

**M.Phil./Ph.D. ADMISSION TEST, 2019 & 2020****Paper II****Subject : 105 - BOTANY**

Roll No. (In figures) .....(In words) .....

OMR Sheet Barcode No. ....

Signatures of Invigilators 1. .... 2. ....

Names of Invigilators 1. .... 2. ....

Time : 2 Hours

Max. Marks : 200

**GENERAL INSTRUCTIONS**

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| <p>1. Read the instructions given on the Question Booklet and OMR Sheet before starting the answers. All the entries should be filled by <b>blue or black ball point pen</b>.</p> <p>2. The Question Booklet contains <b>100</b> questions and all questions are compulsory.</p> <p>3. Each question is of <b>2</b> marks. There is <b>no negative marking</b>.</p> <p>4. Candidates must ensure that the Question Booklet issued to them has all the questions. Defective Question Booklet can be got changed within <b>10</b> minutes.</p> | <p>1. प्रश्नों के उत्तर लिखने से पूर्व प्रश्न-पुस्तिका और ओ.एम.आर. शीट पर दिये हुए निर्देश पढ़ें। सभी प्रविष्टियाँ नीले अथवा काले बॉल पॉइन्ट पेन से भरें।</p> <p>2. प्रश्न-पुस्तिका में <b>100</b> प्रश्न हैं और सभी प्रश्न अनिवार्य हैं।</p> <p>3. प्रत्येक प्रश्न <b>2</b> अंक का है। कोई नकारात्मक अंकन (<b>negative marking</b>) नहीं होगा।</p> <p>4. परीक्षार्थी सुनिश्चित कर लें कि उन्हें जो प्रश्न-पुस्तिका दी गई है उसमें सभी प्रश्न अंकित हैं। त्रुटिपूर्ण प्रश्न-पुस्तिका <b>10</b> मिनट की अवधि में बदलवाई जा सकती है।</p> |
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SEAL

5. In case of any discrepancy between English and Hindi versions of a question, English version will be taken as correct, wherever there are both versions.
  6. Select and darken the circle corresponding to the answer [(A) or (B) or (C) or (D)] in OMR sheet.
  7. In case more than one circles are darkened in a question, it will not be evaluated.
  8. Do not make any stray marks on OMR sheet and do not fold it.
  9. Any candidate found removing pages from the Question Booklet may be disqualified and prosecuted.
  10. Use of unfair means will disqualify the candidate from the examination.
  11. Cell phone, calculator or any such devices are not allowed in the Examination Hall.
  12. No candidate is allowed to leave the seat before handing over the original OMR sheet to the invigilator. Candidate can take Question Booklet and Carbon copy of OMR sheet.
5. किसी प्रश्न के अंग्रेजी और हिन्दी रूपान्तरणों में भिन्नता होने की स्थिति में अंग्रेजी रूपान्तरण सही माना जायेगा जहाँ प्रश्न-पत्र दोनों भाषाओं में है।
  6. सही उत्तर का चयन करें तथा सम्बन्धित [(A) अथवा (B) अथवा (C) अथवा (D)] गोले को ओ.एम.आर. शीट में काला करें।
  7. किसी प्रश्न में एक से अधिक गोले को काला करने पर उसे जाँचा नहीं जायेगा।
  8. ओ.एम.आर. शीट पर किसी तरह का चिह्न न बनायें और न ही उसे मोड़ें।
  9. प्रश्न-पुस्तिका से पृष्ठ निकालते हुए पाये जाने पर परीक्षार्थी को अयोग्य घोषित किया जा सकता है और उसके विरुद्ध विधिक कार्यवाही भी की जा सकती है।
  10. अनुचित साधनों का उपयोग करने पर परीक्षार्थी को परीक्षा के लिए अयोग्य घोषित कर दिया जायेगा।
  11. सेलफोन, संगणक और ऐसी किसी भी अन्य प्रविधियों को परीक्षा भवन में लाने की अनुमति नहीं है।
  12. ओ.एम.आर. शीट की मूल प्रति वीक्षक को सुपुर्द किये बिना किसी भी परीक्षार्थी को अपना स्थान छोड़ने की अनुमति नहीं है। परीक्षार्थी प्रश्न-पुस्तिका एवं ओ.एम.आर. शीट की कार्बन प्रति को अपने साथ ले जा सकेगा।

