

85. $(CH_3)_3COCH_3 \xrightarrow{+HI(dil)} (CH_3)_3CCl + CH_3OH$ it follows which mechanism

- 1) SN^1 2) SN^2 3) E_1 4) E_2

86. Benzene $\xrightarrow[AlCl_3]{CO, HCl} A \xrightarrow{Conc. KOH} B + C$ Correct statement among the following is

- 1) First step is called Kolbe's reaction 2) B and C are benzaldehyde and benzyl alcohol
3) Second step is called Aldol condensation 4) 'A' is benzene carbaldehyde

87. Haloform test is not given by

- 1) CH_3COCH_3 2) $CH_3COC_2H_5$ 3) $C_6H_5COC_2H_5$ 4) $CH_3CHOHCH_3$

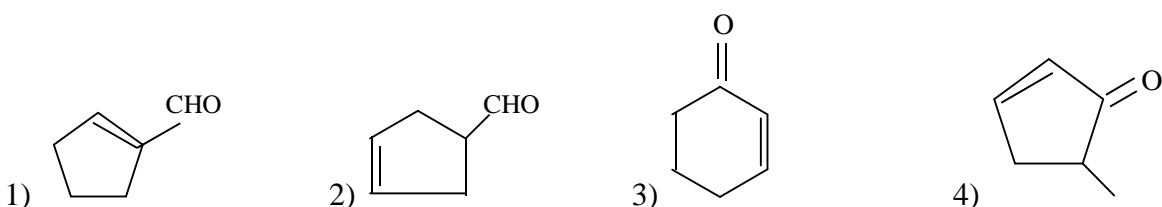
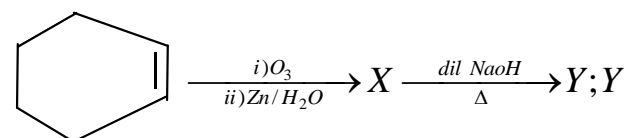
88. Correct acid strength of order of following acids is

- a) $HCOOH$ b) CH_3COOH c) C_6H_5COOH d) CH_3CH_2COOH
1) $a > c > b > d$ 2) $a > b > c > d$ 3) $c > a > b > d$ 4) $d > a > b > c$

89. Gabriel phthalimide reaction is used for the preparation of

- 1) Primary aromatic amines 2) Primary aliphatic amines
3) Secondary aromatic amines 4) All

90.



BIOLOGY

91. Find the correct sequence at various steps of herbarium technique.

- a) Drying b) Poisoning c) Collection d) Labeling
e) Mounting f) Deposition g) Stitching
1) c, a, b, e, g, d, f 2) c, a, f, d, g, e, b 3) c, b, e, g, d, f, a 4) c, a, e, b, g, d, f

92. Which one is not considered as a natural family planning method?

- 1) Rhythm /periodic abstinence 2) Withdrawal/ Coitus interrupts
3) Lactational amenorrhoea 4) Vasectomy

93. 'contagium vivum fluidum' (i.e living fluid infester)

- 1) Mayer 2) Ivanowsky 3) Beijerinck 4) Bawden and pine

94. According to Darwin, evolution is a

- 1) A sudden but discontinuous process 2) A gradual but discontinuous process
3) A gradual but continuous process 4) A quick and continuous process

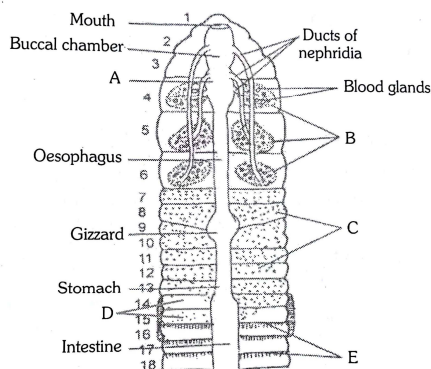
95. Genetic material of prokaryotic cell is

- 1) Non - histonic double - stranded DNA 2) Histonic double - stranded DNA
3) Histone and DNA both are absent 4) Histone without DNA

