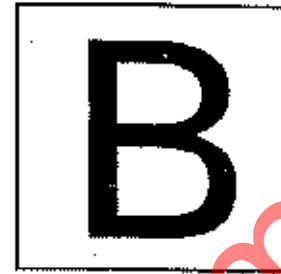


T.B.C. : N-DTQ-K-DQV

TEST BOOKLET SERIES

Serial No 018702



TEST BOOKLET  
BOTANY

Time Allowed : Two Hours

Maximum Marks : 300

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES A, B, C OR D AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside.  
DO NOT write anything else on the Test Booklet.
4. This Test Booklet contains 120 items (questions). Each item is printed both in Hindi and English. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each item.
5. You have to mark all your responses ONLY on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. All items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take away with you the Test Booklet.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. Penalty for wrong answers :  
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
  - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third (0.33) of the marks assigned to that question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

ध्यान दें : अनुदेशों का हिन्दी रूपान्तर इस पुस्तिका के पिछले पृष्ठ पर छपा है ।

1. The paddy grains contain the below-mentioned protein fraction in predominant quantity :

(a) Albumins

(c) Prolamins

(d) Globulins

Page 198  
Bhojwani's  
Bhatnagar

2. Seed germination in grasses and sedges is

(a) hypogeal

(b) epigeal

(c) cryptogeal

(d) mesogeal

3. An accessory fleshy structure present on or around the micropyle of seed is called

(a) aril

(b) caruncle

(c) arilode

(d) operculum

4. In angiosperms, the entry of pollen tube into the embryo sac at the micropylar end is

(a) between synergid and central cell.

(b) through filiform apparatus.

(c) between synergid and egg.

(d) directly into the egg.

5. The kind of inversion confined to a single arm of the chromosome, i.e., when both the inversion breakpoints are located in the same arm, is termed as

(a) pericentric

(b) paracentric

(c) independent

(d) included

6. Consider the following statements :

Self-incompatibility is defined as

1. A pre-zygotic barrier to self-fertilization in plants that otherwise produce fully functional gametes.

2. An intraspecific reproductive barrier regulated by genetically determined self-recognition self-rejection mechanism.

3. An intraspecific reproductive barrier where cell-to-cell recognition allows the pistil to recognize and reject pollen from genetically related individual.

4. A pre-zygotic barrier to self-fertilization in plants that produce non-functional male gametes.

Which of the statements given above is/are correct ?

(a) 1, 2, 3 and 4

(b) 1, 2 and 3 only

(c) 3 and 4 only

(d) 1 only

7. Culturing of both ovules and pollen in an artificial medium eliminating the gynoecial tissue altogether is employed during

(a) intraovarian pollination ♀

(b) test-tube fertilization

(c) bud pollination ♀

(d) double fertilization ♀

8. Sporophytic self-incompatibility is common in

(a) Poaceae

(b) Liliaceae

(c) Asteraceae

(d) Solanaceae

9. What is the substitute of endosperm for the nutrition of embryo in the family Podostemaceae?

- (a) Perisperm
- (b) Pseudo embryo sac
- (c) Mycorrhizal association
- (d) Chlorophyllous integuments

10. The first division of the zygote in angiosperms is usually

- (a) transverse and symmetrical
- (b) transverse and asymmetrical
- (c) vertical and symmetrical
- (d) vertical and asymmetrical

11. Protein glycosylation takes place predominantly in

- (a) Mitochondrion
- (b) Chloroplast
- (c) Endoplasmic reticulum
- (d) Golgi apparatus

12. Which one of the following properties of phospholipids is the basis for the formation of biological membranes?

- (a) Hydrophobic only
- (b) Allosteric
- (c) Amphipathic
- (d) Hydrophilic only

13. The periplasmic space found in prokaryotic cell contains

- (a) hydrolytic enzymes
- (b) lipids
- (c) polysaccharides
- (d) cytoplasm

14. The "S-phase activator" found in S-phase of mitosis is responsible for

- (a) membrane synthesis
- (b) lipid synthesis
- (c) synthesis of secondary metabolites
- (d) DNA synthesis

15. The intertwining of sister chromatids around each other during early prophase of mitosis is termed as

- (a) chromatid coiling
- (b) minor coiling
- (c) plectonemic coiling
- (d) paranemic coiling

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Encyclopedia  
Recent Advance  
in Embryology  
→ Diwan & Shakar

16. In which stage of meiosis are found the recombination nodules that appear at intervals on the synaptonemal complex and are thought to mediate crossing-over?

