PHYSICS

1. The dominant mechanism for motion of charge carries in forward and reverse biased silicon p-n junction are
A. diffusion in forward biased, drift in reverse bias
B. drift in forward biased, drift in reverse biased
C. diffusion in both forward and reverse bias
D. drift in both forward and reverse bias

2. If binding energy of electron in a hydrogen atom is 13.6 eV, then energy required to remove the electron from the first excited state of Li^{++} is
A. 13.6 eV B. 3.4 eV
C. 30.6 eV D. 122.4 eV

3. Magnetic field does not cause deflection in
A. α -rays B. β -rays
C. H-atom D. None of these

4. For a telescope, larger the diameter of the objective lens,
A. greater is the magnifying power
B. greater is the resolving power
C. smaller is the magnifying power
D. smaller is the resolving power

5. An X-rays tube operates at 10 kV. The ratio of X-rays wavelength to that of de-Broglie is
A. 1: 10 B. 10: 1
C. 1: 100 D. 100: 1

6. During melting of an ice slab at 273 K at atmospheric pressure
A. positive work is done by ice water system on the atmosphere
B. positive work is done on ice water system by the atmosphere
C. internal energy of ice water system decreases
D. None of the above

7. The ratio of C_p and C_V depends on temperature T according to relation
A. $\gamma \propto T$ B. $\gamma \propto T$
C. $\gamma \propto \frac{1}{T}$ D. $\gamma \propto \sqrt{T}$

8. A body executing SHM with amplitude A. At what displacement from the mean position is potential energy of the body is one-fourth of its total energy
A. $\frac{A}{4}$ B. $\frac{A}{2}$
C. $\frac{3A}{4}$ D. none of these

9. A capillary tube of radius R is immersed in water and water rises in it to a height H. Mass of water in capillary tube is M. If the radius of tube is doubled, mass of water that will rise in capillary will be
A. M B. $\frac{M}{2}$
C. 2M D. 4M

10. Two bodies of mass 1 kg and 3 kg have position vector $\hat{i}+2\hat{j}+\hat{k}$ and - $3\hat{i}-2\hat{j}+\hat{k}$, respectively. The centre of mass of this system has a position vector
A. $2\hat{i}-\hat{j}-2\hat{k}$ B. $-2\hat{i}-\hat{j}+\hat{k}$
C. $-\hat{i}+\hat{j}+\hat{k}$ D. $-2\hat{i}+2\hat{k}$

11. A thin circular ring of mass M and radius R is rotating in a horizontal plane about an axis vertical to its plane with a constant angular velocity ω. If two objects each of mass m be attached gently to opposite ends of a diameter of the ring, the ring will the rotate with an angular velocity
A. $\frac{\omega M}{M+m}$ B. $\frac{\omega(M-2m)}{M+2m}$
C. $\frac{\omega M}{M+2m}$ D. $\frac{\omega(M+2m)}{M}$

12. If a faulty thermometer has its fixed points marked as 5° and 95°. If the temperature measured by the faulty thermometer is 59°, then the correct temperature of the body on Celsius scale is
A. 30° C B. 60°C

C. 120°C D. none of these

13. An open organ pipe produces fundamental note. All of a sudden, one its ends is closed if again fundamental note is emitted, the frequency of note will be
A. half B. double
C. same D. none of these

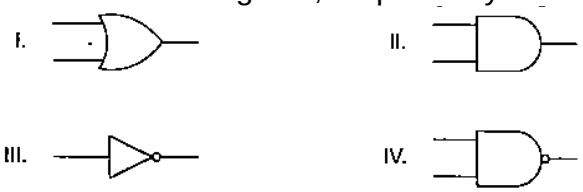
14. Two spheres of the same material have radii 1 m and 4 m and temperature 4000 K and 2000 K respectively. The ratio of energy radiated per second by the first sphere to that by the second is
A. 1:1 B. 16: 1
C. 4: 1 D. 1: 9

15. Two wires of the same length and same material but radii in the ratio of 1:2 are stretched by unequal forces to produce equal elongation. The ratio of forces is
A. 1:4 B. 1:2
C. 2:1 D. 1: $\sqrt{2}$

16. Which of the following is not the cause of low conductivity of electrolytes?
A. high resistance offered by the solution to the motion of ions
B. ionisation of salt
C. low number of density of charge carriers
D. low drift velocity of ions

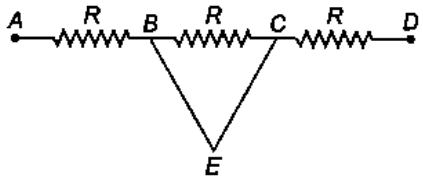
17. A ball is released from the top of a tower and exactly 1s later another ball is released. The distance between two balls 2s after the release of second ball is ($g = 9.8\ m/s^2$)
A. 14.5 m B. 24.5 m
C. 34.5 m D. none of these

18. Pick out which one of these is for AND, NAND and NOT gates, respectively



A. III, II and I B. III, II and IV
C. II, III and IV D. II, IV and III

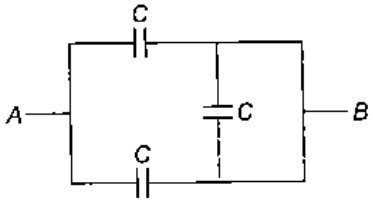
19. The equivalent resistance between points A and D is (given wire used is idle)