1. Carrageenin is extracted from :
  - (A) Chondrus crispus
  - (B) Sargassum
  - (C) Gracilaria
  - (D) Laminaria
  
2. Which of the following class has aseptate and coenocytic hyphae ?
  - (A) Ascomycetes
  - (B) Deuteromycetes
  - (C) Phycomycetes
  - (D) Basidiomycetes
  
3. The plant used as an alternative of cotton is :
  - (A) Sphagnum
  - (B) Rhodobryum
  - (C) Pogonatum
  - (D) Polytrichum
  
4. The main enzyme found in the saccharomyces cell is :
  - (A) Zymase
  - (B) Maltase
  - (C) Lipase
  - (D) Sucrase
  
5. Which one of the following orders has only fossil gymnosperms ?
  - (A) Gnetales
  - (B) Coniferales
  - (C) Cycadotilicales
  - (D) Ginkgoales
  
6. Bryophytes can be separated from algae because they :
  - (A) are thalloid
  - (B) have no conducting tissue
  - (C) possess archegonia with outer layer of sterile cells
  - (D) contain chloroplast
  
7. A green algae that has a possible role in evolution of land plants is :
  - (A) Fritschiella
  - (B) Cladophora
  - (C) Vaucheria
  - (D) Ankistrodesmus
  
8. Which plant is commonly known as Quill Worts ?
  - (A) Isoetes
  - (B) Ophioglossum
  - (C) Lycopodium
  - (D) Pteris
  
9. The true statement is that all algae have :
  - (A) Chlorophyll 'a' and Chlorophyll 'b'
  - (B) Chlorophyll 'a' and Carotene
  - (C) Chlorophyll 'b' and Carotene
  - (D) Phycobillins and Carotenoids
  
10. Blue-green algae growing in hot water springs is :
  - (A) Oscillatoria
  - (B) Rivuloria
  - (C) Trichodermium
  - (D) Azolla
  
11. Female gametophyte of Gnetum follows the development pattern of :
  - (A) Monosporic Type
  - (B) Bisporic Type
  - (C) Tetrasporic Type
  - (D) None of the above
  
12. In Lycopodium the stele is :
  - (A) Siphonostele
  - (B) Meristele
  - (C) Polystele
  - (D) Protostele
  
13. Hygroscopic structures in the sporophytes of bryophytes are :
  - (A) Annulus and Calyptra
  - (B) Calyptra and Operculum
  - (C) Annulus and Peristome
  - (D) Peristome and Elaters
  
14. Megasporophylls of pteridophytes are comparable to which structure of angiosperms ?
  - (A) Ovule
  - (B) Stamen
  - (C) Carpel
  - (D) Microsporophyll

15. Chitin is a polymer of which substance ?  
 (A) N Acetyl B-glucose amine  
 (B) N Acetyl D-glucose amine  
 (C) Glucose amine  
 (D) M Methyl B-glucose amine
16. Invertase divides sucrose into :  
 (A) Glucose + Glucose  
 (B) Glucose + Maltose  
 (C) Glucose + Fructose  
 (D) Glucose + Lactose
17. A specimen or other element selected from the original material to serve as a nomenclatural type, when no holotype was designated at the time of publication or as long as it is missing is called :  
 (A) Neotype  
 (B) Lectotype  
 (C) Syntype  
 (D) Prototype
18. Phylogenetic system brings out :  
 (A) Reproductive similarities  
 (B) Grouping according to morphological characters  
 (C) Grouping on the basis of increasing complexities  
 (D) Grouping according to evolutionary trends
19. What is the standard size of plant press ?  
 (A) 35 cm × 40 cm  
 (B) 35 cm × 45 cm  
 (C) 30 cm × 40 cm  
 (D) 30 cm × 45 cm
20. Which of the following two regions from India included as hot spot ?  
 (A) Southern Himalayas and Western Ghat  
 (B) Northern Himalayas and Western Ghat  
 (C) Eastern Himalayas and Western Ghat  
 (D) Southern Himalayas and Eastern Ghat
21. The flagella of bacteria are composed of :  
 (A) Protein  
 (B) Lipid  
 (C) Cellulose  
 (D) Carbohydrate
22. Species living in different geographical areas are :  
 (A) Sibling species  
 (B) Sympatric species  
 (C) Morpho species  
 (D) Allopatric species
23. Cyanobacteria cultivated in water tank as protein riched are :  
 (A) Spirulina  
 (B) Nostoc  
 (C) Oscillatoria  
 (D) Dunaliella
24. Complete virus particle is called :  
 (A) Viricide  
 (B) Virion  
 (C) Peplomer  
 (D) Capsomeres
25. Which of the following disease is not caused by Virus ?  
 (A) Polio  
 (B) Rabies  
 (C) Tuberculosis  
 (D) AIDS
26. The Branch of microbiology that studies the spread of disease is called :  
 (A) Epidemiology  
 (B) Pathology  
 (C) Medical microbiology  
 (D) Immunology
27. Which of the following type of vaccines were recently authorized for Covid-19 ?  
 (A) mRNA Vaccine  
 (B) Toxoid Vaccine  
 (C) Conjugated Vaccine  
 (D) Line attenuated
28. Small chemical groups on the antigen molecule that can react with antibody :  
 (A) Allotope  
 (B) Isotope  
 (C) Paratope  
 (D) Epitope

