Class: 12th

Biology

www.pakcity.org

Objective

If you prepare these MCQs then Insha Allah Confirm your 17/17 marks.

اگر آپ یہ معروضی تیار کرتے ہیں تو انشاءاللہ آپ کے 17/17 نمبر پکے ہیں۔

pakcity.org

- **You have four choices for each objective type question as A, B, C and D. The choice which you think is correct.**

1. A plant is adapted to remove the flooding of its cells in fresh water:
(A) Mesophyte (B) Cactus (C) Hydrophyte ✓ (D) Xerophyte

2. They have adaptations for reduced rate of transpiration:
(A) Hydrophytes (B) Xerophytes ✓ (C) Mesophytes (D) Bryophytes

3. The category of plants that has adaptation of small and thick leaves to limit water loss is called:
(A) Hydrophytes (B) Xerophytes ✓ (C) Mesophytes (D) Aygrophytes

4. The more concentrated external environment is termed as:
(A) Hypertonic ✓ (B) Hypotonic (C) Isotonic (D) Paratonic

5. A diluted solution compared to the cell concentration is termed as:
(A) Hypertonic (B) Hypotonic ✓ (C) Isotonic (D) Paratonic

6. Among the vertebrates, hag fishes are isotonic with the surrounding:
(A) Fresh water (B) Sea water ✓ (C) Pond water (D)River water

7. Hag fishes are:
(A) Osmoregulators (B) Isotonic ✓ (C) Hypertonic (D)Hypotonic

8. Which part of the plant body serves excretophores?
(A) Stem (B) Leaves ✓ (C) Roots (D) Bark

9. 1 g of ammonia nitrogen requires how much water for excretion:
(A) 50 ml (B) 100 ml (C) 250 ml (D) 500 ml ✓

10. Animals excreting urea are called:
(A) Ammonotelic (B) Aminotelic (C) Ureotelic ✓ (D) Uricotelic

11. The excretory product that requires maximum water for its removal is:
(A) Ammonia ✓ (B) Creatinine (C) Urea (D) Uric Acid

12. Nitrogenous waste is very toxic and dissolves quickly in body fluid is:
(A) CO_2 (B) Urea (C) Ammonia ✓ (D) Uric

13. The excretory product which requires minimum water for its removal:
(A) Urea (B) Uric acid ✓ (C) Creatinine (D) Ammonia

14. Flame cells are part of excretory system of:
(A) Hydra (B) Cockroach (C) Planaria ✓ (D) Earthworm

15. Animals of the group of flatworms have simple tubular excretory system called as:
(A) Kidney (B) Nephron (C) Nephridia (D) Protonephridium ✓

16. The planaria flatworm have simple tubular excretory system known as:
(A) Protonephridium ✓ (B) Metanephridium (C) Mesonephridium (D) Prenephridium

17. Cockroach excrete nitrogenous wastes in the form of:

(A) Ammonia (B) Urea (C) Uric acid ✓ (D) Allantoin

18. Excretory structure present in cockroach is:
(A) Contractile vacuole (B) Malpighian tubules ✓ (C) Nephridia (D) Flame cells

19. Nephridia are the excretory structures present in:
(A) Hydra (B) Planaria (C) Cockroach (D) Earthworm ✓

20. The Removal of Sebum on the Skin is for:
(A) Nutrition (B) Excretion (C) Protection ✓ (D) Thermoregulation

21. Number of Ammonia molecules required to produce one molecule of urea is:
(A) 01 (B) 02 ✓ (C) 03 (D) 04

22. The chief nitrogenous waste in birds and reptiles is:
(A) NH_3 (B) Urea (C) Uric Acid ✓ (D) Creatirine

23. Liver acts as a store house of:
(A) Bile ✓ (B) Albumin (C) R.B.Cs (D) Iron

24. Liver also has numerous crucial functions of:
(A) Osmoregulation (B) Homeostasis ✓ (C) Excretion (D) Themoregulation

25. Among vertebrates' uric acid is the chief nitrogenous waste in birds and:
(A) Fishes (B) Amphibians (C) Reptiles ✓ (D) Mammals

26. The compound which takes part in urea cycle is:
(A) Adenine (B) Guanine (C) Citrulline ✓ (D) Thymine

27. Which organ is the central station of metabolism:
(A) Kidney ✓ (B) Liver (C) Pancreas (D) Stomach

28. Urine leaves the kidney through adduct called:
(A) Urethra (B) Pelvis (C) Ureter ✓ (D) Nephron

29. The active uptake of sodium ions in the loop of Henle is provided by the action of hormone:
(A) Insulin (B) Aldosterone ✓ (C) Oxytocin (D) Adrenaline

30. Non-surgical removal of kidney stone is called:
(A) Dialysis (B) Lithotripsy ✓ (C) Uremia (D) Kidney transplant

31. High degree of renal failure is also called as:
(A) Uremia ✓ (B) Leukemia (C) Anemia (D) Lithotripsy

32. The incidence of calcium oxalate types stones of Kidney is:
(A) 40 % (B) 50% (C) 60% (D) 70% ✓

33. Abdomen has a peritoneal cavity, lined by a thin epithelium called:
(A) Ectoderm (B) Endoderm (C) Peritoneum ✓ (D) Epidermis

34. The incidence of uric acid kidney stones is:
(A) 10% ✓ (8) 15% (C) 20% (D) 70%

35. Most land mammals respond to cold by raising their:
(A) Skin (B) Furs ✓ (C) Bristies (D) Spines

36. Which one of the following is an Endotherm:
(A) Birds ✓ (B) Bat (C) Humming Bird (D)Reptiles

37. Which one of the following is an ectothem:
(A) Brid (B) Huming bird (C) Amphibain ✓ (D) Bat

38. Chemical that causes fever and are produced from blood cells are:
(A) Bilirubin (B) Interferons (C) Pyrogens ✓ (D) Anti biodies

39. Human body temperature is controlled by:
(A) Hypothalamus ✓ (B) Pons (C) Medulla (D) Cerebellum

40. The nature of shivering thermogenesis adaptation is:
(A) structural (B) physiological ✓ (C) psychological (D) behavioural

41. Bundle caps in sunflower stem, are formed by:
(A) Sclerenchyma ✓ (B) Parenchyma (C) Mesenchyma (D) Collenchyma

42. Turgor pressure is generated by high osmotic pressure in plants cell:
(A) Cytoplasm (B) Vacuole ✓ (C) Mitochondria (D) Chloroplast

43. The collenchymas cells have protoplast and usually lack.
(A) Primary wall (B) Secondary wall ✓ (C) Middle Lemella (D) Vacuole

44. The membrane that bounds vacuole is called:
(A) Tonoplast ✓ (B) Leucoplat (C) Chromoplast (D) Chloroplast

45. Angular thickenings in their primary walls are present in:
(A) Parenchyma (B) Collenchyma ✓ (C) Sclerenchyma (D) Tracheids

46. An increase in plant girth due to activity of vascular cambium is called:
(A) Primary growth (B) Secondary growth ✓ (C) Sap wood (D) Heart wood