- (a) Leptotene
- (b) Pachytene
- (c) Zygotene
- (d) Diplotene

17. A change in the position of a gene ("position effect") is a consequence of

- (a) deletion
- (b) duplication
- (c) paracentric inversion
- (d) pericentric inversion

18. Methyl methanesulfonate, commonly used for inducing chromosome aberrations, is a

- (a) base analog
- (b) alkylating agent
- (c) intercalating agent
- (d) fluorochrome

19. Doubling of chromosome number of F<sub>1</sub> hybrid derived from two distinctly different species results in

- (a) Allopolyploid
- (b) Autopolyploid
- (c) Euhaploid
- (d) Polyhaploid

20. In which of the following conditions is the extra chromosome a product of a translocation?

- (a) Primary trisomics  
 (b) Tertiary trisomics  
 (c) Secondary trisomics  
 (d) Double monosomics

21. Which of the following is a post-transcriptional modification of mRNA?

- (a) Polyadenylation  
 (b) Polylinker insertion  
 (c) Ligation  
 (d) Protonation

22. Selectable marker that provides resistance to the antibiotic Kanamycin is

- (a) Gentamycin acetyltransferase  
 (b) Hygromycin phosphotransferase (hpt)  
 (c) Streptomycin phosphotransferase  
 (d) Neomycin phosphotransferase (npt II)

23. Match List I with List II and select the correct answer using the code given below the lists:

List I  
(Discovery)

List II  
(Scientist)

- |                                      |                       |
|--------------------------------------|-----------------------|
| A. Presence of nucleic acid in cells | 1. E. Heitz           |
| B. DNA is a genetic material         | 2. O.T. Avery et al   |
| C. Artificial synthesis of gene      | 3. F. Miescher        |
| D. Supernumerary chromosomes         | 4. Y. Kawada          |
|                                      | 5. H.G. Khorana et al |

Code :

	A	B	C	D
(a)	1	5	3	2
(b)	3	2	5	4
(c)	3	2	5	1
(d)	1	5	2	3

24. During mitosis, which of the following accounts for the bulk of spindle structure?

- (a) Interpolar microtubules  
 (b) Astral microtubules  
 (c) Kinetochores microtubules  
 (d) Chromosomal microtubules

25. High proportion of cholesterol and lesser proportion of phospholipids are found in

- (a) bacterial membrane  
 (b) plasma membrane  
 (c) endoplasmic reticulum  
 (d) mitochondrial membrane

26. Match List I with List II and select the correct answer using the code given below the lists:

List I  
(Scientific discovery)

List II  
(Scientist associated with the discovery)

- |                          |   |                                      |
|--------------------------|---|--------------------------------------|
| A. Split gene            | 5 | 1. Howard Temin                      |
| B. Reverse transcription |   | 2. Phillip Sharp and Richard Roberts |
| C. DNA polymerase        | 4 | 3. Barbara McClintock                |
| D. Transposable elements | 3 | 4. Arthur Kornberg                   |
|                          |   | 5. Walter Gilbert                    |

Code :

	A	B	C	D
(a)	5	2	4	3

(b)	2	1	4	3
-----	---	---	---	---

(c)	2	4	1	3
-----	---	---	---	---

(d)	5	1	4	3
-----	---	---	---	---

27. The non-random participation in successive cross-overs of the four chromatids belonging to the two homologous chromosomes is termed as

- (a) chromatid interference
- (b) chromosome interference
- (c) position interference
- (d) chiasma interference

28. Which one of the following terms is used to express interspecific hybrids that are generally sterile or poorly fertile?

