UG - 2009

Admission Ticket No.	Question Booklet Version Code	Question Booklet Sr. No.
	A	1861
IR Serial Number	*(Write this Code on your OMR Answer sheet)*	*(Write this Number on your OMR Answer sheet)*

Candidates Kindly Note

There are totally **180 questions** in this booklet. This Question Booklet contains **28 pages.**

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calculation / rough work needs to be done only in the space provided at the bottom of each page of the tion paper.

ediately after the prescribed examination time is over, the OMR sheet is to be returned to the invigilator ensuring that both the candidate and the invigilator have signed.

1. In a series resonant circuit, whole supply voltage of 50V appears across resistor. Voltage across the inductor is 80V. Voltage across the capacitor is
   a) zero
   b) 40V
   c) 50V
   d) 80V

2. As the resistance in series resonant circuit increases,
   (i) resonant frequency remains constant,
   (ii) band width decreases

   a) both (i) and (ii) are correct
   b) only (i) is correct
   c) both (i) and (ii) are wrong
   d) only (ii) is correct

3. Physical quantity which cannot be changed using a transformer is
   a) current
   b) power
   c) voltage
   d) frequency

4. Stopping potential of photoelectrons from a metal is maximum when incident radiation lie in
   a) Visible region
   b) U-V region
   c) IR region
   d) X-ray region

5. In the nucleus of a heavy atom, the particles present are
   a) Proton and electron
   b) Proton and neutron
   c) Electron and neutron
   d) Protons, neutrons and electrons

6. Planck's constant has the unit of
   a) energy
   b) linear momentum
   c) power
   d) angular momentum

7. The velocity of light is maximum in
   a) Diamond
   b) Water
   c) Free space
   d) Glass

Space for calculation / rough work

8. An electric charge 'q' is placed at the centre of the line joining two equal charges 'Q'. The system of three char is in equilibrium. Then the charge 'q' is
   a) -Q/2
   b) -Q/4
   c) -4Q
   d) +Q/2

9. Two equal and opposite charges are separated by a distance (r/4). To have the dipole moment 2qr, the magnitu of each charge is
   a) q/r
   b) q^2
   c) 8q
   d) 2q

10. The capacitance of a parallel plate capacitor does not depend upon
    a) Area of the plates
    b) Medium between the plates
    c) Distance between the plates
    d) Nature of the material of the plates

11. Which one of the following cannot be used as dielectric in a capacitor
    a) Water
    b) Mica
    c) Air
    d) Aluminium oxide

12. A logic gate whose output will be in logic 1 state only when the two inputs are dissimilar is
    a) OR gate
    b) NOR gate
    c) NAND gate
    d) XOR gate

13. The only particle in the Baryonic group which is quite stable is
    a) neutron
    b) Xi particle
    c) omega particle
    d) proton

14. Which of the following series is found in the visible region?
    a) Lyman
    b) Balmer
    c) Paschen
    d) Pfund

Space for calculation / rough work

5. The ratio of the half-life T of a radioactive sample to its mean life 'τ' is
   a) 0.693
   b) 1
   c) 1.44
   d) 1.386

6. In case of Ge doped with As, at room temperature, n_e = number of electrons, n_h = number of holes.
   a) $n_e = n_h$
   b) $n_e > n_h$
   c) $n_e < n_h$
   d) $n_e >< n_h$ depending on room temperature

7. If 'h' is Planck's constant, the momentum of a photon of wavelength 0.01 Å in terms of Planck's constant 'h'
   a) 10^{-2}
   b) 10^{10}
   c) 10^{2}
   d) 10^{12}

8. The radius of the first Bohr orbit in case of H is 0.52 Å. The radius of second orbit in case of He^+
   a) 0.52 Å
   b) 1.04 Å
   c) 2.08 Å
   d) 0.26 Å

9. When cathode rays are stopped by metals of high atomic number
   a) Protons are generated
   b) γ-rays are produced
   c) Neutrons are generated
   d) X-rays are produced

10. In semiconductor laser diode population inversion is for
    a) Electrons
    b) Semiconductor atoms
    c) Donor impurity atoms
    d) Acceptor impurity atoms