47. The Sclerenchyma cells found in seed coats and nut shells are the:
(A) Fibres (B) Vessels (C) Tracheids ✓ (D) Scleriedes

48. This type of wood is most resistant to decay and insect attack.
(A) Heart wood ✓ (B) Sapwood (C) Cork (D) Bark

49. The sclerenchyma has thick secondary walls usually impregnated with:
(A) Chitin (B) Pectin (C) Silica (D) Lignin ✓

50. The movement in response to stimulus of touch i.e. Climbing vines is called:
(A) Hydrotropism (B) Thigmotropism ✓ (C) Phototropism (D) Geotropism

51. Haptonastic movements occur in response to:
(A) Contact ✓ (B) Chemical (C) Temperature (D) Water

52. Action of the Venus fly trap is:
(A) Nyctinasty (B) Photonasty (C) Haptonasty ✓ (D) Thermonasty

53. Movement shown by sperms of liver worts, mosses and forns towards archegonia is a:
(A) Chemotactic movement ✓ (B) Photoactic movement
(C) Chemotropic movement (D) Phototropic movement

54. Which bone provide attachment site for muscle:
(A) Compact bone ✓ (B) Spongy bone (C) Soft bone (D) Cartilage

55. The process of moulting is controlled by the nervous system and a hormone called:"
(A) Aldosteron (B) Androgen (C) Ecdysone ✓ (D) Oxytocin

56. Mature bone cells are called as:
(A) Osteocytes ✓ (B) Osteoblasts (C) Chondrocytes (D) Blastocytes

57. Define Cartilage. What are two types of cartilage?
(A) Humerus (B) Femus (C) Tibia (D) Rib ✓

58. The number of cervical vertebrae is:
(A) 07 ✓ (B) 12 (C) 33 (D) 22

59. The fusion of four posterior vertebrae presents in the pelvic region form:

(A) Sacrum (B) Lumbar (C) Coccyx ✓ (D) Chest cage

60. All of the following bones are associated with coxal bones, except:
(A) Ilium (B) Ischium (C) Pubis (D) Clavicle ✓

61. The joints that allow movement in several directions is called:
(A) Fibrous Joint (B) Synovial Joint (C) Hinge Joint (D) Ball and Socket Joint ✓

62. Sciatica is characterized by stabbing pain radiating over the course of:
(A) Sciatic artery (B) Sciatic nerve ✓ (C) Sciatic vein (D) Sciatic capillary

63. Which one of the following is not a joint disease:
(A) Arthritis (B) Sciatica ✓ (C) Disc Slip (D)Spondylosis

64. A disease which causes immobility and fusion of vertebral joint is called:
(A) Disc Slip (B) Sciatica (C) Arthritis (D) Spondylosis ✓

65. The inflammatory degenerative disease of joint is:
(A) Arthritis ✓ (B) Sciatica (C) Herniation (D) Spondylosis

66. The beginning of bone formation, starts after injury:
(A) 3-4 months ✓ (B) 2-3 months (C) 8 weeks (D) 8-12 weeks

67. Trpomyosin is a complex of how many polypeptide chains?
(A) Single (B) Double ✓ (C) Triple (D) None

68. The disease caused by low calcium in blood is called:
(A) Tetanus (B) Cramp (C) Sciatica (D) Tetany ✓

69. Which is the end of muscle which remains fixed when the muscle contracts?
(A) Insertion (B) Origin ✓ (C) Tendon (D) Belly

70. There are_____ muscles in the human body most of which occur in pairs:
(A) 650 ✓ (B) 630 (C) 660 (D) 645

71. What is mortality rate in developing countries due to Tetanus?
(A) 35% (B) 40% ✓ (C) 45% (D) 50%

72. Which animal shows digitigrade mode of locomotion?
(A) Bear (B) Dear (C) Rabbit ✓ (D) Horse

73. A respiratory protein found in all aerobic species is:
(A) Cytochrome 'a' (B) Cytochrome 'b' (C) Cytochrome 'c' ✓ (D) Cytochrome 'd'

74. Which animal moves by jet-propulsion:
(A) Earth worm (B) Star Fish (C) Snail (D) Jelly Fish ✓

75. Euglena moves with the help of:
(A) Cilium (B) Pseudopodium (C) Myonemes (D) Flagellum ✓

76. The diameter of cilia ranges from:
(A) 0.1 to 0.5 µm ✓ (B) 0.1 to 0.5 mm (C) 0.36 to 0.8 µm (D) 0.3 to 0.8 mm

77. The mammals who walk on tips of the toes, modified into hooves are termed as:
(A) Plantigrades (B) Unguligrades (C) Digtigrades ✓ (D) Brachigrades

78. The supracoracoid muscles provide power for the:
(A) Upward Stroke ✓ (B) Downward Stroke (C) Recovery Stroke (D) Neutral Stroke

79. Digitigrade mammals tend to walk on their:
(A) Jelly fish (B) Silver fish (C) Cuttle fish (D) Star fish ✓

80. The plant hormone that inhibits the growth of lateral shoots:
(A) Auxins ✓ (B) Gibberellins (C) Cytokinins (D) Ethene

81. Promotes closing of Stomata under conditions of water stress:
(A) Auxins (B) Gibberellins (C) Cytokinins (D) Abscisic acid ✓

82. Ethene induce flowering in:
(A) Banana (B) Rose (C) Pine-apple ✓ (D) Orange

83. Nissl's granules are group of:
(A) Mesosomes (B) Lysosomes (C) Ribosomes ✓ (D) Chromosomes

84. The processes conducting impulses away from the cell body are called:
(A) Dendrites (B) Dendron (C) Nissl'sgranulis (D) Axon ✓

85. The sensation of pain is produced by:
(A) Chemoreceptors (B) Photoreceptors (C) Nociceptors ✓ (D) Mechanoreceptors

86. Nociceptors produce sensation of:
(A) Touch (B) Pain ✓ (C) Warmth (D) Pressure

87. Resting membrane potential of a neuron is:
(A) 50 mv (B) -60 mv (C) -70 mv ✓ (D) -80 mv

88. In neurons the message is transmitted across synapse in the form of chemical messenger called:
(A) Neurotransmitters ✓ (B) Communication (C) Nerve Impulse (D) Synaptic Vesicle