A. zero B. R
C. 2R D. none of these

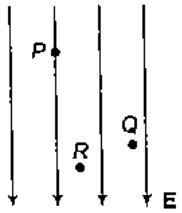
20. The electrostatic potential V at a distance r from the centre of a charged metallic sphere of radius R for r< R will vary according to relation
A. $V \propto \frac{1}{r}$ B. $V \propto r$
C. $V \propto \frac{1}{r^2}$ D. $V \propto r^0$

21. Three capacitors of equal capacity C are connected as shown in figure, the equivalent capacitance of the combination between A and B is



A. C B. 2C
C. $\frac{C}{2}$ D. none of these

22. P, Q and R are three points in a uniform electric field. The electric potential is



A. minimum at R
B. minimum at Q
C. minimum at P
D. same at all three point

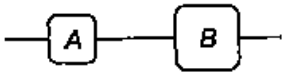
23. A motor pumps water continuously through a hose. Water leaves the hose with velocity v and m is the mass flowing per unit length of water jet, then the rate at which kinetic energy is imparted to water is
A. ½ mv^2 B. ½ m^2v
C. ½ mv^3 D. mv^3

24. Two bodies are thrown with same initial velocity at angles θ and ($90^\circ - \theta$) with horizontal. The ratio of their horizontal ranges are
A. 1 B. ½
C. $\tan^2\theta$ D. none of these

25. A 10 m long wire of resistance 20 Ω is connected in series with a battery of emf 3V (negligible internal resistance) and a resistance of 10 Ω, then the potential gradient along the wire is
A. 0.1 B. 0.2
C. 0.4 D. none of these

26. If the cold junction of a thermocouple is lowered then the neutral temperature
A. decreases
B. increases
C. remains the same
D. approaches inversion temperature

27. Two square metal plates of same thickness and material are connected in series as shown in figure. The length of B is twice the length of A. If resistance of A is represented by R_A and resistance of B is denoted by R_B, then $\frac{R_A}{R_B}$ is



A. 1 B. 2
C. ½ D. none of these

28. A magnet of magnetic moment M is rotated through 360° in a magnetic field H, the work done will be
A. 0 B. 2 MH
C. –MH D. -2 MH

29. Earth's magnetic field always has a horizontal component except at
A. magnetic pole B. equator
C. at altitude of 60^0 D. at altitude of 45^0

30. What is self-inductance of a coil which produces 5 V, when current in it changes from 3 A to 2 A in one millisecond.
A. 5 mH B.5 H
C. 50 H D. -5 mH

31. A voltmeter has a resistance of G Ohm and range of V volt. The value of resistance used in series to convert it into a voltmeter of range nV volt is
A. nG B. $\frac{G}{(n-1)}$
C. (n-1)G D. $\frac{G}{n}$

32. A particle of mass m_1 is moving with a velocity v_1 and another particle of mass m_2 moving with a velocity v_2. Both of them have same momentum but different kinetic energy E_1 and E_2 respectively. If $m_1 > m_2$ then
A. $E_1>E_2$ B. $E_1=E_2$
C. $\frac{E_1}{E_2} = \frac{m_1}{m_2}$ D. $E_1< E_2$

33. A 5 m aluminium wire ($Y = 7 \times 10^{10}$ N/m^2) of diameter 3 mm supports a 40 kg mass. In order to have same elongation in a copper wire ($Y = 12 \times 10^{10}$ N/m^2) of same length under same weight, the diameter should be, in mm
A. 2.0 B. 2.3
C. 1.75 D. 5.0

34. A transverse wave is represented by the equation $y = y_0 \sin \frac{2\pi}{\lambda}(vt-x)$.
For what value of λ is maximum particle velocity equal to two times of the wave velocity
A. $\lambda = 2\pi y_0$ B. $\lambda = \pi y_0$
C. $\lambda = \frac{\pi y_0}{3}$ D. $\lambda = \frac{\pi y_0}{2}$

35. If angle between two vectors X and Y is 120^0, then its resultant Z will be
A. |Z|=|X-Y| B. |Z|<|X-Y|
C. |Z|>|X-Y| D. |Z|=|X+Y|

36. If length of rod X is (2.25 $\pm$ 0.02)cm and that of Y is (5.19 $\pm$ 0.02) cm, then rod Y is longer then rod X by
A. (2.94 $\pm$ 0.02)
B. (2.94 $\pm$ 0.00)
C. (2.94 $\pm$ 0.04)
D. none of these

37. If a radioactive nucleus decays by two different processes, the half-life for first process is t_1 and for second process it is t_2, then the effective half-time t of the nucleus is given by

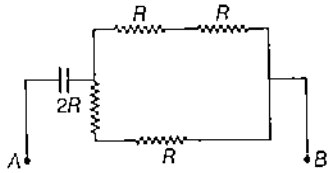
A. $t = t_1 + t_2$ B. $\sqrt{t} = \sqrt{t_1} + \sqrt{t_2}$