- (a) Heterosis *Page 4*
- (b) Luxuriance *Book: Heterosis & Breeding in Vegetable Crops, by Rai & Rai.*
- (c) Heterostetiosis
- (d) Average heterosis

29. Which one of the following techniques is used for the production of monoclonal antibodies?

- (a) Transformation
- (b) Hybridoma
- (c) Saturation hybridization
- (d) Southern blotting

30. A layer of membrane vesicles formed across the equatorial region of the spindle as the anaphase ends in a plant cell is called

- (a) phragmoplast
- (b) middle lamella
- (c) cleavage
- (d) contractile ring

31. Consider the following statements :

1. The first seed-bearing ferns and gymnosperms such as conifers appeared during the Silurian Period.
2. The Deccan Traps of India were formed during the Permian Period.

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

32. The study of finches at a particular place enabled Darwin to come to some important conclusions about the origin of species and the theory of evolution. What was the place of finches made famous by Darwin ?

- (a) Australia
- (b) Galapagos Archipelago
- (c) Strait of Magellan
- (d) Tahiti and New Zealand

33. The petaloid stamens with labellum are found in the genus

- (a) *Calotropis* *Page 268*
- (b) *Corchorus*
- (c) *Crossandra* *Orin*
- (d) *Canna*

*Systematic Botany*  
by  
*Bhattacharya.*

34. Telomeres involved in chromosome movement are termed as

- (a) Neocentromeres
- (b) Prototelomeres
- (c) Eutelomeres
- (d) Chromomere *φ*

35. According to the recent system of classification proposed by Hutchinson, the most primitive family among monocots is

- (a) Alismataceae
- (b) Butomaceae
- (c) Hydrocharitaceae
- (d) Poaceae

36. A primary meristem which undergoes differentiation to form the primary vascular tissues, is called

- (a) Protoderm
- (b) Procambium
- (c) Vascular cambium
- (d) Lateral meristem

37. Tricarpellary syncarpous ovary with parietal placentation is found in

- (a) Brassicaceae
- (b) Musaceae
- (c) Cucurbitaceae
- (d) Liliaceae

38. Which one of the following statements about *Triticale* (man-made cereal) is *not* correct?

- (a) It is a hybrid between wheat and rye.
- (b) Its protein content is higher than that of *Triticum aestivum*.
- (c) Its gluten content is relatively higher than in wheat grain.
- (d) It is more winter hardy.

39. Both tricarpellary ovary and unisexual condition are mostly found in

- (a) Urticaceae
- (b) Cucurbitaceae
- (c) Euphorbiaceae
- (d) Ebenaceae

40. The family Gramineae is believed to have originated from Liliaceae. Which one of the following is regarded as an advanced feature of Gramineae over Liliaceae?

- (a) Hypogyny
- (b) Actinomorphy
- (c) Reduction in the number of stamens
- (d) Coalescence of carpels

41. One of the noteworthy demerits of Hutchinson's system of classification is

- (a) Dicotyledons are divided into Lignosae and Herbaceae.
- (b) Monophyletic origin of angiosperms.
- (c) Grasses are regarded as the most advanced among monocots.
- (d) Butomaceae and Alismataceae are the most primitive among monocots.

42. If a plant's name is rejected when there is an older valid name based on the same type, it is referred to as

- (a) Autonym
- (b) Typonym
- (c) Synonym
- (d) Tautonym

43. Who gave the concept that primitive angiospermous flower is unisexual, naked and borne in catkin-like inflorescence?

- (a) Engler
- (b) Bessey
- (c) J.D. Hooker
- (d) Hutchinson

44. F.E. Fritsch (1935) classified algae into several classes. Which one of the following is the correct order according to the course of evolution?

- (a) Xanthophyceae - Chlorophyceae - Phaeophyceae - Rhodophyceae
- (b) Chlorophyceae - Xanthophyceae - Phaeophyceae - Rhodophyceae
- (c) Chlorophyceae - Xanthophyceae - Rhodophyceae - Phaeophyceae
- (d) Rhodophyceae - Phaeophyceae - Xanthophyceae - Chlorophyceae

45. Consider the following plants :

1. *Picea*
2. *Pinus*
3. *Platanus*
4. *Populus*

In which of the above plants are vessels and companion cells absent?