96. One of the special character of coelenterate only is the occurrence of

- 1) Hermaphroditism 2) Flame cells 3) Polymorphism 4) Nematocysts

97. **Type of stele without pith**
 1) Solenostele 2) Siphonostele 3) Protostele 4) Dictyostele
98. **Budding is a normal mode of asexual reproduction in**
 1) Starfish and Hydra 2) Hydra and sponges
 3) Earthworm and hydra 4) All the above
99. **Match column – I with Column – II and select the correct option**
- | | |
|---|---|
| Column – I
(Type of chloroplast)
a) Cup – shaped
b) Girdle - shaped
c) Stellate
d) Reticulate | Column - II
(Algae)
i) Ulothrix
ii) Oedogonium
iii) Chlamydomonas
iv) Zygnema |
|---|---|
- 1) a – ii, b – iv, c – iii, d – i 2) a – iii, b – i, c – iv, d – ii
 3) a – ii, b – iv, c – ii, d – i 4) a – iv, b – iii, c – i, d – ii
100. **Consider the following step and identify A, B, C and D**
- starch $\xrightarrow{\text{Amylase}}$ A
 Peptone $\xrightarrow{\text{Carboxypeptidase}}$ B
 Fat $\xrightarrow{\text{Lipase}}$ C
 Lactose $\xrightarrow{\text{Lactase}}$ D
- | | A | B | C | D |
|---|--------------|--------------|--------------|------------|
| 1 | Disaccharide | Dipeptide | Fatty Acid | Galactose |
| 2 | Fatty Acid | Disaccharide | Glucose | Dipeptide |
| 3 | Glucose | Fatty Acid | Disaccharide | Dipeptide |
| 4 | Dipeptide | Galactose | Disaccharide | Fatty Acid |
101. **In which group will you place a plant which reproduces by means of spores has vascular supply, and diploid sporophytic phase as dominant phase**
 1) Bryophyta 2) Pteridophyta 3) Gymnosperm 4) Angiosperm
102. **Find out the incorrectly matched pair regarding your skeletal system**
 1) Vertebro chondral ribs = 6 2) Skull bones = 22
 3) Occipetal Condyles = 2 4) Vertebro sternal ribs = 7
103. **The origin of root hairs and lateral roots is, respectively**
 1) Exogenous and endogenous 2) Endogenous & Exogenous
 3) Both Endogenously 4) Both Exogenously
104. **Which extra – embryonic membrane participate in the formation of placenta**
 1) Amnion & Chorion 2) Chorion & Allantois
 3) Chorion & Yolk sac 4) Yolk sac & Allantois
105. **φ - 174 bacteriophages contains**
 1) 5386 - Ribose Nucleotides 2) 5386 – Deoxyribonucleotides
 3) 5386 – Deoxyribonucleotides base pairs 4) 5386 – Ribose nucleotides
106. **Identify the following structure labeled A to E in the diagram given below from the I to V**



I. Septal Nephridia

II. Pharynx

III. Forest of integumentary Nephridia

IV. Integumentary nephridia

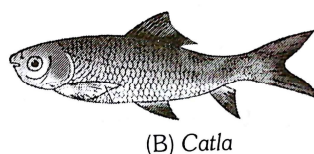
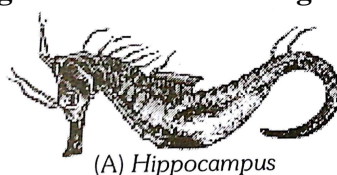
V. Tufts of pharyngeal nephridia

	A	B	C	D	E
1	II	III	IV	I	V
2	II	IV	V	I	III
3	II	V	IV	III	I
4	II	I	III	IV	V

107. The colour of Bougainvillea flower is due to the colour of its

- 1) Corolla 2) Bracts 3) Calyx 4) Androecium

108. See the following figures and select the right option with their respective classes diagram.



- 1) A – Cartilage Fish; B – Hag Fish 2) A – Cartilage Fish; B – Cartilage Fish
3) A – Bony Fish; B – Cartilage Fish 4) A – Bony Fish; B – Bony fish

109. The technical term used for the androecium in a flower of china rose (*Hibiscus rosa sinensis*) is

- 1) Diadelphous 2) Polyandrous 3) Polyadelphous 4) Monadelphous

110. Ligaments and tendons are

- 1) Loose connective tissue 2) Muscular tissue
3) Fibrous Connective tissue 4) Skeletal tissue

111. Collenchyma differs from parenchyma in having

- 1) Living Protoplasm 2) Cellulose walls
3) Vacuoles 4) Pectin & Cellulose deposits at corners