29. Which of the following is a third generation pesticide ?
- Organo phosphates
  - Pheromones
  - Carbamates
  - Pathogens
30. In cycadales the wood is :
- Manoxylic
  - Pycnoxylic
  - Manoxylic and Pycnoxylic
  - Sap Wood
31. Which is a vector of citrus Canker ?
- Planoccus citri
  - Phyllacustis citrella
  - Thrips nigriensis
  - Diphornea citri
32. Invertase is obtained from :
- Penicillium notatum
  - Saccharomyces cerevisiae
  - Aspergillus cerevisiae
  - Fusarium oxysporum
33. Ergot in bajra occurs due to :
- Claviceps purpurea
  - Claviceps gigantea
  - Claviceps fusiformis
  - Claviceps microcephala
34. What is the chromosome number in tapetum and endothecium of anthers ?
- $n$
  - $2n$
  - $3n$
  - $2n$  and  $n$
35. Function of plant trichomes in leaves is \_\_\_\_\_.
- Physical protection against predators
  - Chemical protection against herbivores
  - Preventing excess water loss
  - All of the above
36. In seed, germination is regulated by which two antagonistic plant hormones ?
- ABA and Cytokinin
  - Cytokinin and Gibberellins
  - ABA and Gibberellins
  - None of the above
37. Access and Benefit sharing of resources is under which convention ?
- UNEP
  - CBD
  - UNFCCC
  - UNDP
38. Which sustainable development goals refer to saving land and marine biodiversity ?
- 13 and 14
  - 14 and 15
  - 15 and 16
  - 16 and 17
39. What is the method to control solid waste pollution ?
- Composting
  - Recycling
  - Burning to generate electricity
  - All of the above
40. Example of *in situ* conservation is :
- Tissue culture
  - Biosphere reserve
  - Gene bank
  - Pollen bank
41. Plant seed and stem fiber are found in :
- cotton and hemp
  - cotton and flax
  - agave and linum
  - all of the above
42. Essential oil is extracted from which plant ?
- Rosa*
  - Jasminum*
  - Eucalyptus*
  - All of the above

43. Major Biomes of the world include :
- Grassland and Forest
  - Desert and Tundra
  - Taiga and Savanna
  - All of the above
44. Clay, sand, peat, loam are types of :
- Chemicals
  - Soil
  - Air particles
  - Fertilizers
45. Fruit ripening hormone present in plants is :
- Ethylene
  - Benzene
  - Chlorine
  - Acetylene
46. Forage plants grown in Rajasthan are :
- Pennisetum*
  - Cyamopsis*
  - Sorghum*
  - All of the above
47. Which is NOT a analytical character for studying plant communities ?
- Basal cover
  - Leaf area
  - Constance
  - Dominance
48. Where are cryobanks and seed banks situated ?
- NBPGR
  - CSIR
  - DBT
  - BSI
49. What is the function of self-incompatibility in plants ?
- Prevents inbreeding
  - Promotes outcrossing
  - Interaction between pollen and pistil
  - All of the above
50. What synthetic characters are studied in plant communities ?
- Density
  - Fidelity
  - Frequency
  - All of the above
51. Tannius are NOT found in which plant part ?
- Flowers
  - Leaves
  - Bark
  - Galls
52. Edible plant oil is obtained from :
- Jatropha* and Brassica
  - Coconut and Peanut
  - Mango and Sunflower
  - Jackfruit and Soyabean
53. Which tree produces gum ?
- Acacia mangium*
  - Acacia tortilis*
  - Cassia fistula*
  - Acacia senegal*
54. Grazing food chain starts from :
- herbivores
  - green plants
  - carnivores
  - insects
55. Which is NOT a pollutant ?
- smoke
  - dust
  - humus
  - sulphur
56. Fluoride in air comes from which source ?
- Industry smoke
  - Volcanoes
  - Insecticide sprays
  - All of the above