C. $t^{-1} = t_1^{-1} + t_2^{-1}$ D. none of these

38. A TV tower has a height of 80m. If average density of population is 3000 persons per km^2, then the population covered by TV tower is

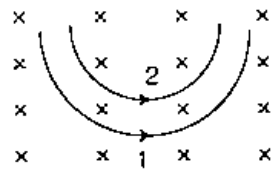
A. 40 lakh B. 80 lakh
C. 96 lakh D. 192 lakh

39. What will be the time constant for the given circuit?



A. RC B. 2.5 RC
C. 1.2 RC D. 6 RC

40. Two particle 1 and 2 of masses M_1 and M_2 respectively enter in a uniform magnetic field as shown in figure. If v_1 and v_2 are their respective velocities then (assume both particles have same charge)



A. $M_1v_1 < M_2v_2$
B. $M_1v_1 > M_2v_2$
C. $M_1v_1 = M_2v_2$
D. none of these

41. The effective resistance of 'n' number of resistors when connected in parallel is A ohm. If one of the resistor is removed then the effective resistance becomes B ohm, then the resistance of resistor which is removed is

A. $\frac{AB}{B-A}$ B. $\frac{AB}{A-B}$

C. $\frac{A+B}{AB}$ D. none of these

42. If the density of water at the surface of the lake is D. the bulk modulus of water is B, then the density of lake water at a depth where the pressure in n p? [p:atomospheric pressure]

A. $\frac{DB}{B+(n-1)p}$ B. $\frac{DB}{B-(n-1)p}$

C. $\frac{DB}{B+(n+1)p}$ D. none of these

43. If the flux linked with a circuit is given $\Phi = t^3 + 3t - t$. The graph between time (x-axis) and induced emf (y-axis) will be a

A. straight line through the origin
B. straight line with positive intercept
C. parabola through origin
D. parabola not through origin

44. Relative permittivity and permeability of a material are ε_r and μ_r respectively. Which of the following values of these quantities are allowed for a diamagnetic material?

A. $\varepsilon_r = 0.5$, $\mu_r = 1.5$ B. $\varepsilon_r = 1.5$, $\mu_r = 0.5$

C. $\varepsilon_r = 0.5$, $\mu_r = 0.5$ D. $\varepsilon_r = 1.5$, $\mu_r = 1.5$

45. A length of wire carries a steady current. It is bent first to form a circular of one turn. the same length is now bent more sharply to give a double loop of smaller radius. The magnetic field at centre caused by the same current is

A. double of its first value
B. quarter of its first value
C. four times of its first value
D. same as the first value

CHEMISTRY

46. Today artificial sweeteners and other sugar substitutes are found in a variety of food and beverages marketed as "sugar-free". Which

of the following is most powerful artificial sweetener?

A. Saccharin B. Aspartame
C. Alitame D. Sucralose

47. A greenhouse gas is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of greenhouse effect. Among the following which one is not a greenhouse gas?

A. CO_2 B. CH_4
C. O_2 D. Vapour of water

48. Nyctalopia also called 'Night Blindness' is a condition making it difficult or impossible to see in relative low light. It is symptom of several eye diseases. It may exist from birth, or be caused by injury or malnutrition. It is caused in human due to deficiency of vitamin

A. A B. B
C. C D. D

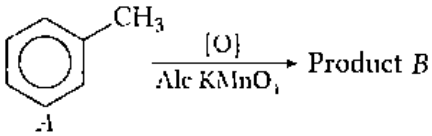
49. Those polymers which get decomposed by the process of biodegradation are known as biodegradable polymer. Among the following the biodegradable polymer is

A. cellulose B. polyethene
C. PVC D. nylon 6

50. The shape of N O_3^{-} and C O_3^{--} are

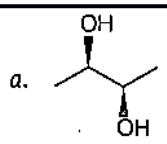
A. triangular planar
B. tetrahedral and triangular planar respectively
C. tetrahedral
D. angular and triangular planar respectively

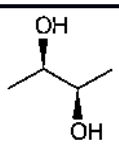
51. Compare the acidic strength of reaction product, B with respect to phenol, A and choose the correct order. Chemical reaction is

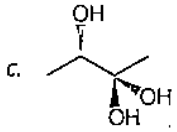


A. A > B B. A< B
C. A=B D. None of these

52. What will be correct stereochemistry of product obtained on reaction of but-2-ene with OSO_4?

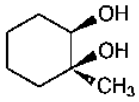
a. 

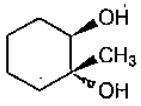
b. 

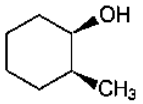
c. 

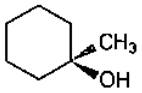
d. None of these

53. Product obtained on reaction 2-methyl cyclohexene with mCPBA followed by hydrolysis is

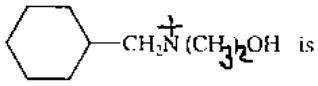
a. 

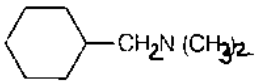
b. 

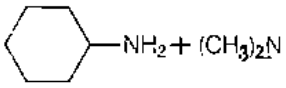
c. 