- (a) 1 and 2
- (b) 1 and 3
- (c) 1 and 4
- (d) 2 and 4

46. Consider the following statements :

1. The maize plant is monoecious and dichinous.
2. In maize kernel, pericarp is fused with testa.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

47. With reference to gymnosperms, which one of the following statements is no correct?

- (a) Flowers are always dichinous.
- (b) Male gametophyte shows one or more prothallial cells.
- (c) Male gametes are always motile.
- (d) The haploid female gametophyte itself functions as endosperm.

48. Consider the following statements :

1. A companion cell is derived from the same mother cell as its associated sieve element.
2. Companion cells remain alive even after mature sieve element ceases to function.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

49. In which of the following types of ovules the micropyle and the funiculus come to lie in one straight line?

- (a) Orthotropous
- (b) Anatropous
- (c) Hemianatropous
- (d) Campylotropous

50. Brinjal, tomato, potato, cauliflower, radish, lettuce and cabbage belong to

- (a) only one plant family
- (b) two plant families
- (c) three plant families
- (d) four plant families

51. Which one of the following families is characterized by the absence of endosperm?

- (a) Cucurbitaceae
- (b) Fabaceae
- (c) Orchidaceae
- (d) Poaceae

52. Consider the following plants :

1. Litchi ✓
2. Nutmeg
3. Water lily

In which of the above is aril found ?

- (a) 1 only  
(b) 1 and 2 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

53. Consider the following pairs :

Plant	Inflorescence
1. <i>Amaranthus</i>	: Spike
2. <i>Iberis</i>	: Corymb
3. <i>Quercus</i>	: Catkin

Which of the pairs given above is/are correctly matched ?

- (a) 1 only  
(b) 1 and 2 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

54. Which form of carbon is taken up by marine and freshwater organisms for incorporation into Calvin cycle ?

- (a)  $\text{CO}_2$  only  
(b)  $\text{HCO}_3^-$  only  
(c)  $\text{CO}_2$  and  $\text{HCO}_3^-$   
(d)  $\text{HCOOH}$

55. Sucrose is a preferred molecule for the translocation of photoassimilates because

- (a) it has exposed aldehyde groups.  
(b) it is a reducing sugar.  
(c) it has greater chemical stability than non-reducing sugars.  
(d) it has a relatively high free energy of hydrolysis.

56. The alternative route for glucose metabolism in both plants and animals is called oxidative pentose phosphate pathway. In plants, the enzymes for this pathway are localized in

- (a) mitochondria  
(b) peroxisomes  
(c) plastids  
(d) plastids and cytosol

57. The Rhizobia synthesize species specific nodulation factors (Nod factors) for the recognition of the host root hairs. Chemically, Nod factors are

- (a) Kinases  
(b) Flavonoids  
(c) Lipochito-oligosaccharides  
(d) Neutral lipids

58. The catalytic efficiency of several enzymes is controlled by certain metabolites which resemble neither substrates nor products of the enzyme. Such metabolites are known as

- (a) feedback inhibitors  
(b) allosteric effectors  
(c) competitive inhibitors  
(d) non-competitive inhibitors

59. The acceptors of electrons in lactate fermentation and alcohol fermentation respectively are

- (a) Pyruvate and sulphate  
(b) Oxygen and acetaldehyde  
(c) Acetaldehyde and oxygen  
(d) Pyruvate and acetaldehyde

60. Which one of the following biochemical pathways can be said to be an amphibolic pathway ?

- (a) Krebs cycle  
(b) Calvin cycle  
(c) Shikimate pathway  
(d) CAM cycle



61. A gene which suppresses the action of another gene not situated at the same locus of the homologous chromosome is termed as

- (a) jumping gene
- (b) supplementary gene
- (c) dominant gene
- (d) epistatic gene

62. DNA elements which are transposed via RNA are called

- (a) IS elements
- (b) copia-like elements
- (c) FB elements
- (d) retroposons

63. Match List I with List II and select the correct answer using the code given below the lists :

List I  
(Theory/Hypothesis/  
Models)

List II  
(Scientist)