57. What is NOT part of soil complex ?  
 (A) Chemicals fertilizers  
 (B) Minerals  
 (C) Organisms  
 (D) Humus
58. Phenomena when concentration of chemicals increases continuously at successive trophic levels in a food chain is called :  
 (A) Energy flow  
 (B) Biomagnification  
 (C) Phytoremediation  
 (D) Nutrient cycling
59. Climax community developed due to biotic disturbances is called :  
 (A) Zootic  
 (B) Grazing  
 (C) Biotic  
 (D) Anthropogenic
60. CFC is a cause of :  
 (A) glacier melting  
 (B) hole in ozone layer  
 (C) radiation  
 (D) sea level rise
61. Which is critically endangered plant species of Rajasthan ?  
 (A) *Calotropis Gigantea*  
 (B) *Cleome Vahliana*  
 (C) *Tribulus Rajasthanensis*  
 (D) *Salvadora Persica*
62. Avenue trees are planted for :  
 (A) Wood  
 (B) Shade  
 (C) Fodder  
 (D) Oil
63. What is the important reason for extinction of plants ?  
 (A) Rabitat loss  
 (B) Over exploitation  
 (C) Poor reproduction  
 (D) All of the above
64. Furniture is made from which plants ?  
 (A) Teak and Bamboo  
 (B) Mango and Applewood  
 (C) Sandalwood and pine  
 (D) Pine and cassia
65. (I) Stinging trichomes secrete chemicals.  
 (II) Trichomes are branched and biseriate.  
 (A) (I) true (II) false  
 (B) (I) false (II) true  
 (C) (I) and (II) both true  
 (D) (I) and (II) both false
66. Pollen allergy is caused during which growth phase ?  
 (A) Vegetative growth  
 (B) Anthesis  
 (C) Fruit set  
 (D) Seed formation
67. Which of the following factors do not affect stomatal movement ?  
 (A)  $H^+$  -ATPases  
 (B)  $K^+$  ion  
 (C)  $Na^+$  ion  
 (D) Abscisic acid
68. Active membrane transport take place by ATP - powered pumps. Some of them are mentioned below. Find the one which is not correct ?  
 (A) P-class pump  
 (B) F-and V-class pump  
 (C) Vesicle transport  
 (D) ABC super family

69. Based on the R group, the Aromatic amino acids having benzene ring in their side chain are :
- Serine, Threonine
  - Phenylalanine, Tyrosine
  - Valine, Isoleucine
  - Cystein, Methionine
70. Which of the statement is not correct for the Proteins ?
- Noncovalent hydrophobic effect is the major driving force in protein folding.
  - Salt bridges are commonly found across protein parts which are joined by flexible hinges.
  - The electrostatic interactions are important in protein folding, stability, flexibility and function.
  - In systemic protein, flexibility is reflected by small scale side chain.
71. What is holoenzyme ?
- It is a prosthetic group which consists of a coenzyme that is tightly or even covalently and permanently bound to a protein.
  - They are cosubstrates which are transiently bound to the protein.
  - It is apoenzyme with cofactor.
  - It is an inactive enzyme, the apoenzyme without the cofactor.
72. Select the correct answer for glycoproteins :
- Glycoproteins are proteins which contain oligosaccharide chains covalently attached to amino acid side chain.
  - The protein to which carbohydrate is attached in a cotranslational or posttranslational modification.
  - Glycoproteins are proteins to which various sugar chains are covalently linked.
  - All of the above
73. Find the contradictory answer in the role of photorespiration :
- It promotes nitrogen assimilation
  - Photorespiratory pathway is a major source of hydrogen peroxide in photosynthetic cells
  - It promotes additional  $\text{CO}_2$  to boost photosynthesis
  - It influences multiple signalling pathways
74. In  $\text{C}_4$  plants first  $\text{CO}_2$  fixation produces :
- Malate
  - Oxaloacetate
  - Aspartate
  - Phosphoenolpyruvate
75. In the Glycolysis of respiration which of the equation is not correct ?
- (A)  $\text{Glucose} + \text{ATP} \xrightarrow{\text{Hexokinase, Mg}^{2+}} \text{Glucose - 6 - Phosphate} + \text{ADP}$   
 $\text{Glucose - 6 - Phosphate} \xrightarrow{\text{Phosphohexose isomerise, Mg}^{2+}} \text{Fructose - 6 - Phosphate}$
- (B)  $\text{Fructose - 6 - Phosphate} + \text{ATP} \xrightarrow{\text{Phospho fructokinase, Mg}^{2+}} \text{Fructose - 1,6 - bishosphate} + \text{ADP}$   
 $\text{Fructose - 1,6 - bishosphate} \xrightarrow{\text{Aldolase}} \text{3 - phosphoglyceraldehyde} + \text{dihydroxyacetone phosphate}$
- (C)  $\text{3 - phosphoglyceraldehyde} + \text{NAD} \xrightarrow{\text{Glyceraldehydphosphate hydrogenase}} \text{1,3 - bisphosphoglycerate} + \text{NADH} + \text{H}^+$   
 $\text{1,3 - bisphosphoglycerate} + \text{ADP} \xrightarrow{\text{Phosphoglycerate kinase, Mg}^{2+}} \text{3 - phosphoglycerate} + \text{ATP}$
- (D)  $\text{3 - phosphoglycerate} \xrightarrow{\text{Phosphoglyceromutase, Mg}^{2+}} \text{2 - phosphoglycerate}$   
 $\text{2 - phosphoglycerate} \xrightarrow{\text{Pyruvate kinase}} \text{phosphoenol pyruvate} + \text{ATP}$   
 $\text{2 phosphoenol pyruvate} + 2 \text{ADP} \xrightarrow{\quad} \text{pyruvic acid} + 2 \text{ATP}$
76. Two enzyme systems are required for fatty acid formation, Acetyl CoA carboxylase (ACCase) and fatty acid synthase. Two molecular forms of ACCase are identified, the multisubunit complex (MS complex) ACCase and multifunctional (MF) ACCase. The MS complex ACCase which is involved in *de novo* fatty acid synthesis in plants is composed of how many independent polypeptides ? They are :
- Two
  - Three
  - Four
  - Five