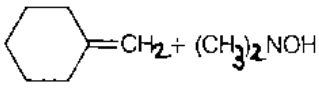
d. 

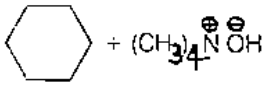
54. Which of the following is the product of Hofmann elimination of?



a. 

b. 

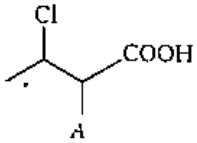
c. 

d. 

55. Which of the following will give positive carbylamines test?

A. N, N-diethyl aniline
B. N methyl propyl amine
C. N, N-diethyl butyl amine
D. 2, 4-dimethyl aniline

56. IUPAC name of A is



A. 3 methyl 2 chloro butanoic acid
B. 2 methyl 3 chloro butanoic acid
C. 3 chloro 2 methyl butanoic acid
D. 2 chloro 3 carboxy, 2, 3-dimethyl propane

57. Chose the process involved in the separation of ortho and para nitrophenol and the reason behind respectively.

A. steam distillation, metallic bonding

B. sublimation, Hydrogen bonding
C. Steam distillation, van der Waal's forces
D. steam distillation, Hydrogen bonding

58.

$$CH\equiv CH \xrightarrow{O_3/NaOH} X \xrightarrow{Zn/CH_3COOH} Y,\ Y \text{ is}$$

a. CH_2OH | CH_2OH b. CH_3CH_2OH

c. CH_3COOH d. CH_3OH

59. Which one of the following is correct order?

A. $^{-}OH > ^{-}OR$ (order of -/ effect)

B. $^{-}CH_3 > ^{-}CO_3 > CCl_3$ (order of +/ power)

C. $^{-}F > ^{-}OH > ^{-}NH_2$ (order of -/ effect)

D. $^{-}OH\ ^{-}SO_2R\ ^{-}SO_3H\ ^{-}NO_2$ (set of meta directors)

60. Vitamin B-12 also called cobalamin is a water soluble vitamin with a peyroline the normal functioning of the brain and nervous system and for the formation of blood. Deficiency of vitamin B-12 causes

A. scurvey B. bery-bery
C. night blindness D. none of these

61. Bond order of CO is equal to bond order of

A. Be_2 B. O_2^{+}

C. N_2^{+} D. N_2

62. Effective magnetic moment of Ce^{3+} ion is

A. zero B. 1.83
C. 2.83 D. 1.73

63. Which of the following has highest 2nd ionisation energy?

A. O B. N
C. C D. B

64. Which of the following is a lanthanide?

A. Curium B. Californium
C. Erbium D. Amercium

65. Magnetic moment of $K_3[Fe(CN)_5(H_2O)]$ is

A. 0 B. 4.92
C. 3.87 D. 2.83

66. IUPAC name of $[Cr(H_2O)_4Cl_2]Cl$ is

A. tetraquadichlorochromate
B. tetraquadichlorochromium(III) chloride
C. tetra aquadichlorochromium (II) chloride
D. dichlorotetraquachromium (III) chloride

67. Which of the following electronic configuration is correct for chromium?

A. $[Ar]\ 3d^4\ 4s^2$ B. $[Ar]\ 3d^5\ 4s^1$
C. $[Ar]\ 3d^4\ 4s^1$ D. $[Ar]\ 3d^5\ 4s^2$

68. The magnetic quantum number of 29th electron of copper is

A. +1 B. -3
C. –1 D. -2

69. Poorest reducing agent among following is

A. atomic hydrogen
B. nascent hydrogen
C. dihydrogen
D. all have same reducing strength

70. Which of the following elements do not impart colour to flame?

Ca, Mg, Li, Na, K, Rb

A. Ca and Mg B. Li and Na
C. K and Rb D. Na and

71. Which of the following code is correct regarding allotrops of carbon?

I. Carbon exist in more than one allotropic from
II. Diamond is semiconductor while graphite is conductor
II. Diamond has layered structure while graphite has tetrahedral structure
IV. Diamond is non-conductor of electricity

A. I and II are correct
B. II and III incorrect
C. I and IV are incorrect
D. All are correct

72. Bases which keep BH_2 in monomeric form is

A. NH_3 B. THF
C. DIGLYME D. all of these

73. Which of the following shows correct Lewis acidic strength order of trihalides of boron?

A. $BCl_3 > BBr_3 > BF_3 > Bl_3$
B. $BF_3 < BBr_3 < BCl_3 < Bl_3$
C. $BF_3 < BCl_3 < BBr_3 < Bl_3$
D. $BF_3 > BCl_3 > BBr_3 > Bl_3$

74. Which of the following is correct when water and ice are at equilibrium at temperature 0^0C is?

A. $G_{ice} > G_{H_2O}$ B. $G_{ice} < G_{H_2O}$

C. $G_{ice} = G_{H_2O} = 0$ D. $G_{ice} > G_{H_2O} \neq 0$

75. Which of the following reaction will not be affected by change in pressure?

A. $H_2 + I_2 \rightleftharpoons 2HI$ B. $N_2 + 3H_2 \rightleftharpoons 2NH_3$

C. $PCl_5 \rightleftharpoons PCl_3 + Cl_2$ D. $CaO + CO_2 \rightarrow CaCO_3$

76. Among the following which one is not a redox reaction?

A. $CaCO_3 \rightarrow CaO + CO_2$

B. $Na + H_2O \rightarrow NaOH + ½ H_2$

C. $MnCl_3 \rightarrow MnCl_2 + ½ Cl_2$

D. $O_2 + 2H_2 \rightarrow 2H_2O$

77. How much time is required to do the electroplating of Ag layer on a coffee tray (30 cm x 15 cm) to a thickness of 1 mm using a constant current of 1.0 A. Given that density of Ag is 10.5 g/cm^3.