11. Size of an electron orbit in an atom is largely dependant on the
    a) Principal quantum number
    b) Angular momentum quantum number
    c) Spin quantum number
    d) Magnetic quantum number

Space for calculation / rough work

22. A decrease in wavelength due to scattering is observed only in
    a) Rayleigh scattering
    b) Mie scattering
    c) Raman scattering
    d) Fluorescence

23. A candle flame gives
    a) continuous emission spectrum
    b) line emission spectrum
    c) line absorption spectrum
    d) band spectrum

24. The bending of a ray of light when it travels from one medium to another of different optical density is known as
    a) Diffraction
    b) Reflection
    c) Refraction
    d) Polarisation

25. Light rays from a sodium lamp are incident normally on one side of a glass prism and emerge out grazing other surface. The angle of prism is 45^0, Refractive index of prism material is
    a) 1.6
    b) 1.8
    c) 1.4
    d) 1.2

26. For a swimmer under water, viewing obliquely, a coach standing on the bank of a lake, appears as
    a) slightly shorter
    b) slightly taller
    c) of same height
    d) half the original height

27. Two thin convex lenses of focal lengths f_1 and f_2 are kept co-axially spearated by a distance x. A parallel beam incident on this combination emerges out as a parallel beam. Then x is
    a) $(f_1 + f_2)$
    b) $(f_1 \sim f_2)$
    c) $(f_1\ f_2)/(f_1 + f_2)$
    d) $(f_1\ f_2)/(f_1 - f_2)$

Space for calculation / rough work

28. Brewster's angle depends on
(i) nature of reflecting surface
(ii) wavelength of incident light

a) only (i) is correct
b) only (ii) is correct
c) both (i) and (ii) are correct
d) both (i) and (ii) are wrong

29. An air bubble in water shines well because of
a) Dispersion of light
b) Reflection of light
c) Refraction of light
d) Total internal reflection

30. An ideal heat engine, rejecting heat at 47°C is to have efficiency 40%. It must take heat at approximately,
a) 260°C
b) 448°C
c) 320°C
d) 640°C

1. Heat is transferred from a point of higher temperature to a point of lower temperature even in the absence of a medium by the process of
a) Radiation
b) Conduction
c) Convection
d) by conduction and convection

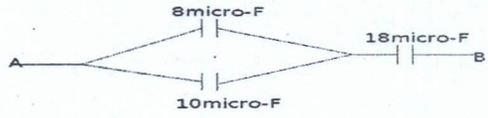
2. A source emitting sound of frequency 450Hz is moving towards a stationary listener with $1/10^{th}$ of velocity of sound. The apparent frequency as heard by the listener is
a) 500 Hz
b) 550 Hz
c) 400Hz
d) 450Hz

. The intensity level of sound is one bel (standard intensity corresponds to threshold of hearing) when its intensity is
a) equal to the standard intensity
b) twice the standard intensity
c) ten times the standard intensity
d) half the standard intensity

. Longitudinal mechanical waves are not audible if wavelength in air (V_s=350m/s) is
a) 18m
b) 1.75m
c) 5m
d) 3.5m

Space for calculation / rough work

35. The effective value of the capacitance of the capacitors shown in figure in μF is



a) 34
b) 8
c) 9
d) 36

36. Insulation property of air breaks down at $E = 3 \times 10^6$ V/m. The maximum charge that can be given to a conductir sphere of diameter 0.12m is
a) 1.2 μC
b) 12 μC
c) 120 μC
d) 12 nC

37. When n identical resistors each of resistance r is connected in series effective resistance is R. When the same resistances are in parallel, effective resistance of combination is
a) r^2R
b) $n^2 R$
c) $\frac{R^2}{r}$
d) $\frac{r^2}{R}$

38. How many electrons flowing per second constitute a current of 1.6 ampere?
a) 1.6×10^8
b) 1.6×10^{-19}
c) 10^{19}
d) 10^{20}

39. With usual notation the Kirchoff's laws are presented as
a) $\Sigma I=1, \Sigma IR=0$
b) $\Sigma IR= \Sigma E, \Sigma I=1$
c) $\Sigma I=0, \Sigma IR= \Sigma E$
d) $\Sigma IR=0, \Sigma I=0$