89. The number of spinal nerves in man is:
(A) 24 (B) 62 ✓ (C) 12 (D) 31

90. Diffused nervous system is found in:
(A) Poriferans (B) Platyhelminthes (C) Cnidarians ✓ (D) Annelids

91. The largest part of brain is:
(A) Hypothalamus (B) Cerebellum (C) Cerebrum ✓ (D) Pons

92. In human mid brain is:
(A) Reduced ✓ (B) Enlarged (C) Swollen (D) Broken

93. The structure in human brain which control hunger is:
(A) Amygdala (B) Hippocampus (C) Thalamus (D) Hypothalamus ✓

94. Alzheimer's disease is:
(A) Physical illness (B) Mental illness ✓ (C) Renal illness (D) Pulmonary illness

95. Alzheimer's disease is characterized by the decline in the function of:
(A) Brain ✓ (B) Liver (C) Kidney (D) Stomach

96. Effective drug available for Parkinson's disease is:
(A) Nicotine (B) GDNF (C) AZT (D) L-dopa ✓

97. Endocrine glands secrete:
(A) Hormones ✓ (B) Salts (C) Enzymes (D) Mucous

98. Which hormone is chemically steroid?
(A) ADH (B) Corticosterone ✓ (C) Thyroxine (D) Insulin

99. The corpus luteumscetres a hormone called:
(A) Oxytocine (B) Progestrone ✓ (C) Ostrogen (D) Testostrone

100. Insulin and glucagon hormones are in nature:
(A) Carbohydrates (B) Proteins ✓ (C) Steroids (D) Polypeptides

101. Ovulation is induced by:
(A) FSH (B) LH ✓ (C) Estrogen (D) Progesterone

102. Excess thyroxine produces a condition called:
(A) Cretinism (B) Dwarfism (C) Grave's disease ✓ (D) Cushing's disease

103. Kohler used chimpanzee to prove:
(A) Habituation (B) Imprinting (C) Latent Learning (D) Insight learning ✓

104. The form of learning which involve a diminish of response to repeated stimuli.
(A) Imprinting (B) Habituation ✓ (C) Conditioning (D) Latent learning

105. Higher from the learning is the:
(A) Conditioned reflex type-I (B) Imprinting (C) Insight learning ✓ (D) Latent learning

106. Fruit development without fertilization is_____:
(A) Dormancy (B) Climacteric (C) Parthenocarpy ✓ (D) Parthenogenesis

107. Parthenocarpy is sometimes artificially induced in tomato, peppers etc, by adding:
(A) Auxins ✓ (B) Cytokinins (C) Abscisic Acid (D) Ethene

108. Vehicle for transport of male gamete in land plants is:
(A) Water (B) Pollen tube ✓ (C) Pollen grain (D)Wind

109. Developing seeds are a rich source of:
(A) Auxin (B) Gibberellins (C) Cytokinins (D) All of these ✓

110. Reproduction is very important to the survival of:
(A) Species ✓ (B) Individual (C) Population (D)Community

111. Fruitripening is often accompanied by burst of respiratory activity called:
(A) Apomixes (B) Climacteric ✓ (C) Photoperiodism (D) Endosperm

112. Evolution of pollen tube is parallel to the evolution of:
(A) Stem (B) Leaves (C) Flower (D) Seed ✓

113. P660 is quiescent from, is converted to active p730 by the absorption of:
(A) Blue light (B) Red light ✓ (C) Yellow light (D) Far red light

114. The light which promotes germination of fern spores:
(A) Green (B) White (C) Blue (D) Red ✓

115. Which is a long day plant?
(A) Soyabean (B) Henbane ✓ (C) Tomato (D) Cucumber

116. Photoperiod affects flowering meristems start producing:
(A) Floral buds ✓ (B) Leaves (C) Lateral buds (D) Branches

117. Cucumber, tomato, garden pea, maize, cotton are example of:
(A) Short day plant (B) long day plant (C) Day-neutral plant ✓ (D) Night-neutral plant

118. Example of Day Neutral plant is:
(A) Tomato ✓ (B) Soyabean (C) Xanthium (D) Chrysanthium

119. In nature to P730 to P660 Conversion occurs in:
(A) Dark ✓ (B) Light (C) Morning (D) Evening

120. Type of asexual reproduction:
(A) Fertilization (B) Vernalization (C) Apomixes ✓ (D) Photoperiodism

121. The animals that lay shelled eggs to protect the developing embryo are called:
(A) Oviparous ✓ (B) Viviparous (C) Ovoviviparous (D) Egg laying mammals

122. Fertilization is the process which leads to the union of:
(A) Individuals (B) Gametes ✓ (C) Sperms (D) Eggs

123. In honey bee, males are haploid and produce sperms by:
(A) Mitosis ✓ (B) Meiosis (C) Apomixis (D) Parthenogenesis

124. Haploid males produce sperms by mitosis:
(A) Honey bee ✓ (B) Earth worm (C) Hydra (D) Man

125. The hormone responsible for production of sperm cells and male secondary sexual characteristics during puberty is:
(A) Progesterone (B) Testosterone ✓ (C) Thyroxin (D) Estrogen

126. Discharge of egg from the Ovary is called:
(A) Oogenesis (B) Ovulation ✓ (C) Gametogenesis (D) Spermatogenesis

127. The first convoluted part of vas deferens is called:
(A) Epididymis ✓ (B) Penis (C) Scrotum (D) Sperm

128. The release of ovum from the ovary is called
(A) Ovulation ✓ (B) Menstruation (C) Follicle atresia (D) Menace

129. Decrease of FSH and increase of estrogen causes the pituitary gland to secrete:
(A) LH ✓ (B) LTH (C) TSH (D) ACTH

130. Oestrus cycle, a reproductive cycle is found in all females except:
(A) Cat (B) Cow (C) Human being ✓ (D) Lion

131. The yellowish glandular structure corpus luteum, starts secreting a hormone:
(A) LH (B) FSH (C) Oestrogen (D) Progeserone ✓

132. Towards the end of pregnancy, the reduction in progesterone level, stimulates pituitary gland to produce:
(A) Oxytocin ✓ (B) Oestrogen (C) Androgen (D) Pro lactin

133. Average loss of blood during birth in human female is about:
(A) 350 cm^3 (B) 350 cm^2 (C) 350 cm ✓ (D) 350 ml

134. In human female the total gestation period is female is usually about

(A) 280 days ✓ (B) 280 weeks (C) 28 months (D) 360days

135. The hormones that induce Labour pain:
(A) Lactogen (B) Oxytocin ✓ (C) LH (D) LTH

136. The human embryo is referred to as the fetus, from beginning of:
(A) 3rd Month ✓ (B) 3rd Week (C) 6th Month (D) 6th Week

137. Lultenizing hormone in human female induces:
(A) Menstruation (B) Menopause (C) Oogenesis (D) Ovulation ✓

138. Primary growth in plants is caused by:
(A) Apical meristem ✓ (B) Lateral meristem
(C) Intercalary meristem (D) Rib meristem

139. Intercalary meristems are situated at:
(A) Root Apex ✓ (B) Shoot Apex (C) Base of Internode (D) Top of Internode

140. Secondary growth leads to an increase in the diameter if the:
(A) Stem (B) Root (C) Leaf (D) Stem and Root ✓

141. The meristems that are found at the tips of roots and shoots are called:
(A) Lateral meristems (B) Intercalary meristems
(C) Secondary meristems (D) Apical meristems ✓

142. The removal of apex releases those Lateral buds from the apical dominance. It is called:
(A) Inhibitory effect (B) Compensatory ✓ (C) Apical dominance (D) Reproduction

143. The mesodermal cells do not invaginate but migrate medially and caudally from both and create a midline thickening called:
(A) Hensen's Node (B) Primitive streak ✓ (C) Epiblast (D) Hypoblast