A. 7720 s B. 120 min
C. 772 s D. 77.2 s

78. Which of the following order is correct regarding rate of diffusion of gases?

A. $PCl_3 > SO_3 > SO_2 > CO_2$
B. $CO_2 > SO_2 > PCl_3 > SO_3$
C. $SO_2 > SO_3 > PCl_3 > CO_2$
D. $CO_2 > SO_2 > SO_3 > PCl_3$

79. Packing fraction of simple cubic crystal lattice is

A. 38% B. 74%
C. 68% D. 52.4%

80. For antifluorite structure coordination number of cations and anions are respectively

A. 6 and 6 B. 4 and 8
C. 8 and 4 D. 4 and 4

81. In the reaction $N_2O_4 \rightleftharpoons 2NO_2$, a is that part of N_2O_4 which dissociates, then the number of moles at equilibrium will be

A. $(1 - \alpha)^2$ B. 3α
C. α D. $1 + \alpha$

82. ΔE^0 of combustion of isobutylene is –x kJ mol^{-1}. The value of ΔH^0 is

A. ΔE^0 B. $> \Delta E^0$
C. = zero D. $< \Delta E^0$

83. A plot of log $\frac{x}{m}$ versus log p for adsorption of gas on a solid gives a straight line with slope equal to

A. $\frac{1}{n}$ B. log K
C. – log K D. n

84. The half-life time of a first order reaction is 1.26 x 10^{14} s, then rate constant of this reaction will be

A. 5.5 x 10^{-10} s^{-1}
B. 5.5 x 10^{-14} s^{-1}
C. 6.6 x 10^{-14} s^{-1}
D. none of these

85. Which of the following forms cationic micelles above certain concentration?

A. Urea
B. Sodium dodecyl sulphate
C. Sodium acetate
D. Cetyltrimethylammonium bromide

86. 0.5 g of a metal on oxidation give 0.79 g of its oxide. The equivalent weight of the metal is

A. 10 B. 14
C. 20 D. 40

87. What will be the value of relative lowering of vapour pressure when 3 g urea is dissolved in 45 g of water?

A. 0.05 B. 0.04
C. 0.02 D. 0.01

88. Which of the following will not show tautomerism?

A. cyclohexen-1-ol
B. pentanone
C. acetone
D. 2-methyl pentan-1-ol

89. Rate constant of any reaction with 20% complete in 10 min is

A. 0.233 B. 0.0223
C. 0.0322 D. 0.322

90. Which of the following contain N-N bond?

N_2O_4, N_2O_5, N_2O_3

A. N_2O_4, N_2O_3 and N_2O_5
B. N_2O_5 and N_2O_4
C. N_2O_3 and N_2O_5
D. N_2O_3 and N_2O_4

BIOLOGY

91. The partial pressure of oxygen is maximum in
A. Inspired air B. alveolar air
C. expired air D. blood

92. Match the following column and choose the correct option from the codes given below.

Column-I	Column-II
A. Germs plasm theory	1. Hugo de Vries
B. Inheritance of acquired characters	2. August Weismann
C. Mutation theory	3. Arrhenius
D. Theory of panspermia	4. Lamarck

Codes

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

93. Cushing's syndrome is caused by the deficiency of
A. mineralocorticoid
B. glucocorticoids
C. calcitonin
D. sexcorticoids

94. Genetic diversity is related to the variation of
A. genes within a species
B. genes within an organism
C. genes within a population
D. none of these

95. The element which is an important component of amine oxidase enzyme is
A. chlorine B. manganese
C. molybdenum D. copper

96. Which one of the following is a non-symbiotic biofertiliser?
A. VAM B. Azotobacter
C. Anabaena D. Rhizobium

97. Which one of the following is a total root parasite?
A. Viscum B. Nepenthes
C. Monotropa D. Orobanche

98. Classification based on chromosome number is
A. Cytotaxonomy B. Karyotaxonomy
C. Numerical taxonomy D. Biochemistry

99. The net gain of ATP in Kreb's cycle is of
A. 2 ATP B. 8 ATP
C. 30 ATP D. 38 ATP

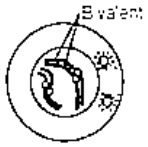
100. When external stimulus is applied to a neuron, it becomes freely permeable to
A. K^+ ions B. Na^+ ions
C. Cl^- ions D. HC O_3^- ions

101. A species facing extremely high risk of extinction in the immediate future is called
A. endemic
B. critically endangered
C. extinct
D. vulnerable