40. The path of a charged particle moving perpendicular to a uniform strong magnetic field is
a) a parabola
b) a hyperbola
c) a circle
d) helix

Space for calculation / rough work

41. Fraunhofer lines in the solar spectrum can be explained by
    a) Stefan's law
    b) Planck's law
    c) Kirchoff's law
    d) Newton's law

42. If I and 4I are the intensities of two interfering waves, intensity at the region of destructive interference is
    a) I
    b) Zero
    c) 3I
    d) 4I

43. The transverse nature of light is established by
    a) Refraction
    b) Interference
    c) Diffraction
    d) Polarisation

44. Two nicols are in crossed position. One of the nicol is turned through 30^0. Percentage of incident light transmitted through the combination is
    a) 12.5%
    b) 37.5%
    c) 50%
    d) 25%

45. The diameter of the dark Newton's rings are
    a) Proportional to square root of odd number
    b) Proportional to the square of odd number
    c) Inversely proportional to the natural numbers
    d) Proportional to the square root of natural numbers

46. Resolving power of optical instruments is limited -because of
    a) interference
    b) diffraction
    c) polarisation
    d) scattering

47. A machine gun fires a bullet of mass 50gm at a speed of 1000 m/s. If the shooter can exert an average force of 200 N against the gun, the maximum number of bullets he can fire per minute will be
    a) 240
    b) 120
    c) 60
    d) 30

Space for calculation / rough work

48. Acceleration due to gravity is greater
    a) on the equator of the earth
    b) on the poles of the earth
    c) on the peak of the mountain
    d) inside a deep mine of the earth

49. A particle starting from rest and moving with constant acceleration covers a distance x in first 2 sec and distance y in next 2 sec, then
    a) y=x
    b) y=2x
    c) y=3x
    d) y=4x

50. Which one of the following is the most elastic?
    a) Steel
    b) Rubber
    c) Gold
    d) Copper

51. Liquid crystalline phase used in liquid crystal thermometer is
    a) nematic
    b) smectic
    c) cholesteric
    d) lyotropic

52. The magnetic moment per unit volume is called
    a) Magnetic flux
    b) Intensity of magnetization
    c) Magnetic induction
    d) Magnetic field

53. The material having negative temperature co-efficient of resistance is
    a) Copper
    b) Aluminium
    c) Silicon
    d) Mercury

54. The magnetic force acting on a charged particle moving perpendicular to the magnetic field will be
    a) parallel to the field
    b) in the direction of motion
    c) zero
    d) perpendicular to both magnetic field and direction of motion of the particle.

Space for calculation / rough work

55. A high resistance of 19.9 k ? is connected in series with a galvanometer of resistance 100 ?. Current for full scale deflection is 10 mA. Maximum voltage that can be measured using this voltmeter is
a) 100V
b) 150V
c) 200V
d) 250V

56. When no load is connected across a cell, p.d between its terminals is E. The potential drop across its terminal when a resistance R= r (where 'r' is the internal resistance) is connected is
a) 2E
b) E/2
c) E/4
d) E/3

7. With increase in temperature, the probability of electron colliding with lattice ion, in a conductor
a) does not change
b) becomes zero
c) decreases
d) increases

. An emf of 5V is induced in a coil, when current through it drops from 5A to zero in one milli second. Self inductance of the coil is
a) 5mH
b) 10mH
c) 1mH
d) 0.1mH

A charged conductor plate A of capacity C -at potential V is placed near an uncharged, similar conductor plate B. Then for the conductor plate A
a) C remains constant V increases
b) C increases V decreases
c) C decreases V decreases
d) C increases V remains constant

One kilo mole of a substance contains
a) 1.38×10^{23} molecules
b) 6.25×10^{34} molecules
c) 6.023×10^{23} molecules
d) 6.023×10^{26} molecules

Space for calculation / rough work

61. Invertase converts
    a) glucose into fructose
    b) sucrose into glucose and fructose
    c) starch into glucose
    d) fructose into alcohol