144. Immediately after fertilization, the egg under goes a series of mitotic divisions called:
(A) Morulla (B) Gastrulaion (C) Cleavage ✓ (D) Blastula

145. The Shell, over chick egg is secreted as it passes through:
(A) Ovary (B) Oviduct (C) Uterus ✓ (D) Cloaca

146. The cavity formed between somatic and splanchnic mesoderm is:
(A) Archenteron (B) Hensen's node (C) Coelom ✓ (D) Neurocoel

147. Hatching period of chick is:
(A) 15 days (B) 18 days (C) 21 days ✓ (D) 28 days

148. Somites are formed and organized by:
(A) Ectoderm (B) Mesoderm ✓ (C) Endoderm (D) Blastoderm

149. The discoidal cap of cells above the blastocoele is called:
(A) Ectoderm (B) Mesoderm (C) Endoderm (D) Blastoderm ✓

150. The pigment free area that appears at the time of fertilization is called:
(A) Embryo (B) Yolk (C) Gray crescent ✓ (D) White cytoplasm

151. The grey equatorial cytoplasm in fertilized egg of ascidian produces:
(A) Gut (B) Muscle Cells (C) Larval epidermis (D) Notochord tube ✓

152. The negative physiological changes in our body are said to be:
(A) Maturation (B) Childhood (C) Aging ✓ (D) Death

153. Unspecialized cells, neoblast are always present in body of:
(A) Salamander (B) Planaria ✓ (C) Newt (D) Lizard

154. The unspecialized cells present in flatworms and planaria are:
(A) Neoblast ✓ (B) Osteoblast (C) Osteoclast (D) Chondrocyte

155. Chromosomes appear inside the nucleus at the time of:
(A) Cell Division ✓ (B) Cell Elongation (C) Cell maturation (D) Cell differentiation

156. The base pairs in human genome are:
(A) Two billion (B) Three billion ✓ (C) Four billion (D) Five billion

157. Highly condensed portions of the chromatin are called:
(A) Homochromatin (B) Euchromatin (C) Heterochromatin ✓ (D) Achromatin

158. The particular array of chromosomes that an individual possess is called its:

(A) Genotype (B) Phenotype (C) Karyotype ✓ (D) Epistasis

159. In 1882, chromosomes were first observed by:
(A) John Brown (B) T.H. Morgan (C) Walter Fleming ✓ (D) Walther Sutton

160. Walther Fleming first discovered chromosomes in the dividing cells of:
(A) Frog Larvae (B) Sea Urchin Larvae (C) Insect Larvae (D) Salamander Larvae ✓

161. Transfer of genetic material from one cell to other that can alter the genetic make-up of recipient cell is called:
(A) Transformation ✓ (B) Translation (C) Transcription (D) Replication

162. X-Ray diffraction analysis of DNA was performed by:
(A) Erwin Chargaff (B) Watson & Crick (C) Rosalind Franklin ✓ (D) Charles Darwin

163. Pentose sugar in the molecule of DNA is:
(A) Ribose (B) Deoxyribose ✓ (C) Lactose (D) Sucrose

164. The stand which replication towards the replication fork is:
(A) Leading ✓ (B) Lagging (C) Okazaki (D) Primer

165. In 1953, F.Sanger described the sequence of Amino Acids of:
(A) Myoglobin (B) Keratin (C) Insulin ✓ (D) Globulin

166. In sickle cell anemia code for glumatic acid is replaced by:
(A) Leucine ✓ (B) Histidine (C) Valine (D) Proline

167. OR Which strand of DNA is transcribed?
(A) Coding strand (B) Sense strand (C) Antisense strand ✓ (D) Conservative strand

168. One of the givens does not code for any amino acid:
(A) AUG (B) ACU (C) GAU (D) UAA ✓

169. In bacteria, human and all living organism, AGA specifies:
(A) Phenylalanine (B) Leucine (C) Methionine (D) Arginine ✓

170. Nerve cells and eye lens cells remain in_____ stage for life time:
(A) G_1 (B) G_2 (C) Go ✓ (D) S

171. The period of life cycle of cell between two consecutive divisions is termed as:
(A) Resting phase (B) Inter phase ✓ (C) G_1 phase (D) G_2 Phase

172. In the case of human cell, average cell cycle is about:
(A) 24 hours ✓ (B) 26 hours (C) 28 hours (D) 30 hours

173. Full cell cycle in yeast cells has length of:
(A) 30 minutes (B) 60 minutes (C) 90 minutes (D) 120 minutes ✓

174. Post mitotic cells can existthe cell cycle during:
(A) G_0 -phase (B) G_1 – phase ✓ (C) S-phase (D) G_2-phase

175. Chromosomal Doubling Occurs in:
(A) G_1 phase (B) S phase ✓ (C) G_2 phase (D) G_0-phase

176. RNA and protein called:
(A) Insulin (B) Tubulin ✓ (C) Actin (D) Myosin

177. The microtubule is composed of traces of RNA and protein called:
(A) Myosin (B) Troponin (C) Actin (D) Tubulin ✓

178. The microtubules are composed of a protein tubulin and traces of:
(A) DNA (B) RNA ✓ (C) Lipids (D) Terpenoids

179. During cell division, the nuclear division is called:
(A) Cytokinesis (B) Karyokinesis ✓ (C) Karyotype (D) Plasmolysis

180. Contractile ring in cytokinesis is formed by:
(A) Tubulin (B) Actin & Myosin ✓ (C) Keratin (D) Cyclin

181. Each bivalent consists of four:
(A) Chromosomes (B) Chromatids ✓ (C) Chiasmata (D) Spores

182. The chromatin material gets condensed by folding and chromosomes appear as thin thread in mitosis at the beginning of:
(A) Interphase (B) Prophase ✓ (C) Metaphase (D) Anaphase

183. The tumor which is localized and not transferred to other body parts:
(A) Malignant (B) Benign ✓ (C) Apoptosis (D) Necrosis

184. Which one sub-stage of prophase-I of Meiosis-I lasts for days, week or even years?
(A) Zygotene (B) Leptotene (C) Pachytene ✓ (D) Diplotene

185. In which stage of Meiosis, crossing over occur:
(A) Leptotene (B) Pachytene ✓ (C) Zygotene (D) Anaphase

186. The stage of prophase that last for days, week or even year is:
(A) Leptotene (B) Zygotene (C) Pachytene ✓ (D) Diplotene

187. The prophase stage in which the chromosomes become visible, shorten and thick:
(A) Leptotene ✓ (B) Zygotene (C) Pachytene (D) Diplotene

188. In which stage of Meiosis, the paired chromosomes repel each other and begin to separate:
(A) Leptotene (B) Zygotene (C) Diplotene ✓ (D) Pachytene

189. The condensation of chromosomes reaches to its maximum during
(A) Pachytene (B) Zygotene (C) Diakinesis (D) Leptotene ✓

190. Synapsis occurs during:
(A) Pachytene (B) Leptotene (C) Zygotene ✓ (D) Diplotene

191. Unequal separation of chromosomes is called:
(A) Disjunction (B) Separation (C) Non-disjunction ✓ (D) Metastasis

192. Plasmids were discovered while studying the sex life of:
(A) E.Coli ✓ (B) Hyphomicrobium (C) Vibriofi (D) Mycobacterium