112. Blood does not clot inside the blood vessels due to the presence of

- 1) Heparin 2) Fibrinogen 3) Vitamin K 4) Thrombin

113. Tissues commonly known as the passport point (or) biological check post is characterized by

- 1) Bulliform cells and raphides 2) Cystolith & motor cells
3) Casparian bands & passage cells 4) Passage cells & starch

114. The respiratory centre in brain which controls inspiration and expiration is situated in

- 1) Medulla Oblongata 2) Cerebellum 3) Hypothalamus 4) Pericardium

115. Transcription start from

- 1) $5' \rightarrow 3'$ 2) $3' \rightarrow 5'$ 3) $5' \rightarrow 5'$ 4) Any direction

116. Heart beat can be initiated by

- 1) Sino – auricular node 2) Atrio - Ventricular node
3) Sodium ion 4) Purkinjes fibres

117. Which of the following is associated with the detoxification of drugs and muscle contraction by the release and uptake of Ca^{+2} ions?

- 1) Golgi complex 2) RER 3) SER 4) Free ribosomes

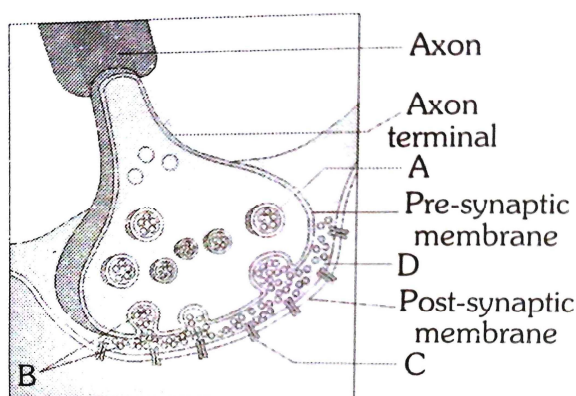
118. ECG depicts the depolarization and repolarization processes during the cardiac cycle; in the ECG of a normal healthy individual one of the following waves is not represented

- 1) Depolarization of atria 2) Repolarization of atria
3) Depolarization of ventricles 4) Repolarization of ventricles

119. The presence of DNA in mitochondria & chloroplast supports the hypothesis

- 1) Glycolysis occurs in both mitochondria & chloroplast
2) Mitochondria & chloroplast both originated as independent free living organisms
3) ATP is produced in mitochondria as well as in chloroplast
4) Mitochondria & chloroplast undergo meiosis & mitosis independent of nucleus

- 120. The basic functional and structural unit of human kidney is**
 1) Pyramid 2) Nephridia 3) Nephron 4) Henle's loop
- 121. If you are provided with root – tips of onion in your class and are asked to count the chromosomes, which of the following stages can you most conveniently look into**
 1) Telophase 2) Anaphase 3) Prophase 4) Metaphase
- 122. Hinge joint is present between**
 1) Humerus and radius-ulna 2) Femur and acetabulum
 3) Femur and pelvic girdle 4) All the above
- 123. Which one of the following is saturated fatty acid**
 1) Oleic acid 2) Linoleic
 3) Linolenic acid 4) Stearic acid
- 124. The hunger centre, Osmo-regulation and thermoregulation are the function of**
 1) Spinal Cord 2) Pituitary gland
 3) Cerebellum 4) Hypothalamus
- 125. Hydrolytic enzymes, which act on low PH are called as**
 1) Protease 2) α - Amylase 3) Hydrolases 4) Peroxidase
- 126. Consider the diagram of synapse**

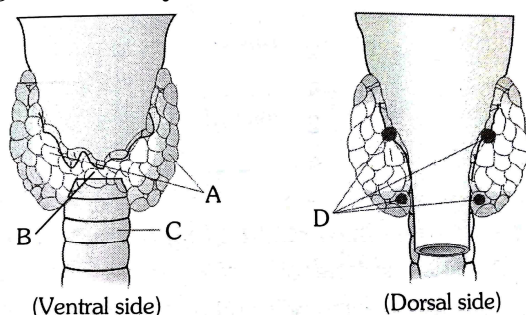


- I) The nemnbered label indicate the location of the receptor molecules**
II) The number points to synaptic vesicles
III) The number points to neurotransmitter
IV) The number points to synaptic cleft

