2. Alfred Hershey and Martha Chase - TMV

    3. Matthew Meselson and F. Stahl - *Pisum sativum*

    4. Francois Jacob and Jacques Monod - Lac operon

133. The correct order of steps in Polymerase Chain Reaction (PCR) is

    1. extension, denaturation, annealing

    2. annealing, extension, denaturation

3. denaturation, extension, annealing

4. denaturation, annealing, extension

134. A 'new' variety of rice was patented by a foreign company,though such varieties have been present in India for a long time. This is related to

1. Co-667

2. sharbati Sonora

3. lerma Rojo

4. basmati

135. In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is

1. Indian Council of Medical Research (ICMR)

2. Council for Scientific and Industrial Research (CSIR)

3. Research Committee on Genetic Manipulation (RCGM)

4. Genetic Engineering Appraisal Committee (GEAC)

136. Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called

1. bio-infringement

2. biopiracy

3. biodegradation

4. bioexploitation

137. Which of the following is true for nucleolus?

1. Larger nucleoli are present in dividing cells

2. It is a membrane-bound structure

3. It takes part in spindle formation

4. It is a site for active ribosomal RNA synthesis

Zoology

Section A

138. Niche is

1. all the biological factors in the organism's environment

2. the physical space where an organism lives

3. the range of temperature that the organism needs to live

4. the functional role played by the organism where it lives

139. Match the items given in column I with those in column II and select the correct option given below.

	Column I		Column II
A.	Eutrophication	(i)	UV-B radiation
B.	Sanitary landfill	(ii)	Deforestation
C.	Snow blindness	(iii)	Nutrient enrichment

	D. Jhum cultivation	(iv)	Waste disposal

	A	B	C	D
1	ii	i	iii	iv
2	i	iii	iv	ii
3	iii	iv	i	ii
4	i	ii	iv	iii

1. 1

2. 2

3. 3

4. 4

140. Match the items given in column I with those in column II and select the correct option given below.

	Column I		Column II
A.	Glycosuria	(i)	Accumulation of uric acid in joints
B.	Gout	(ii)	Mass of crystallised salts within the kidney
C.	Renal calculi	(iii)	Inflammation in glomeruli
D.	Glomerular nephritis	(iv)	Presence of glucose in urine

	A	B	C	D
1	iii	ii	iv	i
2	i	ii	iii	iv
3	ii	iii	i	iv
4	iv	i	ii	iii

1. 1

2. 2

3. 3

4. 4

141. Which of the following is a secondary pollutant?

1. CO

2. CO_2

3. SO_2

4. O_3

142. The contraceptive 'Saheli'

1. blocks estrogen receptors in the uterus, preventing eggs from getting implanted

2. increases the concentration of estrogen and prevents ovulation in females

3. is an IUD

4. is a post-coital contraceptive

143. In stratosphere, which of the following elements acts as a catalyst in degradation of ozone and release of molecular oxygen?

1. Carbon

2. Cl

3. Fe

4. Oxygen

144. Match the items given in column I with those in column II and select the correct option given below.

	Column I		Column II
A.	Fibrinogen	(i)	Osmotic balance

B. Globulin	(ii)	Blood clotting
C. Albumin	(iii)	Defence mechanism

	A	B	C
1	iii	ii	i
2	i	ii	iii
3	i	iii	ii
4	ii	iii	i

1. 1

2. 2

3. 3

4. 4

145. Match the items given in column I with those in column II and select the correct option given below.

Column I		Column II
A. Tidal volume	(i)	2500 - 3000 mL
B. Inspiratory reserve volume	(ii)	1100 - 1200 mL
C. Expiratory reserve volume	(iii)	500 - 550 mL
D. Residual volume	(iv)	1000 - 1100 mL

	A	B	C	D
1	iii	ii	i	iv
2	iii	i	iv	ii
3	i	iv	ii	iii
4	iv	iii	ii	i

1. 1

2. 2

3. 3

4. 4

146. Match the items given in column I with those in column II and select the correct option given below.

Column I		Column II
A. Proliferative phase	(i)	Breakdown of endometrial lining
B. Secretory phase	(ii)	Follicular phase
C. Menstruation	(iii)	Luteal phase