193. Cell death due to tissue damage is called:
(A) Apoptosis (B) Metastasis (C) Necrosis ✓ (D) Suicide

194. Apoptosis is:
(A) Division of cells (B) Death of Cells by tissue damage
(C) Suicide of cells ✓ (D) Weakness of cells

195. Programmed and organized process of cell death is also called as:
(A) Apoptosis ✓ (B) Necrosis (C) Cyclosis (D) Chlorosis

196. The position of gene one chromosome is called its:
(A) Allele (B) Phenotype (C) Locus ✓ (D) Genotype

197. The genes found in a breeding population constitute:
(A) Genotype (B) Genome (C) Gene frequency (D) Gene Pool ✓

198. Expression of a trait is termed as:
(A) Genotype (B) Phenotype ✓ (C) Wild type (D) Dominance

199. Mendelian factors were renamed as "genes" by:
(A) Mendel (B) Correns ✓ (C) Johannsen (D) Morgan

200. The cross which is used to find out the homozygous or heterozygous nature of the genotype is called:
(A) Test cross ✓ (B) Reciprocal cross (C) Monohybrid cross (D) Dihybridcross

201. Different alleles of a gene that are both expressed in a heterozygous condition are called:
(A) Codominant ✓ (B) Over dominant
(C) Complete dominant (D) Incomplete dominant

202. MN Blood group is example of:
(A) Complete dominance (B) Co dominance ✓
(C) Incomplete dominance (D) Over dominance

203. RH Blood group system is named after:
(A) Discoverer (B) Rhesus monkey ✓ (C) A Patient (D) Rhinoceros

204. The individuals called universal recipients have _____.
(A) A blood group (B) B blood group (C) O blood group (D) AB blood group ✓

205. In 1901, ABO group system was discovered by:
(A) Punnet (B) Karl Landsteiner ✓ (C) Bern Stein (D) Wiener

206. A person having neither antigen A nor B whould have blood group:

(A) O ✓ (B) A (C) B (D) AB

207. Human skin colour is controlled by gene pairs:
(A) Two to Four (B) Three to Six ✓ (C) Four to Six (D) Six to Ten

208. A gamete without any sex chromosome is called:
(A) Homogamete (B) Heterogamete (C) Isogamete (D) Nullogamete ✓

209. The sex chromosomes were discovered by:
(A) Sutton (B) Morgan ✓ (C) Jordan (D) Correns

210. The true colour blindness is:
(A) Monochromacy ✓ (B) Dichromacy (C) Tetrachromacy (D) Trichromacy

211. Green colour blindness is called:
(A) Deuteranopia ✓ (B) Protanopia (C) Tritanopia (D) Colour blind

212. The gene that triggers towards maleness is:
(A) TFM (B) SRY ✓ (C) MODY (D) BOB

213. Hypophosphatemic rickets in an _____ trait:
(A) X – Linked ✓ (B) Y – Linked (C) X and Y liked (D) An Autosomal

214. The maturity on set diabetes of the young is:
(A) An autosomal recessive trait (B) An autosomal dominant trait ✓
(C) A sex-linked trait (D) A sex influenced trait

215. The enzymes which are used to cut out the gene of interest are known as:
(A) DNA ligase (B) DNA polymerase (C) RNA polymerase (D) Restriction Endonuclease ✓

216. Eco R1 is a commonly used:
(A) Gene (B) Restriction Enzyme ✓ (C) Bacteriophage (D) Bacteria.

217. PSC 101 has antibiotic resistance gene for:
(A) Tetracycline ✓ (B) Ampicillin (C) Neomycin (D) Ergotine

218. Recombinant DNA is introduced into the host cell
(A) phage (B) vector ✓ (C) bacterium (D) fungus

219. Taqpolymeraseare enzyme present in:
(A) Fungi (B) Bacteria ✓ (C) Alga (D) Bacterium

220. Organisms that have had a foreign gene inserted into them are called:
(A) Transgenic Organism ✓ (B) Hermaphrodites
(C) Polygenesis (D) Transmuted organisms

221. Anti -Thrombin III is a biotechnological product produced by:
(A) Sheep (B) Goat ✓ (C) Mice (D) Cow

222. Urine is preferable vehicle for a biotechnology product than:
(A) Milk ✓ (B) Blood (C) Plasma (D) Tissue Fluid

223. Transgenic bacteria are produced in large vats called:
(A) transducer (B) bioreactor ✓ (C) biomultiplier (D) Culter media

224. Cystic fibrosis lacks a gene that codes for trans-membrane carrier of:
(A) Chloride ion ✓ (B) Sodium ion (C) Calcium ion (D) Magnesium ion

225. Patients of cystic fibrosis numerous infections of:
(A) Digestive tract (B) Excretory tract (C) Respiratory tract ✓ (D) Reproductive tract

226. An antibody made by soya beans can be used as treatment for:
(A) AIDS (B) Herpes simple (C) Genital Herpes ✓ (D) Hepatitis C

227. The enzyme luciferase is produced commonly known as the:
(A) House fly (B) Butterfly (C) Caddis fly (D) Fire fly ✓

228. The ultimate source of changes is:
(A) Evolution (B) Mutation ✓ (C) Genetic drift (D) Migration

229. Among the scientists who believed in divine creation was:
(A) Lamark (B) Darwin (C) Carolus Linnaeus ✓ (D) Hyell

230. Lyell published the principle of_____:
(A) Population (B) Community (C) Biome (D) Geology ✓

231. An essay on the principle of population was published by:
(A) Darwin (B) Wallace (C) Linnaens (D) Malthus ✓

232. The idea of endosymbiont was purposed by:
(A) Cuvier (B) Lyell (C) Malthus (D) Margulis ✓

233. According to endosymbiont hyposthesis, the aerobic bacteria developed into:
(A) Ribosome (B) Lysosome (C) Mtochondria ✓ (D) Plastids

234. Alfred Wallace developed a theory of natural selection essentially:
(A) Linnaeus's (B) Darwin's ✓ (C) Lamark's (D) Mendel's

235. Book "The Origin of Species" was written by:
(A) Linnaeus (B) Darwin ✓ (C) Lamark (D) Wallace

236. Acquired characteristics of an individual cannot be:
(A) Inherited ✓ (B) Flourished (C) Lost (D) Migrated

237. Biogeography is the geographical distribution of:
(A) Phylum (B) Species ✓ (C) Classes (D) Genera

238. Which of the following is vestigial organ of whale:
(A) Pelvis (B) Leg bones (C) Lungs (D) Pelvis and leg bones ✓

239. The armored mammal that lives only in America:
(A) Armadillos ✓ (B) Penguin (C) Echidna (D) Porcupine

240. Armadillos, the armored mammals live only in _____:
(A) Africa (B) America ✓ (C) Europe (D) Asia

241. Tubes that connect the middle ear with the throat in humans are called:
(A) Eustachian tube ✓ (B) Neural tube (C) Fallopian tube (D) Nephridial tube