102. Placenta and pericarp are both edible portions in
A. apple B. orange
C. banana D. tomato

103. Tiger is not a resident in which one of the following national parks?
A. Jim Corbett B. sunderbans
C. Ranthamhore D. Gir

104. Identify the diagram and name the phase of meiosis carefully



A. Leptotene B. Pachytene
C. Zygotene D. Diplotene

105. Match the following columns and choose the correct option from the codes given below.

Column-I	Column-II
A. Aplysia	1. Lung fluke
B. Paragonimus	2. Tse-tse fly
C. Glossina palpalis	3. Sea anemone
D. Adamsia	4. Sea hare

Codes

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

106. A tissue grafted from one individual to a genetically different individual of the same species
A. Autograft B. Xenograft
C. Isograft D. Allograft

107. The breeding procedure by which 'mule' is produced is
A. inbreeding
B. interspecific hybridisation
C. out crossing
D. cross breeding

108. Gluconic acid is industrially produced by
A. Aspergillus niger
B.Rhizopus
C. Acetobacter

D. Bacillus subtilis

109. The toxic element that causes blue baby syndrome is
A. cadmium B. arsenic
C. Mercury D. nitrate

110. Which antibody is found in body secretions from nose, eyes, lungs, digestive tract, saliva and tears, etc .
A. IgG B. IgM
C. IgE D. IgA

111. High value of BOD (Bochemical Oxygen Demand) indicates that
A. water is highly polluted
B. water is less polluted
C. consumption of organic matter in the water is higher by the microbes
D. water is pure

112. Nuclear envelope is a derivative of
A. membrane of Golgi complex
B. microtubules
C. rough endoplasmic reticulum
D. smooth endoplasmic reticulum

113. Taxol, an anticancerous drug, is obtained from which plnant?
A. Taxus B. Pinus
C. Ephedra D. Cycas

114. Match the following columns and choose the correct option from the codes given below.

Column-I	Column-II
A. ATP synthase B. Cytochrome-c C. α -ketoglutaric acid D. Chemiosmotic hypothesis	1. Electron acceptor 2. Peter Mitchell 3. 5-C Compound 4. Contains F_1 and F_0 particles and protein stalk

Codes

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

115. The amount of water present in a given soil when it is saturated is known as
A. water content of soil
B. permanent wilting percentage
C. field capacity
D. soil moisture content

116. The joint between occipital condyle and first vertebra is called as
A. Condyloid joint
B. Pivot joint
C. Hinge joint
D. saddle joint

117. The portion of brain which contains a number of centres to control body temperature, urge of eating and drinking
A. cerebrum B. pons
C. cerebellum D. hypothalamus

118. Which one of the following was the objective of signing the 'Montreal Protocol'?
A. Protection of wild life
B. Protection of ozone layer
C. Control over the use of insecticides
D. control on noise pollution

119. Root hairs are present on the
A. region of root cap
B. region of elongation
C. region of maturation
D. region of meristmatic activity

120. Which one of the following pairs is not correctly matched?

A. short day plant	Xanthium
B. day neutral plant	Bryophyllum
C. short-long day plant	Wheat
D. long day plant	Spinach

121. Which of the following is inhibitory neurotransmitter?
A. GABA
B. Serotonin
C. 5-hydroxy tryptophan
D. Glutamine

122. Which one of the following pairs is correctly matched?

A. Trichomoniasis	Treponema pallidum.
B. Genital warts	Human Papilloma virus(HPV) .
C. Syphillis	Haemophilus ducreyi.
D. Chancroid	Candida.

123. Gene mutation in which purine is replaced by purine and pyrimidine is replaced by pyrimidine is called as
A. transversion B. deletion
C. transition D. insertion

124. The structures that are formed by stacking of organised flattened membranous sacs in the chloroplasts are
A. grana B. stroma lamellae
C. stroma D. cristae

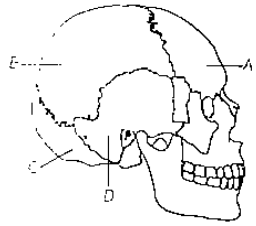
125. Erythropoiesis starts in
A. liver B. spleen
C. red bone marrow D. kidney

126. The chromosome in which centromere is situated close to one end are

A. acrocentric B. telocentric
C. sub-metacentric D. metacentric

127. Vertical distribution of different species occupying different levels in a biotic community is known as
A. stratification B. zonation
C. pyramid D. divergence

128. Identify A to D in the following diagram.



A. A-Frontal, B-Parietal, C-Occipital, D-Temporal
B. A-Temporal, B-Parietal, C-Frontal, D-Occipital
C. A-Parietal, B-Occipital, C-Frontal, D-Temporal
D. A-Occipital, B-Frontal, C-Temporal, D-Parietal

129. Match the following columns and choose the correct option from the codes given below.

Column-I	Column-II
A. Down's syndrome	1. trisomy 13
B. Patau's syndrome	2. trisomy 21
C. Edward syndrome	3. tri/tetrasomy of X chromosome
D. Klinefelter's syndrome	4. trisomy 18