62. Which one of the following is a saturated fatty acid?
    a) Linoleic acid
    b) Linolenic acid
    c) Myristic acid
    d) Oleie acid

63. Cresols are present in
    a) light oil fraction
    b) middle oil faction
    c) green oil fraction
    d) heavy oil fraction

64. ΔH is always negative in the case of
    a) enthalpy of formation
    b) enthalpy of solution
    c) enthalpy of combustion
    d) enthalpy of transition

65. Which one of the following is an isolated system?
    a) exchange of both matter and energy
    b) exchange of energy only
    c) no exchange of both energy and matter
    d) exchange of matter only

66. In the manufacture of soap the substance used is
    a) Washing soda
    b) Caustic soda
    c) Soda lime
    d) Quick lime

67. Siderite is
    a) Sulfide ore
    b) Carbonate ore
    c) Oxide ore
    d) Halide ore

68. Magnatite is
    a) Fe_2O_3
    b) $2\ Fe_2O_3.3H_2O$
    c) Fe_3O_4
    d) FeO

Space for calculation / rough work

Ferro cyanide ion is having
a) Sp^2 hybridization
b) Sp^3 hybridization
c) dsp^2 hybridization
d) d^2sp^3 hybridization

An anionic complex is
a) Sodium Argentocyanide
b) Hexa amino Platinum Chloride
c) Nickel Carbonyl
d) Cuprammonium Sulfate

The number of ions formed by Potassium ferricyanide
a) 2
b) 6
c) 4
d) 5

The lowest pH is exhibited by
a) 0.5M Sulfuric acid
b) 0.1M Hydrochloric acid
c) 0.1M Sodium Hydroxide
d) 0.2M Nitric acid

In the reaction, $PC1_5 \rightleftarrows PC1_3 + C1_2$ more of PCl_5 dissociates
a) at high pressure
b) at low pressure
c) pressure has no effect
d) on addition of an insert gas

The Standard reduction potentials of 4 metal electrodes A, B, C, D are, – 0.13 V, – 2.92 V, – 0.44 V, – 2.37 V, respectively. The most powerful reducing agent is
a) A
b) C
c) D
d) B

When ammonium nitrite Crystals are heated we get
a) Nitric oxide
b) Nitrous oxide
c) Nitrogen dioxide
d) Nitrogen

Space for calculation / rough work

76. 4g of a nonvolatile solute dissolved in 36g of water, produces relative lowering of vapour pressure of 0.05. T molecular mass of the solute is
    a) 40
    b) 20
    c) 80
    d) 100

77. 2 molecules of isopropyl chloride with sodium in ether forms
    a) 2 : 3 dimethyl butane
    b) 2 – methyl pentane
    c) 3 – methyl pentane
    d) Hexane

78. Conc. H_2SO_4 with PCl_5 gives
    a) Sulfuryl Chloride
    b) Thionyl Chloride
    c) Phosphorus oxy Chloride
    d) Sulfur tetra Chloride

79. Which one of the following does not give a ppt with excess of NaOH
    a) Ferrous Sulfate
    b) Zinc Sulfate
    c) Magnesium Sulfate
    d) Silver nitrate

80. In the manufacture of paper the substance used is
    a) Washing soda
    b) Caustic soda
    c) Baking soda
    d) Soda lime

81. The amount of $CaCO_3$ neutralized by 200cc of 0.5N HCl is
    a) 5g
    b) 10g
    c) 50g
    d) 2.5g

82. Entropy is expressed in the unit of
    a) $J^{-1}K^{-1}$
    b) KJ
    c) KJ^{-1}
    d) JK^{-1}

Space for calculation / rough work

83. 5 liters of NaOH solution contains 200mg of NaOH. The pH of the solution is
a) 10
b) 12
c) 11
d) 14

84. In a first order reaction, 90% of the reaction is completed in 7 minutes. The velocity constant is
a) 0.0329
b) 0.329
c) 3.29
d) 0.00329

85. The lowest osmotic pressure is exhibited by
a) 0.1 M Potassium Chloride
b) 0.1M Magnesium Chloride
c) 0.1M Potassium Ferricyanide
d) 0.1M Glucose