A. Chiasma type theory

1. F.H.C. Crick (1966)

B. Copy-choice hypothesis

2. H. Creighton (1931)

C. Wobble hypothesis

3. H. Nilsson-Ehle (1909)

D. Multiple factor hypothesis

4. F.A. Janssens (1909)

5. J. Lederberg (1955)

Code :

	A	B	C	D
(a)	4	5	2	1
(b)	2	4	1	3
(c)	4	5	1	3
(d)	2	4	3	1

64. Which one of the following causes the ratoon stunting disease of sugarcane ?

- (a) Bacterium
- (b) Fungus
- (c) Protozoan
- (d) Virus

65. Consider the following pairs :

1. Powdery mildew : *Erysiphe graminis* in wheat
2. Late blight of potato : *Albugo candida*
3. False smut of rice : *Sclerotium oryzae*

Which of the above pairs is/are correctly matched ?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

66. Consider the following statements :

1. The tikka disease of groundnut is caused by three different fungi.
2. The red rot of sugarcane occurs due to the action of a nematode followed by a fungus.

Which of the statements given above is/are correct ?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

67. With reference to the biological control of plant diseases, consider the following statements :

1. *Bacillus penetrans* parasitizes root knot nematodes and eventually kills them.
2. Cells of *Xanthomonas campestris* are ingested by protozoa.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

68. Consider the following drugs :

1. Caffeine
2. Nicotine
3. Taxol
4. Isothiocyanate

Which of the above drugs are classified as alkaloids ?

- (a) 1, 2 and 3 only  
(b) 1, 2, 3 and 4  
(c) 2, 3 and 4 only  
(d) 1, 2 and 4 only

69. The characteristic flavour and aroma of apple is due to amyl esters of

1. Formic acid
2. Acetic acid
3. Caproic acid
4. Tartaric acid

Select the correct answer using the code given below :

- (a) 1 and 2 only  
(b) 1, 2 and 3  
(c) 3 and 4 only  
(d) 1 and 4 only

70. What is the name of the protein responsible for mitotic phase ?

- (a) M-phase kinase  
(b) Lamin  
(c) P34  
(d) Cyclin

71. The pungency in onion is due to a volatile oil chemically called

- (a) Allicin  
(b) Mercaptan  
(c) Cyanogenic glycoside  
(d) n-propyl disulphide

72. The alkaloids atisine, dihydroastisine, heterastine and hetisine are obtained from

- (a) *Apium graveolens*  
(b) *Atropa acuminata*  
(c) *Withania somnifera*  
(d) *Aconitum heterophyllum*

73. The dried female inflorescences of hops are used directly for flavouring and giving 'sparkle' to the beer. What is the botanical name of hops ?

- (a) *Thymus vulgaris*  
(b) *Fogostemon perilloides*  
(c) *Humulus lupulus*  
(d) *Anethum graveolens*

74. Which one of the following hallucinogenic plants has LSD (d-Lysergic Acid Diethyl Amide) as its active constituent ?

- (a) *Amanita muscaria*  
(b) *Rivea corymbosa*  
(c) *Cannabis sativa*  
(d) *Datura stramonium*

75. Haematoxylin, a yellow-orange dye, is extracted from which part of the plant *Hematoxylon campechianum* ?

(a) Leaves

(b) Heartwood

(c) Flowers

(d) Roots

76.

Consider the following :

1. Abscisic acid

2. Chlorophyll pigment

3. Gibberellin

Which of the above is/are terpenoids ?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

77.

*Datura* cell cultures possess the ability to convert 'hydroquinone' into 'arbutin' through the process of

(a) phosphorylation

(b) oxidation

(c) glycosylation

(d) hydrolysis

78. The product arising out of the fusion between a protoplast with nucleus and a protoplast without nucleus is called

(a) Cybrid

(b) Hybrid

(c) Somaclone

(d) Graft

79.

Nucleic acid sequences, which either originate partly or fully, or propagate through reverse transcription, are called

(a) plasmids

(b) insertion sequences

(c) retroelements

(d) transposons

80.

