B.Sc. Third Year – Semester - VI

Botany - XIV : Plant Melabolism, Biochemistry & Biotechnology.

Sample MCQs - Question Bank

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1) The DNA present in chloroplast is called plastidome.

2) The site for light reaction in photosynthesis is grana.

3) The stroma is site for dark reaction in photosynthesis.

4) Most efficient light for photosynthesis is red.

5) The reaction centre for PS-I is Chla 700.

6) The reaction centre for PS-II is Chl a_{680}.

7) Blackmann's reaction of photosynthesis Takes place in Stroma.

8) The initial acceptor of CO_2 in C_4-plants is PEPA.

9) The initial acceptor of CO_2 in C_3-plants is RUBP.

10) First stable compound after accepting CO_2 in C_3-plants is PGA.

11) First stable compound after accepting CO_2 in C_4 plants is OAA.

12) One $NADH_2$ yields three ATP molecules during ETS.

13) One $FADH_2$ yields two ATP molecules during ETS.

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14) Glycolysis takes place in cytoplasm.

15) In anaerobic respiration, the end products are ethyl alcohol & CO_2.

16) During aerobic respiration, oxidation of one glucose molecule yields 38 ATP molecules.

17) During anaerobic respiration, oxidation of one glucose molecule yields 2 ATP molecules.

18) The link in glycolysis & Kreb's cycle is acetyl coA.

19) The steps involved in alcoholic fermentation are --- glycolysis - ~~reduction~~ - decarboxylation - reduction.

20) The word enzyme was coined by F.W. Kuhne.

21) The first enzyme isolated in pure crystalline form was urease.

22) Protein part of enzyme is called apoenzyme.

23) Non-protein part of enzyme is called prosthetic group.

24) The specific region of the enzyme which is involved in biochemical reaction is called as active site.

25) Lock & key theory for enzyme action was proposed by Fisher.

26) Induced fit theory for enzyme action was proposed by Koshland.

27) The inhibition of enzyme action by final end product is called allosteric inhibition.

28) The chief forms of nitrogen taken up by majority of plants from soil are nitrates & nitrites.

29) Conversion of nitrate into ammonia. is reductive process.

30) Nitrogen fixation is process of conversion of atmospheric nitrogen (N_2) into inorganic nitrogenous compounds.

31) Out of Total Nitrogen fixed annually by natural process, biological nitrogen fixation accounts for about 95%.

32) Out of total nitrogen fixed annually by natural process, physical nitrogen fixation accounts for about 5%.

33) The enzyme nitrogenase is extremely sensitive to oxygen.

34) Nif gene controls process of biological nitrogen fixation.

35) Nitrosomonas & Nitrobacter are nitrifying bacteria.

36) Ability of a single plant cell to divide and differentiate into a mature plant is called as cellular totipotency.

37) The plant part used for culturing in tissue culture is called as explant.

38) An unorganized mass of loosely arranged parenchyma cells in tissue culture is called as callus.

39) Variations of plants produced by tissue culture are called as Somaclonal variations.

40) Transfer of explant on culture medium is known as inoculation.

41) Culture medium for tissue culture is sterilized in autoclave.

42) The genetically identical organisms produced from original parent organism are called as clones.

43) A substance used in tissue culture medium for induction of shoots in callus is Kinetin.

44) Agar agar acts as solidifying agent.

45) More common nutrient medium for tissue culture is MS medium.

46) Two protoplasts can be made to fuse through application of Polyethylene Glycol.

47) Polyethylene glycol is a fusogen.

48) Cytoplasmic hybrids are called cybrids.

49) Micropropagation is propagation of plants in vitro

50) Gradual exposure of plantlets produced by tissue culture to the external environment is called as hardening.

51) The concept of synthetic seeds was firstly given by T. Mourashige (USA).

52) Foreign DNA is also called passenger DNA in genetic engineering.

53) Best cloning organism used for genetic engineering is E. coli.

54) Bacteriophages are used as vectors for carrying many genes at a time.

55) Engineered bacteria are produced by inserting desired DNA or loaded on vector.

56) The collection / maintenance of all cloned DNA fragments representing a complete genome is known as genomic library.

57) The complete set of DNA which represents entire mRNA sequences of a cell is called as cDNA library.

58) cDNA is complementary DNA.

59) The gene transfer using Agrobacterium Ti plasmid is specific for dicots.

60) The Ti plasmid used for making transgenic plants, is found in Agrobacterium.

61) The first trasgenic crop was Nicotiana tabacum.

62) Biological scissors / chemical knives are restriction endonucleases.

63) The enzyme used to connect segment of DNA is DNA ligase.

64) The most common plasmid vector used in genetic engineering is pBR322.

65) Introduction of foreign gene for improving genotype is genetic engineering.

66) Father of genetic engineering is Paul Berg.

67) The plasmid generally used in genetic engineering in plants is Ti plasmid.

68) Natural genetic engineer of plants is Agrobacterium.

69) Bt gene occurs in Bacillus thuringiensis.

70) The study of genome of organisms is known as genomics.

71) The study of expression of genes through mRNA is called transcriptomics.

72) Study of structure & functions of proteins is proteomics.

73) Use of computers to handle biological information is Bioinformatics.

74) A collection of data in bioinformatics is called as a database.