Codes

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

130. The macrophages found in brain are called as
A. Kupffer cells B. Microglial cells
C. Langerhans cells D. Histiocytes

131. Forelimbs of cat, lizards used in walking, forelimbs of whale used in swimming and forelimbs of bats used in flying are an example of
A. adaptive radiation
B. analogous organ
C. vestigial organ
D. convergent evolution

132. A location with luxuriant growth of lichens on the tree indicates that the
A. trees are heavily infested
B. location is highly polluted
C. location is not polluted
D. trees are very healthy

133. The epithelial tissue present on the inner surface of bronchioles and fallopian tube is
A. squamous B. glandular
C. cuboidal D. ciliated

134. The bacterium which helps in the degradation of man-made and natural organic pollutants is
A. Pseudomonas B. Clostridium
C. Xanthomonas D. Acetobacter

135. The fertilisation in which the entry of pollen tube into the ovule occurs through the funiculus is known as
A. acrogamy B. misogamy
C. chalazogamy D. porogamy

136. The number of individuals in each population that can live in a particular ecosystem is limited and that number is known as
A. biotic potential
B. carrying capacity
C. intrinsic natural increases
D. reproductive capacity

137. Which one of the following ecological pyramids is always upright?
A. Pyramid of number
B. Pyramid of biomass
C. Pyramid of energy
D. Age pyramid of plant population

138. Which of the following is wrongly matched?

Larva	Organism
A. Miracidium	Schistosoma
B. Amphiblastula	Sycon
C. Veliger	Pila
D. Trilobite	Dugesia

139. The undifferentiated plant tissue present at the top and side of root, shoot from which new cells arise
A. epidermis B. cuticle
C. meristem D. parenchyma

140. The interstitial fluid, similar to blood plasma, but colourless and contains less proteins
A. Plasma B. Lymph
C. Serum D. Saliva

141. cDNA-mRNA hybrids are made by using
A. reverse transcriptase
B. RNA polymerase

C. DNA polymerase
D. restriction endonuclease

142. consider the following codons
I. UAA II.UAC III.UAG
Which of these are considered to be the termination codons in protein synthesis?
A. I, II and III B. II and III
C. I and II D. I and III

143. a universal hydrogen acceptor in an electron transport system is
A. ATP B. NAD
C. UDP D. FMN

144. consider the following statements
I. The first living organism on planet earth originated in water.
II. When life originated on planet earth, the atmosphere contained ammonia, hydrogen, methane and water vapour.
Which of the statement given above is/are correct?
A. Only I B. Both I and II
C. Only II D. Neither I nor II

145. What is the primary acceptor of CO_2 in Hatch-Slack cycle?
A. Phosphonenol pyruvic acid
B. Ribulose biphospahte
C. Phosphoglyceric acid
D. Diphosphoglyceric acid

146. The osphradium in Pila sp. Is the organ responsible for
A. tactile activity
B. sensing light
C. equilibrium
D. chemoreception

147. Which one of the following increases the uptake of sodium ions and water in the kidney with simultaneous elimination of potassium ions?
A. Vasopressin
B. Parathormone
C. Renin
D. Aldosterone

148. Ratio for complementary genes is
A. 9: 3: 4 B. 9: 3: 3: 4
C. 12: 3: 1 D. 9: 7

149. Which the following is a marine fish?
A. Rohu B. Catla
C. Hilsa D. Common crap

150. Match the following columns and choose the correct option from the codes given below:

Column-I	Column-II
A. Alecithal eggs	1. Amphibians
B. Macrolecithal eggs	2. Insects
C. Telolecithal eggs	3. Humans
D. Centrolecithal eggs	4. Reptiles, birds

Codes

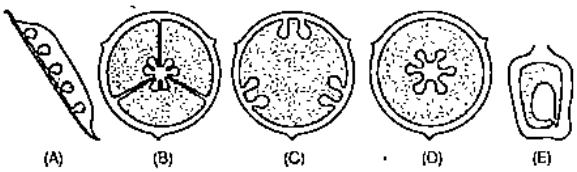
	A	B	C	D		A	B	C	D
a.	2	1	4	3	b.	4	3	2	1
c.	3	2	1	4	d.	3	4	1	2

151. Specialised cells of sponges that line pores in sponges and have a flagellum that spin to pull in water and food is called as
A. archeocytes B. collar cells
C. mesoglea D. choanocytes

152. Which of the following cells during gametogenesis is normally diploid?
A. Spermatid
B. Spermatogonia
C. Secondary polar body
D. Primary polar body

153. The mass of living material at a trophic level an at a particular time is called
A. standing state
B. net primary productivity
C. Gross primary productivity
D. standing crop

154. Identify the types of placentation, i.e. arrangement of ovules within the ovary, in the given diagrams.



A. A-Axile, B-Parietal, C-Free central, D-Basal, E-Superficial
B. A-Marginal, B-Axile, C-Parietal, D-Free central, E-Basal
C. A-Marginal, B-Parietal, C-Axile, D-Superficial, E-Basal
D. A-Parietal, B-Axile, C-Free central, D-Basal, E-Marginal