242. Which one is not a vestigial organ of human being?
(A) appendix (B) Coccyx (C) nictitating membrane (D) eye lid ✓

243. In fish, the gill pouches develop into:
(A) Gills ✓ (B) Pharynx (C) Eustachian tube (D) Fins

244. A group of individuals belong to a particular species and sharing a common geographic area is called:
(A) Family (B) Population ✓ (C) Species (D) Community

245. Some individuals leave behind more progeny than others and the rate at which they do so is affected by their inherited characteristics. This is called:
(A) Non random mating (B) Selection ✓ (C) Migration (D) Mutation

246. The change in frequency of alleles at locus that occur by chance is called:
(A) Mutation (B) Migration (C) Genetic Drift ✓ (D) Selection

247. In 1917, term Niche was first proposed by American Ornithologist named:
(A) Charles Eltarf (B) Joseph Grinnell ✓ (C) Ernst Haeckel (D) Lamarck

248. The actual location of place, where an organism lives is called its:
(A) Niche (B) Environment (C) Habitat ✓ (D) Ecosystem

249. Any group of inter breeding organisms of the same species that exist together in both time and space is called:
(A) Community (B) Population ✓ (C) Ecosystem (D) Biosphere

250. The whole of the world land is called:
(A) Lithosphere ✓ (B) Ecosphere (C) Hygrosphere (D) Biosphere

251. All the food chains begin with:
(A) Producers ✓ (B) Primary Consumers
(C) Secondary consumers (D) Decomposers

252. Lithosphere includes:
(A) Earth Soil ✓ (B) Air (C) Water (D) Gases

253. The abiotic component of an ecosystem is:
(A) Temperature ✓ (B) Producer (C) Consumer (D) Decomposer

254. In each case succession is initiated by a few hardy invaders called:

(A) Starters (B) Pioneers ✓ (C) Climax Community (D) Decomposers

255. The leaves with very small surface area, are found in:
(A) Hydrophytes (B) Mesophytes (C) Xerophytes ✓ (D) Sciophytes

256. Lichens are example of:
(A) Parasitism (B) Predation (C) Mutualism ✓ (D) Commensalism

257. The animal that is caught and eaten is called:
(A) Predator (B) Prey ✓ (C) Host (D) Parasite

258. Moderate grazing is very helpful to maintain ecosystem:
(A) Tundra (B) Grass Land ✓ (C) Pond (D) Desert

259. The bacteria in the root nodules fix nitrogen and convert it into:
(A) Nitrate (B) Nitrite (C) Amino Acid ✓ (D) Ammonia

260. Lichen is a symbiotic association between a fungus and:
(A) Gymnosperm (B) Angiosperm (C) An alga ✓ (D) Pterrdophyta

261. In root nodules, the organisms present are:
(A) Bacteria ✓ (B) Cyanobacteria (C) Algae (D) Fungi

262. In aquatic ecosystem, near shore zone is called:
(A) Littoral zone ✓ (B) Limnetic zone (C) Profundal zone (D) Benthic zone

263. Fresh water ecosystem covers less than:
(A) 7% (B) 5% (C) 3% (D) 1% ✓

264. Here, light is insufficient to support photosynthesis:
(A) Littoral Zone (B) Limnetic Zone (C) Profundal Zone ✓ (D) Photoplankton Zone

265. Limnetic phytoplankton include the:
(A) Bacteria (B) Cyanobacteria ✓ (C) Fishes (D) Mosses

266. In spermatophytes, important adaptation is the evolution:
(A) Seed coat ✓ (B) Pollen tube (C) Fruit (D) Flower

267. Coniferous forests located at high latitude are called:
(A) Alpine (B) Boreal ✓ (C) Taiga (D) Prairies

268. Temperate deciduous forests are located in Pakistan at:
(A) Shogran ✓ (B) Chilas (C) Mionwali (D) Sind

269. Perhaps the most fragile of all the because of its short growing season is:
(A) Tundra ✓ (B) Desert (C) Grass land (D) Temperate Deciduous Forest

270. Northern coniferous forest is called:
(A) Savanna (B) Prairies (C) Taiga ✓ (D) Tundra

271. Coniferous forest located at high attitude are called:
(A) Deciduous forest (B) Alpine forest ✓ (C) Tundra (D) Grass land

272. Layering is the characteristic of:
(A) Tundra (B) Desert (C) Taiga (D) Grassland ✓

273. Grassland ecosystem in Pakistan is found in:
(A) Chilas (B) Chitral ✓ (C) Dir (D) Swat

274. In Sindh, the desert ecosystem is called:
(A) Thar ✓ (B) Thal (C) Sahara (D) Gobi

275. Desert ecosystem of Bhakkar and Mianwali is called:
(A) Thar (B) Thal ✓ (C) Sahara (D) Rohi

276. The biomes which has been increased in area by human activities:
(A) Grassland (B) Tundra (C) Desert ✓ (D) Coniferous forests

277. A succulent plant has water stored in tissue:
(A) Cacti ✓ (B) Moss (C) Yarrow (D) Spruce

278. Cactus is found in the ecosystem:
(A) Forest (B) Desert ✓ (C) Grass land (D) Tundra

279. Mountain of Karakoram is located in major terrestrial ecosystem in Pakistan:
(A) Grassland (B) Coniferous alpine forest

(C) Temperate deciduous forest (D) Tundra ✓

280. The arctic tundra stretches across Northern North America, Northern Europe and:
(A) Cyprus (B) Siberia ✓ (C) Morocco (D) Nepal

281. The Nuclear power station can last only for about:
(A) 10 years (B) 20 years (C) 30 years ✓ (D) 40 years

282. In ocean of tropical regions, the temperature of surface water is about:
(A) 5°C (B) 10°C (C) -5°C (D) 25°C ✓

283. The most widely used source of energy on earth is:
(A) Wind (B) Sun ✓ (C) Water (D) Geothermal

284. The upper weathered layer of earth crust is:
(A) Rock (B) Soil ✓ (C) Sandy (D) Rhizome

285. It is not fossilized fuel:
(A) Lignite (B) Peat ✓ (C) Natural gas (D) Oil

286. It is a fossilized fuel:
(A) Water (B) Oil ✓ (C) Wind (D) Oil

287. Which of the following is a renewable resource?
(A) oil and air (B) water and oil (C) oil and gas (D) air and water ✓

288. The world population is expected to be nearly doubled by:
(A) 2020 (B) 2030 (C) 2040 ✓ (D) 2050

289. The decline in thickness of ozone layer is caused by increasing level of:
(A) Chlorofluorocarbon (CFCs) ✓ (B) Nitroger (C) Chlorine (D) Carbon Dioxide

290. Ozone in the upper layer of atmosphere that filters:
(A) IR radiation (B) UV radiation ✓ (C) β radiation (D) α radiation

291. Some detergents contain a lot of:
(A) Sulphur (B) Carbon (C) Phosphate ✓ (D) Carbonates

292. A single chlorine atom can react with ultraviolet rays and destroy as many as ozone molecule:
(A) One million ✓ (B) Two million (C) One billion (D) Two billion