77. Mostly fatty acid biosynthesis in plants occur in the :  
 (A) Chloroplast  
 (B) Cytosol  
 (C) Mitochondria  
 (D) Endoplasmic reticulum
78. Which of the statement regarding Tannins is not totally correct ?  
 (A) Tannins are phenylporpanoid compounds often condensed to polymers of variable length.  
 (B) Tannins have molecular weights ranging from 300 up to 15,000 Daltons.  
 (C) Tannins are a class of astringent that binds to and precipitate proteins and various other organic compounds including amino acids and alkaloids.  
 (D) Some of the most common dietary sources of tannins include tea, coffee, wine and chocolate.
79. For phytohormone ethylene which statement is correct ?  
 (A) It promotes or inhibits growth  
 (B) It regulates senescence process  
 (C) It governs the development of leaves, flowers and fruits  
 (D) All of the above
80. How many proteins are present in nucleosome ?  
 (A) 2  
 (B) 4  
 (C) 6  
 (D) 8
81. Compare between Autopolyploidy and Allopolyploidy and identify the correct statement.  
 (A) Autopolyploidy is when an individual has more than two sets of chromosome, all derived from a single parental species; while in Allopolyploidy, the individual has more than two copies, but derived from different species.  
 (B) In plants Allopolyploidy has been considered much more common than Autopolyploidy.  
 (C) None of the above statements are correct.  
 (D) Both the statements (A) and (B) are correct.
82. Genetic recombination in bacteria has been demonstrated by the following processes as mentioned below. Which is the process in which DNA is transported from one bacterium to another with the aid of a virus ?  
 (A) Conjugation  
 (B) Transduction  
 (C) Transformation  
 (D) None of the above
83. "Tata box" is consensus sequence located in :  
 (A) Promoter region of a gene.  
 (B) Operater region of a gene.  
 (C) Cystrone region of a gene.  
 (D) None of the above.
84. Find the significance of intron which is **not** correct ?  
 (A) Introns are important for gene expression and regulation.  
 (B) Intorns play important role in producing multiple variant proteins from a single gene in eukaryotic cell.  
 (C) Introns can increase transcript levels by affecting the rate of transcription and transcript stability.  
 (D) Introns play important role in gene silencing.
85. Split gene means presence of :  
 (A) transposable elements in between the gene  
 (B) introns and exons  
 (C) transposon in between exon  
 (D) stop codon in between a gene
86. Which are not chemical mutagens ?  
 (A) Acridines, Mustard  
 (B) Alkyl sulphonates, Maleic hydrazide  
 (C) Hydroxylamine, Ethyleneoxide  
 (D) Nitric acid, Nonalkylating agents