	I	II	III	IV
1	C	D	A	B
2	C	A	D	B
3	B	A	C	D
4	C	A	B	D

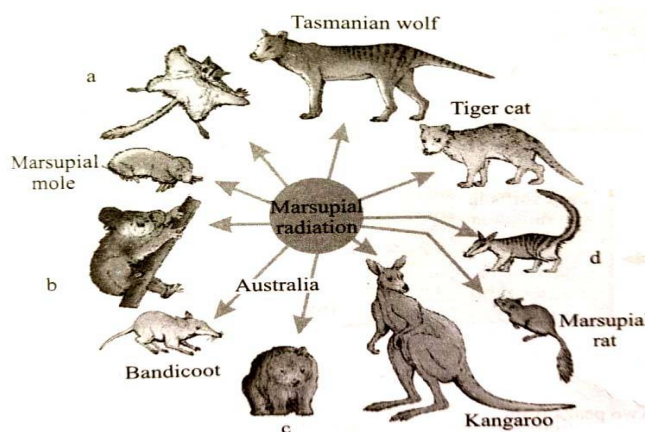
- 127. The transition state structure of the substrate formed during an enzymatic reaction is**
 1) Permanent but unstable 2) Transient and unstable
 3) Permanent and stable 4) Transient but stable
- 128. Insulin is secreted by**
 1) Pituitary 2) Pancreas 3) adrenal gland 4) Thymus
- 129. If the egg of an organism has 10pg of DNA in its nucleus, how much DNA would a diploid cell of same organism have in G2-phase of meiosis**
 1) 10 pg 2) 5 pg 3) 20 pg 4) 40 pg

130. Consider the following figures identify A to D

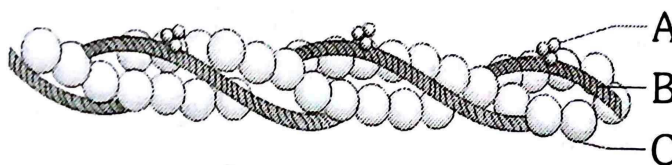


- 1) A – Thyroid, B – Corpus luteum, C – Trachea, D – Parathyroid gland
 2) A – Thyroid, B – Isthmus, C – Larynx, D – Parathyroid gland
 3) A – Thyroid, B – Isthmus, C – Trachea, D – Parathyroid gland
 4) A – Parathyroid gland, B – Isthmus, C – Trachea, D – Thyroid
131. When a plasmolyzed cell is placed in hypotonic solution then water will move inside the cell which force causes this?
 1) TP 2) OP 3) WP 4) None
132. A certain road accident patient with unknown blood group needs immediate blood transfusion. His one doctor friend at once offers his blood. What was the blood group of the donor
 1) Blood group AB 2) Blood group B 3) Blood group O 4) Blood group A , AB
133. If cell A with DPD 4 bar is connected to cell B, C, D whose osmotic pressure and turgor pressure respectively, 4 and 4, 10 and 5, 7 and 3 bars, the flow of water is
 1) B to A, C and D 2) A to D, B and C 3) C to A, B and D 4) A to B, C and D
134. Match the following and select the correct option
- | | |
|--|-------------------------------|
| List – I
(Method of sex determination) | List – II
(Example) |
| A) XX - XO | I) Fowls |
| B) ZW – ZZ | II) Grasshopper |
| C) XX – XY | III) Honey bee |
| D) ZO – ZZ | IV) Human beings |
| | V) Fumea moth |
- | | |
|----------------------|---------------------|
| A B C D | A B C D |
| 1) III II V I | 2) IV III V I |
| 3) IV II III V | 4) III I IV V |
135. A nutrient element essential for the formation of microtubules of the mitotic spindle apparatus during cell division is
 1) Phosphorus 2) Sulphur 3) Calcium 4) Zinc
136. Cystic fibrosis is caused by
 1) Recessive autosomal allele 2) Dominant autosomal allele
 3) Recessive sex linked allele 4) Dominant sex linked allele
137. Carbohydrates are commonly found as starch in plant storage organs. Which of the following five properties of starch [I - V] make it useful as a storage material?
 I) Easily translocated II) Chemically non - reactive
 III) Easily digested by animals IV) Osmotically inactive
 V) Synthesized during photosynthesis
 1) I, III and V 2) I and V 3) II and III 4) II and IV
138. What will be the phenotypic ratio in a situation of complementary gene interaction?
 1) 9:7 2) 13:3 3) 15:1 4) 9:3:4
139. The ratio between glyceraldehyde -3- phosphate allotted for regeneration and number of RuBP molecules synthesized during C₃ cycle are.
 1) 3 : 2 2) 5 : 3 3) 6 : 3 4) 3 : 5