293. Water present Water and ice cup is:
(A) 01% (B) 02% ✓ (C) 03 % (D) 04%

294. In pure form, Ozone is:
(A) Greenish (B) Reddish (C) Yellowish (D) Bluish ✓

295. Which of the following act as environmental buffers
(A) Deserts (B) Forests ✓ (C) Industry (D) Fossil fuels

296. Oxides of Nitrogen cause:
(A) Lung Cancer (B) Cough ✓ (C) Brain damage (D) Cholera

297. The atmosphere gas behaves like glass sheet of green house is:
(A) Oxygen (B) Hydrogen (C) Carbon dioxide ✓ (D) Nitrogen

Class: 12th **Biology** pakcity.org

Subjective Part

If you prepare these Short and long Questions then Insha Allah Confirm your A+ marks

اگر آپ یہ مختصر سوالات اور تفصیلی سوالات تیار کرتے ہیں تو انشاءاللہ آپ کے A+ نمبر پکے ہیں۔

Section-I

Question No. 2

1. What is lithotripsy?
2. What are pyrogens?
3. Differentiate between hypotonic and hypertonic environment.
4. What are osmoconformers and osmoregulators?

5. What is extracorporal shock wave lithotripsy?
6. What are flame cells? Why they are called so?
7. Write structural formula of urea and uric acid.
8. Define homeostasis. Give its importance.
9. Differentiate between poikilotherms and homeotherms.
10. Differentiate between ectotherms and endotherms.
11. Differentiate between hemodialysis and peritoneal dialysis.
12. What are xerophytes? Give two adaptations of xerophytes.
13. Draw and label urea cycle.
14. Illustrate the function of Malpighian tubules.
15. What is sciatica and its causes?
16. What is foreman triosseum? How it is formed?
17. What is the role of vascular cambium?
18. What is axial skeleton?
19. What are synovial joints?
20. Differentiate between active and passive flight.
21. How is rickets produced? (LB-2012)
22. What are the causes of herniation of discs?
23. What is the difference between tetanus and muscle tetany?
24. What is the difference between exoskeleton and endoskeleton?
25. What is the hematoma formation? (LB-2016)
26. Differentiate between effective and recovery stroke.
27. What are plantigrade and unguligrade?
28. Characterize collenchyma cells.
29. Compare phototropism and geotropism.
30. Compare hinge joint with ball and socket joint.
31. Define haptonastic movement.
32. Define antagonistic movement of muscles.
33. What is the process of ecdysis (moulting).
34. Differentiate between sclerenchyma and collenchyma cells.
35. Differentiate between fibers and sclereids.
36. Differentiate between compact bone and spongy bone. Give only two differences.
37. Distinguish between axial skeleton and appendicular skeleton.
38. Differentiate between Osteoporosis and Osteomalcia.
39. Differentiate between brachialis and brachioradialus.
40. Differentiate between bone and cartilage.
41. Differentiate between ligament and tendon.
42. What is the role of placenta in human?
43. What is seed dormancy? Give its importance.
44. What is the role of interstitial cells in sperm production?
45. What is the structure and function of corpus luteum?
46. Write down at least two important measures to prevent AIDS.
47. What are Oviparous, Viviparous and Ovoviviparous animals?
48. Classify the plants according to photoperiodic requirement for flowering.
49. Define photoperiodism and write its effects in plants.
50. Differentiate between haploid parthenogenesis and diploid parthenogenesis.

51. Differentiate between menupause and ovulation.
52. Differentiate between internal and external fertilization.
53. Differentiate between spermatogenesis and oogenesis.
54. Differentiate between identical twins and fraternal twins.
55. How lactation differ from gestation?
56. How test tube babies are produced?
57. What is the composition of air of terrestrial ecosystem?
58. What is the effect of human impact on Tundra ecosystem?
59. What is the effect of human impact on Desert ecosystem?
60. What is the range of rainfall and temperature in Temperate Deciduous Forest
61. What are the four major requirements for life?
62. What is meant by layering in a grassland ecosystem?
63. Differentiate between climate and weather.
64. Differentiate between Alpine and Boreal forests.
65. Differentiate between Zooplankton and Phytoplankton.
66. Differentiate between Prairies and Savanna.
67. Differentiate among littoral, limnetic and profundal zone.
68. Enlist two adaptations in plants and two in animals for a terrestrial ecosystem.
69. Give the name of some major ecosystems on land in Pakistan.
70. Name six major terrestrial biomes.
71. Mention the characteristics of plant life in desert ecosystem.
72. What is acid rain?
73. What is Eutrophication?
74. Write names of various types of pollution.
75. What are the main sources of water pollution?

Question No. 3

1. What is innate behavior?
2. What is the role of hypothalamus?
3. What is habituation? Give an example
4. What is the role of thyroxine?
5. What is the role of vasopressin/ADH and oxytocin hormone?
6. What is the function of estrogen and progesterone?
7. What are axons and dendrites?
8. What is reflex arc?
9. What are the symptoms of Alzheimer's disease?
10. What is the difference between CNS and PNS?
11. What is the function of parathyroid gland or parathormone?
12. What is Parkinson's disease?
13. What are gastrin and secretin?
14. Write function of photoreceptors and nociceptors
15. Compare Circadian and Circannual rhythms
16. Define the term hormone, give one example?
17. Define feedback mechanism
18. Differentiate between biorhythms and diurnal rhythms
19. Differentiate between etiolation and chlorosis
20. Differentiate between sympathetic and parasympathetic nervous system

21. Differentiate between active and resting membrane potential
22. Give two commercial applications of Gibberellins
23. Give effects of nicotine on blood vascular system and digestive system in man
24. Explain the functions of two hormones secreted by Islets of Langerhans
25. What is Bombay phenotype?
26. What is SRY gene? How it is transferred?
27. What are the genes and alleles?
28. What do you know about hypophosphatemic rickets?
29. What are pseudoautosomal genes?
30. What is haemophilia and its various types?
31. What is the role of blood groups in establishing parentage?
32. What is meant by universal blood donor and universal recipient?
33. What is crossing over? What is its importance?
34. What is meant by erythroblastosis foetalis?
35. What is meant by linkage, linked genes and linkage groups?
36. What is test cross? Why did Mendel suggest this cross?
37. What is test cross? Give its uses
38. What is the difference between heterogametic and homogametic individuals?
39. What are compound sex chromosomes and their example?
40. Compare monohybrids with dihybrids
41. Define laws of Mendel
42. Differentiate between phenotype and genotype
43. Differentiate between incomplete dominance and co-dominance
44. Differentiate between gene and genome
45. Differentiate between homozygous and hemizygous
46. Differentiate between homozygous and heterozygous
47. Differentiate between dominant trait and recessive trait
48. Differentiate between qualitative and quantitative traits
49. Differentiate between IDDM and NIDDM
50. Differentiate between multifactorial and polygenic traits
51. Differentiate between probability and product rule
52. Differentiate between protanopia, deuteranopia and tritanopia
53. Differentiate between sex-limited and sex-influenced traits
54. Distinguish between polygenes and pleiotropy
55. Give the concept of fixed allele
56. How sex determination occurs in yeast?
57. What is a probe?
58. What is gene pharming?
59. What is aspartame?
60. What is gene therapy?
61. What is meant by cloning?
62. What are Palindromic sequences?
63. What are the various methods of gene or DNA sequencing?
64. What is the biodegradable plastic and its origin?
65. What is the role of suicide gene in transgenic bacteria?
66. What is the advantage of genetic engineering of C4 plants?