155. Which of the following is wrongly matched?

Product	Host Organism	Use
1. Insulin	Bacteria/Yeast	Used to treat diabetes.
2. HGH	Bacteria	Used to treat dwarfism.
3. Streptokinase	Algae	Used to clear blood clots in blood vessels

4. DNase	Bacteria	treatment of cystic fibrosis

A. 1, 3 B. 1, 2
C. 2 and 4 D. 3

156. Select the correct statement
I. An organism's gene individually or collectively, is its genotype
II. Test cross is a cross between F_1 hybrid and recessive parent
III. Presence of rose comb in poultry is an example of collaborator genes
IV. A haploid nucleus contains one set of chromosomes and one allele of each gene
A. Only I B. II and IV
C. I and IV D. III and IV

157. In context of wobble hypothesis, which of the following statement is/are correct?
I. This hypothesis was proposed by FHC Crick.
II. According to it, third nitrogenous base of a codon is not much significant and codon is specified by first two bases.
III. This means, the same tRNA can recognise more than one codons.
A. I and II B. II and III
C. Only III D. All of these

158. The class of molluscs that includes clams, oysters, mussels and scallops is known as
A. Bivalvia B. Gastropods
C. Cephalopods D. Chilopoda

159. The chemical/toxin that inhibits spindle formation during cell division by preventing assembly of microtubules
A. colchicine B. phalloidin
C. cytochalasin D. latrunculin

160. In a plant cell, osmotic pressure (OP) is equal to
A. DPD-TP B. DPD+TP
C. TP-DPD D. TP-DP

161. The process by which spermatids are transformed into sperms is known as
A. spermeiogenesis
B. spermatogenesis
C. spermiation
D. capacitation

162. Where is ischium bone located in our body?
A. Forelimb B. Hindlimb
C. Pectoral girdle D. Pelvic girdle

163. Which of the following statements about DNA is not correct?
A. The double helix is right handed
B. The nitrogenous bases are stacked on the inside of the helix
C. The two strands of the double helix are anti-parallel
D. the bases of the two polynucleotide interact by covalent bonding

164. Match the following columns and choose the correct answer from the codes given below:

Column-I	Column-II
A. Recombinant DNA	1. Marker gene-reporter gene
	2. DNA lipase
B. Agrobacterium	3. T-DNA
C. Sticky ends	4. Restriction enzyme
D. Plasmids	

Codes

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

165. The hormone that induces the production of parthenocarpic fruits is
A. auxins B. cytokines
C. ethylene D. gibberellins

166. The digestive hormone that simulates the crypts of Lieberkuhn to release enzyme into the intestinal juice
A. enterocrinin B. somatostatin
C. gastrin D. secretin

167. Action potential in sarcolemma of muscles causes the release of
A. Na^+ B. Ca^{2+}
C. Cl^- D. HC $O_3^{-¿}$

168. Copper-T/loops prevent
A. cleavage B. ovulation
C. fertilisation D. zygote formation

169. The group of plants which are well adapted to extreme conditions like temperature, humidity and wind, is
A. Monocot B. pteridophytes
C. dicots D. gymnosperms

170. Scrapie disease in sheep and goat and kuru disease in humans is caused by
A. virion B. prions
C. virusoids D. transposons

171. Conversion of non-carbohydrate source to glycogen is called as

A. gluconeogenesis B. glycogenolysis
C. glycosuria D. glycogenesis

172. Where is Brunner's gland located in our digestive system?
A. Duodenum B. Colon
C. Jejunum D. stomach

173. Match the following column and chose the correct option from the codes given below.

Column-I	Column-II
A. chief producer in the oceans	1. Diatoms
B. Red tides	2. Dinoflagellates
C. Connecting link between plants and animals	3. Euglenoids
D. Fungi like protists	4. Slime mould

Code

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

174. Jute, Fibre,sunn hemp or hemp fibers are obtained from the region of
A. phloem B. xylem
C. pericycle D. pith

175. In touch-me-not plant (Mimosa pudica)the movement in its leaves is caused due to
A. osmosis B. plasmolysis
C. turgor pressure D. imbibition

176. Select the incorrect statement(s).
I. Hirudin prevents blood clotting is found in leech
II. In a continuous culture, the volume of suspension is kept constant
III. Pathogen of anthrax is Pseudomonas anthracis
IV. Extraction of TPA results in effective treatment of cornornary thrombosis.
A. only II B. III and IV
C. I and II D. only III

177. The percentage distribution of species among the various life forms of a particular flora
A. Biological spectrum
B. Hexicology
C. Demecology
D. Biological diversity

178. Which of the following statement(s) is/are true?
I. Lasers can destruct small retinal tumours
II.A pacemaker is always worn on belt (external implantation).
III. Vascular graft is a type of prosthetic tube.
IV. An artificial kidney can produce both active and passive filteration process.
A. III and IV B. I and III
C. IV and II D. I only

179. Favourable relationship between two species, but not obligatory is called
A. competition B. antagonism
C. mutualism D. protocooperation

180. The two pairs of gens which thought present on separate locus, interact to produce a new trait or phenotype such that neither of genes could produce when present alone, such genes are called as
A. collaborator genes
B. duplicate genes
C. supplementary genes
D. complementary genes