140. Consider the statement given below regarding contraception and answer as directed there after
- possibility of conception are nil as long as mother breast – feeds the infant upto two years
 - MTP during first trimester is generally safe
 - Intrauterine devices like copper – T are effective contraceptives.
 - Contraception pills may be taken upto one week after coitus to prevent conception
- Which two of the above statements are correct?
- 1, 3
 - 2, 3
 - 1, 2
 - 3, 4
141. Serial changes in the previously sterile or total barren area are called
- Climatic climax
 - Secondary succession
 - primary succession
 - sere
142. Birth canal is formed by
- Uterus + Vagina
 - Vagina + Vestibule
 - Vestibule + Urethra
 - Cervical canal + vagina
143. The delay of senescence or Richmond – long effect is a physiological effect of
- IAA
 - BAP
 - GA
 - C_2H_4
144. Sertoli cells are found in testis, these cells are
- Reproductive
 - Nurse cell
 - Receptor cell
 - None of these
145. Match the following column – I and column - II
- | <u>Column – I</u> | <u>Column - II</u> |
|--|--|
| a) C_2H_4 | i) Antiaging Hormone |
| b) Zeatin | ii) Stress Hormone |
| c) NAA | iii) Methionine as Precursor |
| d) GA_3 | iv) Removes genetic dwarfism |
| e) ABA | v) Positive phototropism |
| 1) a – i, b – ii, c – iii, d – v, e – iv | 2) a – iii, b – i, c – v, d – iv, e – ii |
| 3) a – v, b – iv, c – iii, d – ii, e – i | 4) a – iv, b – i, c – v, d – ii, e – iii |
146. Colostrum secreted by mother is rich in
- Ig D antibodies
 - Ig E Antibodies
 - Ig A antibodies
 - Ig M Antibodies
147. The repressor of the operon is synthesized from the
- i-gene
 - Z-gene
 - Y-gene
 - a-gene
148. Which one of the following statement is correct with respect to AIDS?
- The HIV can be transmitted through eating food together with an infected person
 - The causative HIV retrovirus enters helper T – lymphocytes thus reducing their numbers
 - AIDS patient can be fully cured with proper care and nutrition
 - Drug addicts are less susceptible to HIV infection
149. The tRNA is a compact molecule which looks like
- Inverted 'L'
 - Clover-leaf
 - Inverted-A
 - Inverted-S
150. Recognise the figure and find out the correct matching.



- 1) c-wombat, b-koala, a –sugar glider, d-banded anteater
 2) a-wombat, c-koala, d-sugar glider, b-banded anteater
 3) b-wombat, d-koala, c-sugar glider, a-banded anteater
 4) d-wombat, a-koala, b-sugar glider, c-banded anteater
- 151. Gross primary productivity is**
 1) Rate at which organic molecules are formed in autotroph
 2) Rate at which organic molecules are used up in autotrophs
 3) Storage of organic molecules in body of autotrophs
 4) All the above
- 152. The sites of the first, second and third moulting of the Ascaris larvae are**
 1) Soil; lung and intestine
 2) Liver; stomach and intestine
 3) Soil; Alveoli of lungs
 4) Specific natural immunity
- 153. In geitonogamy, pollengrains are transferred to**
 1) Genetically different flowers
 2) Genetically similar flower
 3) Stigma of another flower of a different plant
 4) stigma of the same flower
- 154. The crown and root of a tooth is covered by a layer of hard substance called**
 1) Enamel
 2) Dentine
 3) Bony Socket
 4) Cementum
- 155. When the body of ovule, the embryo sac and the micropyle lie at right angles to the funiculus, the ovule is called**
 1) Amphitropous
 2) Anatropous
 3) Campylotropous
 4) Hemianatropous
- 156. Which of the following disease is associated with lungs.**
 1) Pneumonia
 2) Bronchitis
 3) Asthma
 4) All the above
- 157. If a fertilized egg of a plant has 40 chromosomes, how many chromosomes are found in its pollen mother cell, synergid, endosperm, perisperm**
 1) 20, 40, 60, 80
 2) 20, 20, 40, 60
 3) 40, 20, 60, 40
 4) 40, 20, 40, 40
- 158. See the figure of actin (thin) filaments identify A, B and C**