86. Lyophilic sols are more stable because
a) particles are heavily hydrated
b) particles carry +ve charges
c) particles have no charge
d) particles repel each other

87. 18g of glucose is dissolved in 180g of water. Relative lowering of vapour pressure is
a) 0.1
b) 0.01
c) 0.02
d) 0.2

88. 3g of urea is dissolved in 100g water. Molality of the solution is
a) 0.4
b) 0.3
c) 0.1
d) 0.5

89. When H^+ ion concentration of a solution increases its
a) pH increases
b) pH decreases
c) OH^- ion concentration increases
d) pH remains constant

90. The Temperature coefficient of reaction is 2. If the velocity of the reaction at 55^0C is 64. The velocity at 25^0C is
a) 16
b) 4
c) 32
d) 8

Space for calculation / rough work

1. The radius ratio of a crystal is 0.82. Its coordination number & crystalline structure are
   a) 4 & tetra hedral
   b) 8 & body centred
   c) 6 & face centred
   d) 6 & body centred

92. Degree of dissociation of 0.1M solution of weak acid is 0.01. The pH of the solution is
   a) 2
   b) 3
   c) 1
   d) 4

93. 20 ml of 0.125N Mohr salt solution is oxidized by 25 ml of $KMnO_4$ in acid medium. The amount of $KMnO_4$ present in 250 ml of solution is
   a) 0.79g
   b) 7.9g
   c) 9.7g
   d) 0.97g

94. The quantity of electricity required to deposit 1 mole of Aluminium from aluminimum sulfate is
   a) 1 faraday
   b) 3 faradays
   c) 10 faradays
   d) 2 faradays

95. The coordination number of sodium in sodium metal is
   a) 4
   b) 8
   c) 6
   d) 12

9 The Conjugate base of OH^- ion is
   a) O^{--}
   b) H_2O
   c) H_3O+
   d) H

97. Oswald's dilution law is not obeyed by
   a) Ammonium chloride
   b) Oxalic acid
   c) Acetic acid
   d) Ammonium hydroxide

Space for calculation / rough work

98. The pH of 0.1M HCl is 1, assuming complete ionization. The molarity of sulfuric acid having the same pH is
a) 0.5M
b) 0.05M
c) 1M
d) 2M

99. Which one of the following solution has PH value above 7
a) Sodium Phosphate
b) Sodium Chloride
c) Potassium Nitrate
d) Sodium Sulfate

100. The half life of a reaction is 5 hrs. The amount of the substance left behind at the end of 20th hour is
a) $\frac{1}{32}$
b) $\frac{1}{16}$
c) $\frac{1}{4}$
d) $\frac{1}{8}$

101. Molecular Orbitals having highest energy is
a) $\sigma^{*}2P_x$
b) $\pi 2P_y$
c) $\pi^{*}2P_z$
d) $\sigma 2P_x$

102. Which one of the following shows least magnetic moment?
a) Mn^{++}
b) Ni^{++}
c) Fe^{++}
d) Cu^{++}

103. Which of the following is a positive ligand?
a) Nitro
b) Nitrosyl
c) Nitrosonium
d) Acetato

104. The Oxidation state of Mercury in $K_2[HgI_4]$ is
a) +1
b) +2
c) +3
d) +4

Space for calculation / rough work

105. The adsorption of inert gases on activated charcoal increases with
a) decrease of pressure
b) increase of temperature
c) increase of atomic mass
d) increase of pressure

106. In contact process, the Tyndall box is used to
a) remove traces of moisture
b) detect dust particles
c) remove dust particles
d) remove acidic impurities

107. Selivanoff's reagent is
a) Resorcinol in water
b) Resorcinol in HCl
c) α naphthol in alcohol
d) β naphthol in NaOH

108. Hydroxy amino acid is
a) Tyrosine
b) Serine
c) alanine
d) lysine

109. The amino acid which has no chiral C atom is
a) Alanine
b) Tyrosine
c) Cystein
d) Glycine

110. Benedict solution contains
a) Copper sulfate, Rochelle salt and NaOH
b) Copper Sulfate, Rochelle salt and sodium carbonate
c) Copper Sulfate, sodium citrate and NaOH
d) Copper Sulfate, sodium citrate and sodium carbonate