	A	B	C
1	iii	ii	i
2	i	iii	ii
3	ii	iii	i
4	iii	i	ii

1. 1

2. 2

3. 3

4. 4

147. Match the items given in column I with those in column II and select the correct option given below.

Column I		Column II
A. Tricuspid valve	(i)	Between left atrium and left ventricle
B. Bicuspid valve	(ii)	Between right ventricle and pulmonary artery
C. Semilunar valve	(iii)	Between right atrium

	A	B	C
	and right ventricle		
1	iii	i	ii
2	i	iii	ii
3	i	ii	iii
4	ii	i	iii

1. 1

2. 2

3. 3

4. 4

148. Match the items given in column I with those in column II and select the correct option given below.

	Column I (Function)		Column II (Part of excretory system)
A.	Ultrafiltration	(i)	Henle's loop
B.	Concentration of urine	(ii)	Ureter
C.	Transport of urine	(iii)	Urinary bladder
D.	Storage of urine	(iv)	Malpighian corpuscle
		(v)	Proximal convoluted tubule

	A	B	C	D
1	iv	v	ii	iii
2	iv	i	ii	iii
3	v	iv	i	ii
4	v	iv	i	iii

1. 1

2. 2

3. 3

4. 4

149. According to Hugo de Vries, the mechanism of evolution is

1. multiple step mutations

2. saltation

3. phenotypic variations

4. minor mutations

150. Nissl's bodies are mainly composed of

1. proteins and lipids

2. DNA and RNA

3. nucleic acids and SER

4. free ribosomes and RER

151. Calcium is important in skeletal muscle contraction because it

1. binds to troponin to remove the masking of active sites on actin for myosin

2. activates the myosin ATPase by binding to it

3. detaches the myosin head from the actin filament

4. prevents the formation of bonds between the myosin cross bridges and the actin filament

152. Which of the following terms describes human dentition?

1. Thecodont, diphyodont, homodont

2. Thecodont, diphyodont, heterodont

3. Pleurodont, monophyodont, homodont

4. Pleurodont, diphyodont, heterodont

153. In which disease does mosquito-transmitted pathogen cause chronic inflammation of lymphatic vessels?

   1. Elephantiasis

   2. Ascariasis

   3. Ringworm disease

   4. Amoebiasis

154. The similarity of bone structure in the forelimbs of many vertebrates is an example of

   1. homology

   2. analogy

   3. convergent evolution

   4. adaptive radiation

155. Which of the following structures or regions is **incorrectly** paired with its functions?

   1. Medulla oblongata : Controls respiration and cardiovascular reflexes

   2. Limbic system : Consists of fibre tracts that interconnect different regions of hindbrain

   3. Hypothalamus : Production of releasing hormones and regulation of temperature, hunger and thirst

   4. Corpus callosum : Band of fibers connecting left and right cerebral hemispheres

156. Among the following sets of examples for divergent evolution, select the **incorrect** option.

   1. Forelimbs of man, bat and cheetah

   2. Heart of bat, man and cheetah

   3. Brain of bat, man and cheetah

   4. Eye of octopus, bat and man

157. The difference between spermiogenesis and spermiation is

   1. in spermiogenesis spermatids are formed, while in spermiation spermatozoa are formed

   2. in spermiogenesis spermatozoa are formed, while in spermiation spermatids are formed

   3. in spermiogenesis spermatozoa from Sertoli cells are released into the cavity of seminiferous tubules, while in spermiation spermatozoa are formed

4. in spermiogenesis spermatozoa are formed, while in spermiation spermatozoa are released from Sertoli cells into the cavity of seminiferous tubules