- 1) A – troponin; B – tropomyosin; C – F -actin
 2) A – Troponin; B – Tropomyosin; C - myosin
 3) A – Troponin; B – Myosin; C - Tropomyosin
 4) A – Tropomyosin; B – Troponin; C – F -actin
- 159. A tetraploid female plant of wheat (2n=14) is crossed with diploid male plant. The endosperm cell is treated with colchicine. How many chromosomes present in resultant cell.**
 1) 48
 2) 21
 3) 28
 4) 70
- 160. Sigmoid/ logistic growth curve is represented by**
 1) $\frac{dN}{dt} = rN$
 2) $N_1 = N_0 + B + I - D - E$
 3) $\frac{dN}{dt} = -rN$
 4) $\frac{dN}{dt} = rN(1 - N / K)$
- 161. Mad cow disease is caused by**
 1) Bacteria
 2) virus
 3) Fungi
 4) prions
- 162. Limnology is the study of**
 1) Marine water ecosystem
 2) Terrastrial ecosystem
 3) Brackish water ecosystem
 4) Fresh water ecosystem
- 163. Which one is not a bacterial disease?**
 1) Leprosy
 2) Scabies
 3) Gonorrhoea
 4) Syphilis

- 164. PAR stands for**
 1) Photosynthetically adaptive radiation 2) Photosynthetically accessible radiation
 3) Photosynthetically active radiation 4) Photosynthetically activity radiation
- 165. Total 512 seeds are collected from the cross WwYy x WwYy. Find the number of plants produced with first dominant and second recessive trait**
 1) 288 2) 96 3) 32 4) 320
- 166. Red data book deals with**
 1) The organisms that are extinct 2) Organisms that are extant
 3) Endemic plants 4) Photo periodism
- 167. From the cross AABb x aaBb, genotypes AaBB:AaBb:Aabb:aabb are obtained in the ratio of**
 1) 1:1:1:1 2) 1:2:1:0 3) 0:3:1:0 4) 1:1:1:0
- 168. Tasmanian Wolf is a marsupial while Wolf is a placental mammal. This shows**
 1) Convergent evolution 2) Divergent evolution
 3) Parallelism 4) Inheritance of acquired characters
- 169. Number of linkage groups in an individual is equal to**
 1) Number of genes 2) n-number of chromosomes
 3) 2n-number of chromosomes 4) number of autosomes
- 170. Ganga action plan for controlling pollution in ganges started in**
 1) 1985 2) 1981 3) 1987 4) 1989
- 171. Assuming that 50 heavy (i.e containing N^{15}) DNA molecules replicated twice in a medium containing N^{14} , we expect**
 1) 100 half and 150 light DNA molecules
 2) 100 half – heavy and half – light and 100 light DNA molecules
 3) 50 heavy and 150 light DNA molecules
 4) 50 heavy and 100 light DNA molecules
- 172. Which one of the following is oviparous**
 1) Platypus 2) Echidna 3) Columba 4) All the above
- 173. Atlas 66 variety of wheat developed for**
 1) High protein content 2) Scented grains
 3) Checking grassy stunt virus 4) Vitamin – C
- 174. Epidermis of skin is a**
 1) Cuboidal epithelium 2) Columnar epithelium
 3) Stratified epithelium 4) Pseudo stratified epithelium
- 175. Which of the following DNA form has the maximum number of base pairs per turn**
 1) A - DNA 2) B - DNA 3) C - DNA 4) Z - DNA
- 176. The main excretory product in cockroach is**
 1) Urea 2) Urea; Uric acid 3) Guanine 4) Uric acid
- 177. BT – toxin kills the insect by**
 1) Blocking nerve conduction 2) Damaging the surface of trachea
 3) Creating pores in trachea 4) Creating pores in midgut
- 178. Trisomy of 21st chromosome result in**
 1) Cat cry syndrome 2) Down's syndrome 3) Edward's syndrome 4) Patau's syndrome
- 179. A genetically engineered microorganisms used successfully in the bioremediation of oil spills is a species of**
 1) Pseudomonas 2) Trichoderma 3) Xanthomonas 4) Bacillus
- 180. Mantoux test is done to detect**
 1) Tuberculosis 2) Cholera 3) Malaria 4) Both B and C