67. What is Ex-vivo gene therapy?
68. What is a genome and genomic library?
69. Define biotechnology
70. Define Molecular scissors
71. What is the role of molecular carrier-the vector?
72. Explain the importance of gene sequencing
73. What is ammonification?
74. What is a Mycorrhiza?
75. What is grazing? How grazing affects the texture of soil?
76. What is biome?
77. Briefly write about secondary succession
78. Define succession and name its types
79. Define biogeochemical cycles
80. Define and describe biotic components of an ecosystem
81. Define food chain and food web
82. Differentiate between population and community
83. Differentiate between habitat and niche
84. Differentiate between autecology and synecology
85. Differentiate between consumers and decomposers
86. Differentiate between primary and secondary succession

Question No. 4

1. What do you mean by open growth?
2. What is neurocoel?
3. What is present goal of gerontology?
4. What is gastrocoel and from which germ layer it is originated?
5. What is Henson's node? Give its role.
6. What is meant by discoidal cleavage?
7. What do you mean by lateral meristem.
8. What is the difference between epiblast and hypoblast?
9. Briefly describe the external and internal factors that affect growth in plants.
10. What are the causes of aging and how aging can be slowed down?
11. Define gastrulation in chick.
12. Define growth correlations.
13. What are primary organizer and inducer substances?
14. Define regeneration with examples.
15. Define teratology and teratogens?
16. Differentiate between area pellucida and area opacca.
17. Differentiate between gerontology and teratology.
18. Differentiate between growth and development.
19. Differentiate between primary and secondary growth.
20. Differentiate between somatic and splanchnic mesoderm.
21. How do final size of cells of cortex and tracheids is attained in zone of maturation?
22. How notochord is formed in chick embryo?
23. How primitive streak in formed?
24. State dedifferentiation of cells.
25. State the role of gray vegetal and grey equatorial cytoplasm.

26. What is semi-conservative replication of DNA?
27. What is sickle cell anemia?
28. What is transformation?
29. What is translation?
30. What are mutagens? Give one example.
31. What are the contributions of P.A. Levene for determining the structure of DNA?
32. What is central dogma?
33. Where codon and anticodon are situated?
34. Differentiate between heterochromatin and euchromatin.
35. What do you mean by mutations?
36. What is phosphodiester linkage? Draw structural formula.
37. Compare replication, transcription and translation.
38. Define chromosomal theory of inheritance.
39. What do you mean by karyotype? Give its significance.
40. Define nucleosome.
41. Define nucleotide and nucleoside.
42. Define one gene/one polypeptide hypothesis?
43. Define point mutations. Give one example.
44. What is the function of RNA polymerase in transcription?
45. Differentiate between sense and anti-sense strands of DNA.
46. Differentiate between rough and smooth type of bacteria.
47. Enlist different shapes of chromosome.
48. What are Okazaki fragments?
49. Give the role and kinds of tRNA.
50. How many types of DNA polymerases are found, write down their names?
51. What is Necrosis?
52. What is tumor?
53. What is Klinefelter's syndrome?
54. What is the importance of bivalent formation?
55. What happens during metaphase I?
56. What are mutagens? Give one example.
57. Write symptoms of Down's syndrome.
58. What is Turner's syndrome?
59. What is mitotic apparatus? Give its functions.
60. Define cell cycle.
61. What is non-disjunction or meiotic errors?

Long Questions

Section-II

Question No. 5

1. Write note on osmoregulation in marine fishes.
2. Write down the structure of a nephron.
3. Discuss excretion in Cockroach.
4. Describe various kidney problems and their cure in human.
5. Discuss major homeostatic functions of liver
6. Write about Necrosis and Apoptosis.
7. Define non-disjunction and discuss its effect with one example.
8. Explain about interphase of cell cycle.
9. Explain the stages of prophase I of meiosis I.
10. Describe the excretion in plants.

Question No. 6

1. Define and explain briefly the fibrous, cartilaginous and synovial joints.
2. What is endoskeleton? Describe bone and cartilage.
3. What is Sliding Filament Model of muscle contraction? What does it explain?
4. Write a note on human appendicular skeleton.
5. Write down the mechanism of muscle contraction.
6. Describe the significance of secondary growth.
7. Write a note on grazing.
8. Discuss the arrangement of vertebrae in vertebral column. Also describe rib cage.
9. Write a note on nitrogen cycle.
10. Define succession. Explain the different stages of xerosere.
11. Discuss the flow of energy in food chain of an ecosystem.
12. Explain the biotic component of an ecosystem.
13. Give an account of paratonic movement in plants.

Question No. 7

1. What are receptors? Describe their different types.
2. Write a note of thyroid gland?
3. Describe in detail the role of adrenal glands
4. Write any four differences between nervous and chemical coordination.
5. Define and explain feedback mechanism?
6. Describe initiation of nerve impulse.
7. Describe the role of auxins.
8. Nervous system of Hydra is better developed than of Planaria. Discuss.
9. Describe comparative embryology and molecular biology as evidence of evolution.
10. Describe evidence of evolution by comparative anatomy.
11. Describe the evidences of evolution from Biogeography and fossil record.
12. Discuss evolution from prokaryotes to eukaryotes.
13. Explain the Theory of Inheritance of Acquired Characteristics.
14. State different factors affecting the gene frequency.

Question No. 8

1. What is incomplete dominance? Explain it with an example.
2. Explain the ABO blood group system.
3. What is Mendel's law of segregation? Illustrate it with an example
4. Discuss sex-linkage in humans with one example.
5. Describe the genetics of color-blindness in humans.
6. Explain in detail diabetes mellitus and its types.
7. Explain different patterns of sex determination in animals.
8. Write a note on test tube babies.
9. Give a comprehensive comparison between asexual and sexual reproduction.
10. Explain Sexually Transmitted Diseases in humans.
11. Describe human female reproductive system.
12. Describe the birth in man.
13. Define and explain photoperiodism.
14. Explain different patterns of sex determination in animals.

Question No. 9

1. Write a note on tissue culture and cloning.
2. What is the methodology for producing recombinant DNA to be used in gene cloning?
3. 3. What is the polymerase chain reaction (PCR), How it is carried out to produce multiple copies of a DNA segment?
4. What is DNA finger printing, a process that utilizes the entire genome?
5. Define and explain regeneration.
6. Discuss different phases of plant growth.
7. What is aging? Describe its causes and symptoms.
8. Define abnormal development. Explain different factors causing abnormalities.
9. Describe the role of nucleus in development.