Match List I with List II and select the correct answer using the code given below the lists :

List I  
(Plant species)

List II  
(Secondary metabolites)

A. <i>Stevia rebaudiana</i>	1. Stevioside
B. <i>Coleus blumei</i>	2. Morphine
C. <i>Datura stramonium</i>	3. Reserpine
D. <i>Papaver somniferum</i>	4. Rosmarinic acid
	5. Scopolamine

Code :

	A	B	C	D
(a)	1	4	5	2
(b)	1	3	2	5
(c)	2	3	5	4
(d)	5	4	1	2

81. Consider the following statements :

1. The two-dimensional environment of grassland would have a longer food chain than the three-dimensional environment of forest canopy.
2. The more advanced an ecosystem, the less number of ecological niches it would have.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

82. Consider the following statements :

1. In tropical rain forests, the predominant soils are typically acidic and rich in iron oxides.
2. The tropical rain forests occupy about 11% of the land surface of the planet.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2

83. With reference to a National Park in India, consider the following statements :

1. Limited cattle grazing is permitted in a National Park.
2. No alterations are made in the boundaries of a National Park except through a resolution by the legislature of the State.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

84. Consider the following :

1. *Cassia tora*
2. *Capparis aphylla*
3. *Salvadora persica*

Which of the above is/are likely to be found in the desert regions of Rajasthan ?

- (a) 1 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2 and 3

85. Consider the following statements :

1. Mercury is poisonous in inorganic form only and not in organic form.
2. Fluorine in nature is found as fluoride.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

86. Eutrophication of water bodies is mainly caused by

- (a) Carbonates and oxides  
(b) Hydrocarbons and metals  
(c) Sulphates and carbonates  
(d) Phosphates and nitrates

87. Consider the following statements :

1. Ozone cannot enter plants through stomata.
2. Oxides of nitrogen can deplete the ozone in the stratosphere.

Which of the statements given above is/are correct ?

- (a) 1 only  
(b) 2 only  
(c) Both 1 and 2  
(d) Neither 1 nor 2

88. Consider the following :

1. Coal pits
2. Sewers
3. Volcanic eruptions

Which of the above is/are the source(s) of  $H_2S$  in the environment ?

- (a) 1 and 2 only  
(b) 2 only  
(c) 1 and 3 only

(d) 1, 2 and 3

89. Which one of the following linkages represents cellulose ?

- (a)  $\beta$ -1,3-Glucan  
(b)  $\gamma$ -1,4-Glucan

(c)  $\beta$ -1,4-Glucan

(d)  $\alpha$ -1,4-Glucan

90. Sodium alginate is a chemical used in the preparation of

- (a) agar-agar  
(b) agarose  
(c) synchronous cells

(d) synthetic seeds

91. The glyoxylate cycle involves enzymes of both glyoxysomes and mitochondria. Which of the following enzymes in this cycle are unique to the glyoxylate pathway ?

- (a) Malate dehydrogenase and malate synthase  
(b) Isocitrate lyase and citrate synthase  
(c) Citrate synthase and malate dehydrogenase  
(d) Malate synthase and isocitrate lyase

92. Zinc deficiency leads to a reduction in the synthesis of

- (a) Indole-3-acetic acid  
(b) Abscisic acid  
(c) Isopentenyl adenine  
(d) Zeatin

93. Which of the following elements is *not* involved in redox reactions in plant cells ?

- (a) Iron  
(b) Zinc  
(c) Copper  
(d) Sodium

94. Deficiency of which of the following elements is known to cause stunted growth in young plants and dark green colouration of leaves, which may be malformed and may contain small spots of dead tissue ?

- (a) Nitrogen  
(b) Phosphorus  
(c) Potassium  
(d) Magnesium

95. Which of the following factors/processes is *not* associated with the opening and closing of stomata ?

- (a) Ion transport  
(b) Photosynthesis  
(c) Blue light  
(d) Phytohormones

104. Bending of hypocotyls in the etiolated dicot seedlings is a photo-modulated response regulated by the photoreceptor namely

- (a) Cryptochrome
- (b) Phototropin
- (c) Phytochrome
- (d) Phytotropin

105. Which one of the following compounds is not a naturally occurring plant hormone?

- (a) Abscisic acid
- (b) Kinetin
- (c) Phenylacetic acid
- (d) Indole-3-butyric acid

106. Consider the following :

1. Phenylacetic acid (PAA)
2. Naphthalene acetic acid (NAA)
3. N-1-Naphthyl phthalamic acid (NPA)
4. 2,3,5-Tri-iodo benzoic acid (TIBA)

Which of the above is/are example/examples of auxin transport inhibitors?