75) A repository for collection of computerized data files is a database.

76) NCBI means - National Centre for Biotechnology Information.

77) NCBI is located on the campus of National Institute of Health (NIH) in Bethesda, Maryland (USA).

78) PubMed means Publishers on Medicine.

79) PubMed is maintained by National Library of Medicine (NLM) of USA.

80) BLAST means - Basic Local Alignment Search tool.

81) BLAST is maintained by NCBI.

82) BLAST was proposed by Altschul et al. (1990).

83) The manipulation of genetic makeup of living cells by inserting desired gene through a vector is genetic engineering.

84) The disease in dicots produced by Ti plasmids of Agrobacterium is crown gall.

85) Agrobacterium mediated gene transfer is a method for production of transgenic plants.

86) In Indian Bt cotton, the Cry gene provides resistance against boll worms.

87) Tissue culture is also called in vitro culture.

88) Tissue culture method was developed for the first time by Haberlandt.

89) The term totipotency was coined by Morgan.

90) Micropropagation is also called clonal propagation.

91) Synthetic seeds are Somatic embryos covered with protecting gel.

92) Synthetic seeds are also called artificial seeds.

93) ~~Upward movement of water in plants is ascent of sap.~~

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93) ~~Transpiration pull theory was proposed by Dixon & Jolly.~~

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93) Photolysis of water takes place during light reaction of photosynthesis.

94) C_3-pathway is also called calvin cycle.

95) C_4-pathway is also called HSK pathway / DCA pathway.

96) Kranz anatomy is found in C_4-plants.

97) Sugarcane, maize & Sorghum are C_4-plants.

98) Dimorphic chloroplasts are found in the leaves of C_4-plants.

99) Glycolysis is also called EMP Pathway.

100) Kreb cycle is also called TCA cycle/citric acid cycle.

101) ETS is also called terminal oxidation/oxidative phosphorylation.

102) The most common genus that form symbiotic relationship with root nodules of legumes is Rhizobium.

103) Which of the followings is a component of nitrogenase - Fe-Protein & Fe-Mo Protein.

104) Biological nitrogen fixation requires anaerobic condition

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105) Rhizobia enter into roots of leguminous host plant through root hairs.

106) Photosynthesis is anabolic process.

107) Respiration is catabolic process.

108) End products of photosynthesis are O_2 & hexose sugar.

109) End products of respiration are CO_2 & water.

110) Accessory ~~pi~~ or antenna pigments absorb and transfer light energy to chlorophyll-a.

111) In photosynthesis, assimilatory power is generated during light reaction.

112) Non-cyclic electron transport in photosynthesis is also known by the name of Z - Scheme.

113) Main credit for investing the sequences of dark reaction of photosynthesis goes to Nobel Laureate Melvin Calvin.

114) Which of the following is acceptor of CO_2 in dark reaction of photosynthesis? - RuBP.

115) During photosynthesis, O_2 is liberated by oxidation of water.

116) Photosynthetic pigments in chloroplast are embedded in membrane of Thylakoids.

117) The rate of photosynthesis is maximum in red light.

118) Which of the following wavelength of light is absorbed maximum for photosynthesis? - Blue light.

119) Which of the followings is least effective in photosynthesis? - Green light.

120) The number of ~~the~~ molecules of pyruvic acid formed from one glucose molecule at the end of glycolysis is Two.

121) Krebs cycle takes place in mitochondrial matrix.

122) The Site for respiration in plant cell is mitochondrion.

123) The site for photosynthesis is chloroplast.

124) Energy currency of living organism is ATP.

125) Organelles which are regarded as 'power house' of the cell are mitochondria.

126) Energy obtained by a cell from catabolic reactions is stored immediately in the form of - ATP.

127) Which is the final electron acceptor in respiration?
- Oxygen.

128) Enzymes are proteins, was suggested by Sumner.

129) NADP is a coenzyme / hydrogen acceptor.

130) In feedback inhibition, a metabolic pathway is switched off by accumulation of end product.

131) Blocking of active site of enzyme is a kind of competitive inhibition.

132) Quantasomes are found in chloroplast.

133) Enzymes are basically made up of proteins.

134) Enzymes which act within the cell are called as exoenzymes.

135) Enzymes which act outside the cell are called as endoenzymes.

136) CAM Pathway occurs mostly in Succulent plants.

137) Essential pigment in photosynthesis is chlorophyll-a.

138) The process of photophosphorylation was discovered by Arnon.

139) According to IUB System, enzymes are classified into 6 groups/classes.

140) Enzymes are designated with enzyme code having 4 digits.

141) The enzymes which catalyse oxidation-reduction reactions are called oxidoreductases.

142) The enzymes which catalyse group transfer are transferases.

143) The enzymes which catalyse hydrolytic reaction are hydrolases.

144) The enzymes which catalyse addition or removal of group without hydrolysis are lyases.

145) The enzymes which catalyse isomerization reactions are isomerases.

146) The enzymes which link together two molecules are ligases / Synthetase.

147) Anther culture technique in Datura was demonstrated by Guha & Maheshwari.

148) Protoplast of plant tissue was isolated for the first time by E.C. Cocking.

149) The term biotechnology was coined by Karl Ereky.

150) In bioinformatics, study of cellular processes & their components is metabolomics.