111. With HNO_2 yellow oily liquid is formed by
a) Aniline
b) Methyl amine
c) Dimethyl aniline
d) Di methylamine

112. When Isopropyl chloride is boiled with alcoholic KOH we get propene. It is an example for
a) dehydration
b) dehalogenation
c) dehydro halogenation
d) dehydrogenation

Space for calculation / rough work

113. IUPAC name of 

a) p - toluidine
b) 4 methyl Benzenamine
c) p - methyl aniline
d) p - amino toluene

114. Acetophenone is prepared by dry distillation of
a) Calcium Benzoate and Calcium acetate
b) Calcium Benzoate and Calcium formate
c) Calcium acetate
d) Calcium Benzoate

115. Which are of the following is strongly acidic
a) Phenol
b) p - chloro phenol
c) p - nitro phenol
d) p - cresol

16. In the reduction of acetophenone to ethyl Benzene, the reducing agent used is,
a) Zinc amalgum and Con HCl
b) Zinc and dil HCl
c) Lithium Aluminium Hydride
d) Sodium and alcohol

7. –I effect is shown by
a) $-(CH_3)_2\ CH$
b) $-CH_3$
c) $-NO_2$
d) $-C_2H_5$

8. When methyl amine is heated with chloroform and alc KOH, we get
a) methyl iso cyanide
b) methyl cyanide
c) methyl cyanate
d) methyl thiocyanate

19. NO^+ is called
a) Nitrosonium
b) Nitronium
c) Nitroso
d) Nitro

20. Maximum boiling point is shown by
a) 0.1M Potassium Ferrocyanide
b) 0.1M Ferric chloride
c) 0.1M Potassium Nitrate
d) 0.1 M Sucrose

Space for calculation / rough work

121. Which of the following is not a threatened animal?
   a) *Python molurus*
   b) *Bubo bubo*
   c) *Canis lupus*
   d) *Felis domestica*

122. In a dicotyledonous stem, the sequence of tissues from the outside to the inside is_____
   a) phellum – pericycle – endodermis – phloem
   b) phellum – phloem – endodermis – pericycle
   c) phellum – endodermis – pericycle – phloem
   d) pericycle – phellum – endodermis – phloem

123. Overgrowth of facial jaws and unproportionate growth of hands and feet are symptoms of
   a) Myxoedema
   b) Acromegaly
   c) Cri-du Chat syndrome
   d) Usher's syndrome

124. Which one of the following is not a major factor in the movement of xylem sap in tall trees?
   a) Transpiration
   b) Plasmodesmata
   c) Adhesion and Cohesion
   d) Tension

125. Conversion of Phosphoenol pyruvic acid from 2 – phosphoglycerate is
   a) Dehydrogenation
   b) Oxidation
   c) Dehydration
   d) Hydration

126. Which one of the following is a derived protein?
   a) Haemoglobin
   b) Casein
   c) Collagen
   d) Peptones

127. The sperms stored in epididymis will next pass on to _____
   a) Urethra
   b) Testis
   c) Penis
   d) Vasdeferns

128. Which of the following can act as a viable codon?
   a) TAC
   b) ATG
   c) CUG
   d) GCT

Space for calculation / rough work

129. The hexaploid cell of a diploid organism with 2n = 8 will have _____ chromosome number.
   a) 32
   b) 24
   c) 48
   d) 12

130. Which of the following can be related to fibrinogen?
   a) Thrombin
   b) Hemoglobin
   c) Platelet
   d) RBC

131. What is the new title of IUCN?
   a) World Conservation Union (WCU)
   b) World National History Society (WNHS)
   c) World Conservation Society (WCS)
   d) World Conservation Consortium (WCC)

132. Find the region of the digestive system in which only water and electrolytes are absorbed
   a) Stomach
   b) Duodenum
   c) Small intestine
   d) Colon

133. Oxidative phosphorylation and synthesis of metabolic water occur during _____
   a) Electron transport system
   b) Photolysis of water
   c) Endergonic reaction
   d) Anabolic reaction