- (a) 1 only
- (b) 1 and 3 only
- (c) 3 and 4 only
- (d) 2, 3 and 4

107. Which one of the following statements is not correct?

- (a) ABA represses  $\alpha$ -amylase gene expression.
- (b) Auxin and GA stimulate cell wall extensibility.
- (c) ABA and ethylene inhibit cell wall extensibility.
- (d) Loosening of cell wall occurs through the breakage and reformation of non-cellulosic polysaccharides, called as expansins, which cross-link the cellulose microfibrils.

108. In viviparous type of seed germination, the seeds undergo

- (a) twelve months of resting period
- (b) six months of resting period
- (c) three months of resting period
- (d) no resting period

109. Ethylene-stimulated swelling of stem and downward curvature of leaves, is referred to as

- (a) triple response
- (b) epinasty
- (c) climacteric response
- (d) nyctinasty

110. The tapetum in anther originates from

- (a) sporogenous tissue and epidermis
- (b) parietal layer and sporogenous tissue
- (c) cells of the connective tissue and epidermis
- (d) parietal layer and cells of the connective tissue

111. In angiosperms, a typical female gametophyte at the time of fertilization is

- (a) 7-celled, 7-nucleate
- (b) 7-celled, 8-nucleate
- (c) 4-celled, 4-nucleate
- (d) 4-celled, 5-nucleate

112. A mature pollen grain contains

- (a) 2 tube cells and 2 generative cells
- (b) 2 tube cells and 1 generative cell
- (c) 1 tube cell and 1 generative cell
- (d) 1 tube cell and 2 generative cells

113. The rapid growth of pollen tube is restricted to the

- (a) basal region
- (b) middle region
- (c) apical region
- (d) zone behind the apical region

114. Cells of the egg apparatus have cell wall

- (a) all over
- (b) confined to chalazal end
- (c) confined to middle region
- (d) confined to micropylar region

115. Xenogamy refers to

- (a) pollination between flowers borne by two different plants of the same species.
- (b) pollination between two flowers borne by the same plant.
- (c) pollination between two flowers borne by two different plants of allied species or genera.
- (d) pollination within the same bisexual flowers.

116. The egg nucleus and the sperm cell undergo enlargement prior to syngamy. Thus DNA content of both is extremely low. However, a mutual attraction of these two nuclei is due to a difference in

- (a) chromosome number
- (b) size
- (c) electrical charge
- (d) endogenous rhythms

117. When the development of the embryo takes place directly either from the haploid egg cell or from some other haploid cell of the embryo sac, it is known as

- (a) recurrent apomixis
- (b) non-recurrent apomixis
- (c) adventive embryony
- (d) vegetative propagation

118. The term chalazosperm refers to the

- (a) absence of endosperm.
- (b) persistent nucellus.
- (c) prominent tissue formed by the nucellar cells above the vascular bundle and arising from chalazal region of ovule.
- (d) cleavage and proliferation of embryo.

119. Cartagena Protocol adopted under the aegis of Convention on Biological Diversity in year 2000 deals with

- (a) Ozone layer
- (b) CO<sub>2</sub> emissions
- (c) Biosafety
- (d) Medicinal plants

120. Match List I with List II and select the correct answer using the code given below the lists :

List I  
(Name of the plant)

- A. Mango 4
- B. Castor 1
- C. Orchid 3
- D. Barley 2

List II  
(Type of seeds to which the given plants belong)

- 1. Dicotyledonous, albuminous
- 2. Monocotyledonous, albuminous
- 3. Monocotyledonous, exalbuminous
- 4. Dicotyledonous, exalbuminous

Code :

	A	B	C	D
<input checked="" type="checkbox"/> (a)	4	1	3	2
(b)	1	2	4	3
(c)	2	4	1	3
(d)	4	1	2	3