158. Which of the following animals does not undergo metamorphosis?

   1. Earthworm

   2. Tunicate

   3. Moth

   4. Starfish

159. Which of the following hormones can play a significant role in osteoporosis?

   1. Aldosterone and prolactin

   2. Progesterone and aldosterone

   3. Ostrogen and parathyroid hormone

   4. Parathyroid hormone and prolactin

160. Which of the following gastric cells indirectly help in erythropoiesis?

   1. Chief cells

   2. Mucous cells

   3. Goblet cells

   4. Parietal cells

161. Natality refers to

   1. death rate

   2. birth rate

   3. number of individuals leaving the habitat

   4. number of individuals entering a habitat

162. In a growing population of a country,

   1. pre-reproductive individuals are more than the reproductive individuals

   2. reproductive individuals are less than the post-reproductive individuals

   3. reproductive and pre-reproductive individuals are equal in number

   4. pre-reproductiveindividuals are less than the reproductive individuals

163. The transparent lens in the human eye is held in its place by

   1. ligaments attached to the ciliary body

   2. ligaments attached to the iris

   3. smooth muscles attached to the iris

   4. smooth muscles attached to the ciliary body

164. Which of the following is **not** an autoimmune disease?

   1. Psoriasis

2. Rheumatoid arthritis

3. Alzheimer's disease

4. Vitiligo

165. All of the following are included in 'ex-situ conservation' except

1. wildlife safari parks

2. sacred groves

3. botanical gardens

4. seed banks

166. Identify the vertebrate group of animals characterised by crop and gizzard in its digestive system.

1. Amphibia

2. Reptilia

3. Aves

4. Osteichthyes

167. Which one of these animals is **not** a homeotherm?

1. *Macropus*

2. *Chelone*

3. *Camelus*

4. *Psittacula*

168. A woman has an X-linked condition on one of her X chromosomes. This chromosome can be inherited by

1. only daughters

2. only sons

3. only grandchildren

4. both sons and daughters

169. Hormones secreted by the placenta to maintain pregnancy are

1. hCG, hPL, progestogens, prolactin

2. hCG, hPL, estrogens, relaxin, oxytocin

3. hCG, hPL, progestogens, estrogens

4. hCG, progestogens, estrogens, glucocorticoids

170. Which of the following features is used to identify a male cockroach from a female cockroach?

1. Presence of a boat-shaped sternum on the 9th abdominal segment

2. Presence of caudal styles

3. Forewings with darker tegmina

4. Presence of anal cerci

171. Which of the following options correctly represents the lung conditions in asthma and emphysema, respectively?

1. Inflammation of bronchioles; Decreased respiratory surface

2. Increased number of bronchioles; Increased respiratory surface

    3. Increased respiratory surface; Inflammation of bronchioles

    4. Decreased respiratory surface; Inflammation of bronchioles

172. Which of the following is an occupational respiratory disorder?

    1. Anthracis

    2. Silicosis

    3. Botulism

    4. Emphysema

173. The amnion of mammalian embryo is derived from

    1. ectoderm and mesoderm

    2. endoderm and mesoderm

    3. mesoderm and trophoblast

    4. ectoderm and endoderm

174. World Ozone Day is celebrated on

    1. 5th June

    2. 21st April

    3. 16th September

    4. 22nd April.

175. What type of ecological pyramid would be obtained with the following data?
Secondary consumer : 120 g
Primary consumer : 60 g
Primary producer : 10 g

    1. Inverted pyramid of biomass

    2. Pyramid of energy

    3. Upright pyramid of numbers

    4. Upright pyramid of biomass

176. Which one of the following population interactions is widely used in medical science for the production of antibiotics?

    1. Commensalism

    2. Mutualism

    3. Parasitism

    4. Amensalism

177. Which part of poppy plant is used to obtain the drug "smack"?

    1. Flowers

    2. Latex

    3. Roots

    4. Leaves

178. Which of the following is an amino acid derived hormone?

    1. Epinephrine

    2. Ecdysone

    3. Estradiol

    4. Estriol

179. The two functional groups characteristic of sugars are

    1. hydroxyl and methyl

    2. carbonyl and methyl

3. carbonyl and phosphate

4. carbonyl and hydroxyl

180. Given below are two statements.
Statement I: The difference in the energy content of the substrate at the ground state and the energy content of the substrate at the transition state is called activation energy.
Statement II: The substrate has higher energy at the transition state than at the ground state.
In light of the above statements, choose the correct answer from the options given below.

1. Both statement I and statement II are correct.

2. Both statement I and statement II are incorrect.

3. Statement I is correct but statement II is incorrect.

4. Statement I is incorrect but statement II is correct.