134. Which one of the following is not related to cyanosis?
   a) Pulmonary disease
   b) Congenital heart disease
   c) Right to left shunting of blood
   d) Hyper oxygenation of blood

135. Which part of a drupaceous fruit is edible?
   a) Epicarp
   b) Mesocarp
   c) Endosperm
   d) Endocarp

136. Caffeine can obtained from _____ plant
   a) *Thea sinensis*
   b) *Papaver somniferon*
   c) *Erythroxylon coca*
   d) *Cannabis indica*

Space for calculation / rough work

137. A circulatory vessel with lowest CO_2 concentration in blood is
   a) Pulmonary artery
   b) Pulmonary vein
   c) Superior venacava
   d) Inferior venacava

138. Conjunctive tissue is a part of
   a) Stem
   b) Endodermis
   c) Epidermis
   d) Stele

139. With reference to nerve impulse spot the correct sequence
   a) Axon → Cell body → Dendrite
   b) Axon → Dendrite → Cell body
   c) Dendrite → Cell body → Axon
   d) Dendrite → Axon → Cell body

140. Hydathodes are small aerating pores, which
   a) Are found on the roots
   b) Guarded by subsidiary cells
   c) Are always open
   d) Are always closed

141. What is the number of CO_2 molecules generated in Kreb's cycle from each molecule of Acetyl Co-A?
   a) 01
   b) 02
   c) 04
   d) 36

142. In Epigynous flowers, ovary is_____
   a) Half inferior
   b) Half superior
   c) Superior
   d) Inferior

143. Find the incorrect match from the following
   a) Cytology – Robert Hook
   b) Palaeontology – Leonardo Davinci
   c) Anatomy – Marcello Malpighi
   d) Genetics – H.J. Muller

144. The most common antibodies found in man are _____
   a) IgM
   b) IgG
   c) IgA
   d) IgD

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145. The chlorophyll P.680 has its electron "holes" filled by electrons from
   a) Ps-I
   b) Chl-b
   c) Water
   d) Ps-II

146. In one of the following plants transpiration is absent
   a) *Cactus*
   b) *Helianthus annus*
   c) *Elodea*
   d) *Vanda*

147. A flower having both sepals and petals
   a) Achlamydeous
   b) Dichlamydeous
   c) Monochlamydeous
   d) Diclinous

148. Select the correct match from the list
   a) *Trypanosoma brucei* – yellow fever
   b) *Plasmodium falciparum* – Cerebral malaria
   c) *Entamoeba histolytica* – plague
   d) *Fasciola hepatica* – Leishmaniasis

149. Auxin is a metabolic product of _____.
   a) Leucine
   b) Threonine
   c) Tryptophan
   d) Phenylalanine

150. _____ is a hormone employed in the formulation of oral contraceptives
   a) LH
   b) MSH
   c) Estrogen
   d) ADH

151. Prokaryotic m-RNAs are
   a) Monocistronic
   b) Polycistronic
   c) Acistronic
   d) Split cistronic

Space for calculation / rough work

152. In a marriage involving a man with 'O' group and lady with 'AB' group, what are the possible blood groups in children?
    a) O only
    b) AB only
    c) O or AB
    d) A or B

153. Plants with no secondary growth is
    a) *Helianthus annus*
    b) *Saccharum officinalis*
    c) *Hibiscus rosasinensis*
    d) *Plumenia alba*

154. The Casparian strip prevents water from entering stelar region through ____
    a) Plasmodesmata
    b) Symplast
    c) Passage cells
    d) Apoplast

155. Monochromatic light of more than 600nm shows short reduction in photosynthetic yield. It is known as
    a) Red drop
    b) Arnon effect
    c) Calvin effect
    d) Cytochrome effect

156. Uptake and incorporation of DNA fragments from an extraneous medium by a bacterium is called
    a) Specialized transduction
    b) Generalized transduction
    c) Transformation
    d) Conjugation

157. With regard to developmental biology point out the irrelevant match
    a) Ectoderm – Nervous system
    b) Mesoderm – Muscles
    c) Endoderm – Skin
    d) Mesoderm – Skeleton