87. Which statement about "Transposons" is not correct?
- (A) Transposons are of three types - Insertion sequences, Simple transposons and Complex transposons.
  - (B) Their characteristic feature is the presence of inverted terminal repeat sequences.
  - (C) Some transposons have genes that code for one or more proteins which might include resistance factors in bacteria acting against antibiotics.
  - (D) Some transposons carry genetic information necessary for their transposition.
88. Which enzymes are involved in Nucleotide Excision Repair mechanism ?
- (A) DNA glycosylases, AP endonuclease, dRP lyase, DNA polymerase, DNA ligase
  - (B) Uvr A, B, C exonuclease, Uvr D helicase, DNA polymerase, DNA ligase
  - (C) Photolyase; 06-methylguanine methyltransferase.
  - (D) MutH-MutL-MutS (MutHLS), Helicase II, MutU, exonuclease I, DNA polymerase III, DNA ligase
89. What is antisense RNA ?
- (A) A single stranded RNA that is complementary to a protein coding messenger RNA (mRNA).
  - (B) A single stranded RNA that can act as messenger RNA.
  - (C) A single stranded RNA that can be translated by the host cell
  - (D) None of the above
90. Cot curve is meant to determine :
- (A) Genome size
  - (B) Relative proportions of single copy and repetitive sequences
  - (C) Both of the above
  - (D) None of the above
91. Which statement about Flow cytometry is not correct?
- (A) It is a rapid and performs chemical purification of heterogeneous mixture of cells
  - (B) It is a technique used to detect and measure physical and chemical characteristics of population of cells or particles.
  - (C) It is a rapid and quantitative method for analysis and purification of cells in suspension.
  - (D) Determination of the phenotype and function and even sorting of live cells can be done.
92. Match the functions with the cell organelles and find out the mismatch.
- (A) Peroxisome mainly responsible for fatty acid breakdown.
  - (B) Lysosome mainly responsible to breakdown proteins.
  - (C) Endosome engulfs the stuff outside the cell and carries it to different places in the cell.
  - (D) Centrosome serves as the main microtubule organising centre during mitosis.
93. Modification of hnRNA includes :
- (A) 5' capping with 7-Methylguanosine
  - (B) Polyadenylation
  - (C) Splicing
  - (D) All of the above
94. Which statement is not correct about snRNA ?
- (A) It is non-coding RNA molecule
  - (B) The length of an average snRNA is approximately 200 nucleotides
  - (C) Their role is in ribosomal RNA processing
  - (D) They have fundamental roles in RNA metabolism

95. What is the role of S 1 Nuclease ?
- (A) Digestion of RNA nucleotides
  - (B) Digestion of single strand DNA
  - (C) Both of the above
  - (D) None of the above
96. Determine the functions of CTD of RNA polymerase.
- (A) The initiation of DNA transcription and capping of the RNA transcript.
  - (B) The initiation of DNA transcription and attachment to the spliceosome for RNA splicing.
  - (C) The capping of the RNA transcript and attachment to the spliceosome for RNA splicing.
  - (D) The initiation of DNA transcription, capping of the RNA transcript and attachment to the spliceosome for RNA splicing.
97. Which statement is correct regarding Type II restriction enzyme ?
- (A) It requires ATP for restriction
  - (B) It recognizes a palindromic sequence 4-8 bp in length
  - (C) It cleaves the DNA from near the restriction site
  - (D) All of the above
98. Find the correct statement regarding apoptosis.
- (A) Apoptosis has three stages : Induction, early phase and late phase
  - (B) There are two different types of apoptosis : the intrinsic pathway - mediated by extracellular death receptors and extrinsic pathway - mediated by mitochondria
  - (C) Apoptosis is the process of programmed cell death
  - (D) All of the above
99. Identify the fact about *in situ* hybridization.
- (A) *In situ* hybridization is a laboratory technique in which a single stranded radioactive labelled or chemical attached DNA or RNA sequence is used as probe to form complementary base pairs with DNA/RNA present in a tissue or chromosome sample.
  - (B) The *in situ* hybridization determines the absence of RNA expression.
  - (C) By *in situ* hybridization an organism can be identified.
  - (D) All of the above.
100. The vitamins added to the tissue culture medium are :
- (A) Nicotinic acid, Thiamine and Glycine
  - (B) Thiamine, Glycine and Pyredoxine
  - (C) Nicotinic acid, Thiamine and Pyredoxine
  - (D) All of the above

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SPACE FOR ROUGH WORK / रफ कार्य के लिये जगह

SEAL