Space for calculation / rough work

158. In Drosophila yellow body colour is a sex-linked recessive trait. In a cross involving yellow body male and normal female what will be the F_1 phenotypes?
   a) All normal males and females
   b) 50% males yellow and all females normal
   c) 50% females yellow and all males normal
   d) 50% males and 50% females yellow

159. Monoclonal antibodies can be employed for the diagnosis of
   a) Leukemia
   b) Haemopiliă
   c) Food poisoning
   d) Colour blindness

160. Respiratory centre in the brain responds to changes in
   a) Oxygen concentration of the blood
   b) CO_2 concentration of the blood
   c) HDL – level of the blood
   d) Blood glucose

161. Genetic drift can be related to one of the following
   a) Large population size
   b) Sampling error
   c) Extinct population
   d) Marine fauna

162. The first and third cleavage patterns in the egg of frog is
   a) Meridional and latitudinal
   b) Latitudinal and meriodional
   c) Meriodional and equatorial
   d) Two meriodional divisions at right angles to each other

163. The cause for trisomy of 21st Chromosome in Down's syndrome is
   a) Translation
   b) Nondisjunction
   c) Paracentric inversion
   d) Absence of pachytene

Space for calculation / rough work

164. _____ hormone can be employed to induce super ovulation in cattle
   a) Leutinizing hormone
   b) Vasopressin
   c) Testosterone
   d) Progesterone

165. Which one of the following part of the respiratory system has the smallest diameter?
   a) Primary bronchus
   b) Bronchiole
   c) Trachea
   d) Respiratory bronchiole

166. From the given group identify the unrelated one
   a) *Falco peregrinus*
   b) *Bubo bubo*
   c) *Python malurus*
   d) *Gallus gallus*

167. Pepsin is an example for _____ group of enzymes
   a) Isomerases
   b) Transferases
   c) Hydrolases
   d) Lyases

168. Which one of the anthropogenic activity will cause soil erosion?
   a) Flowing water
   b) Wind action
   c) Deforestation
   d) Floods

169. Pick the correct match from the following list.
   a) PSTV - Potato fungal disease
   b) Scrapie - Prions
   c) Zoophages - Bacteria
   d) HIV - Viroid

170. Mouth parts of cockroach are designed for
   a) Piercing and sucking
   b) Cutting and chewing
   c) Only sucking
   d) Suctioning

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171. Find out a fungal pathogen of ground nut.
a) *Cercospora archidocola*
b) *Rhizopus stolonifer*
c) *Neurospora crassa*
d) *Penicillium notatum*

172. In Lac operon z gene codes for
a) Galactosidase permease
b) Beta galactosidase
c) Thiogalactoside transacetylase
d) Acetyl Co-A

173. _____ and _____ are characteristic features of m-RNA
a) Poly 'A' tail at the 5^1 end and a cap at 3^1end
b) A cap at 5^1 end and a poly 'A' tail at 3^1end
c) A cap at 5^1 end and another cap at 3^1end
d) A poly 'A' tail at 5^1 end and a poly 'U' tail at 3^1 end

174. Gene for sickle-cell anaemia is different from normal haemoglobin gene because of _____
a) Base deletion
b) Frame shift mutation
c) Base substitution
d) Chromosomal aberration

175. Identify the palindrome sequence from the list
a) AATTGCC
TTAACGG

b) CCGTTAA
GGCAATT

c) GGCCTTAA
CCGGAATT

d) CGATCG
GCTAGC

. _____ is the milk curdling enzyme
a) Trypsin
b) Lactase
c) Pepsin
d) Rennin

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177. Which one of the following is a National park?
   a) Anshi
   b) Ranganathittu
   c) Sharavathi valley
   d) Brahmagiri

178. Which one of the following is commonly found in both monocot and dicot plants?
   a) Sepals and petals in multiples of three
   b) Reticulate venation
   c) Presence of annual rings
   d) Well developed xylem

179. Point out the possible vector employed in recombinant DNA technology
   a) Plasmodium
   b) Transposons
   c) Oncogenes
   d) DEN Virus

180. The photosystem – I and photosystem – II with reference to photosynthesis was proposed by
   a) Blackman
   b) Arnon
   c) Emerson
   d) Robert Hill

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