

Set No. 1

Question Booklet No.

Mrs. Batany

C-485

14P/219/4

(To be filled up by the candidate by blue/black ball-point pen)

Roll No.

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Roll No. (Write the digits in words)

Serial No. of OMR Answer Sheet

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

- (Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)
1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
 2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope.*
 3. *A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*
 4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
 5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
 6. *No overwriting is allowed in the entries of Roll No., Question Booklet no. and Set no. (if any) on OMR sheet and Roll No. and OMR sheet no. on the Question Booklet.*
 7. *Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.*
 8. *Each question in this Booklet is followed by four alternative answers. For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet.*
 9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
 10. *Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).*
 11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
 12. Deposit only OMR Answer Sheet at the end of the Test.
 13. You are not permitted to leave the Examination Hall until the end of the Test.
 14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 32

[उपर्युक्त निर्देश किसी भी अतिरिक्त-कामकाय पृष्ठ पर दिवने न हें।]



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ROUGH WORK
रफ़ कार्य

2

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No. of Questions : 150

प्रश्नों की संख्या : 150

Time : 2 Hours

समय : 2 घण्टे

Full Marks : 450

पूर्णाङ्क : 450

Note : (1) Attempt as many questions as you can. Each question carries 3 (Three) marks. **One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.**

अधिकाधिक प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक प्रश्न 3 (तीन) अंकों का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जायेगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा।

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.
यदि एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

01. A plant in which saporophytic generation is represented by zygote only

(1) *Pinus*

(2) *Selaginella*

(3) *Chlamydomonas*

(4) *Dryopteris*

02. Carrageenan, a jelly-like substance, is obtained from a marine alga called

(1) *Sargassum*

(2) *Fucus*

(3) *Chondrus*

(4) *Kelp*

03. Palmella stages occurs in

(1) *Spirogyra*

(2) *Chlamydomonas/Ulothrix*

(3) *Aspergillus*

(4) *Funaria*



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04. A protein rich organism is
- | | |
|-------------------------------|--------------------------|
| (1) <i>Spirulina/Nostoc</i> | (2) <i>Chlamydomonas</i> |
| (3) <i>Spirogyra/Ulothrix</i> | (4) <i>Oedogonium</i> |
05. Water bloom is commonly caused by
- | | |
|---------------------|----------------------|
| (1) Bacteria | (2) Green algae |
| (3) <i>Hydrilla</i> | (4) Blue green algae |
06. A fungus whose extract of sclerotia can be chemically altered to produce a powerful hallucinogenic drug is
- | | |
|------------------------------|-------------------------------|
| (1) <i>Aspergillus niger</i> | (2) <i>Penicillium</i> |
| (3) <i>Agaricus</i> | (4) <i>Claviceps purpurea</i> |
07. Litmus was previously obtained from
- | | |
|------------------------------|-------------------------------|
| (1) Puffball | (2) <i>Citraria islandica</i> |
| (3) <i>Rocella tinctoria</i> | (4) <i>Cladonia rangifera</i> |
08. "Damping off of seedlings" is due to
- | | |
|-------------------------------|-------------------------------|
| (1) <i>Nematode</i> | (2) <i>Albugo candida</i> |
| (3) <i>Fusarium oxysporum</i> | (4) <i>Pythium debaryanum</i> |
09. Rice crop was destroyed by a fungus which resulted in severe famine of Bengal in 1942-1943. It was due to
- | | |
|------------------------|-----------------------------|
| (1) <i>Penicillium</i> | (2) <i>Helminthosporium</i> |
| (3) <i>Rhizopus</i> | (4) <i>Puccinia</i> |

10. Phytoalexins produced by plants in response to fungal infection are
- (1) Proteins
 - (2) Lipids
 - (3) Glycoproteins
 - (4) Phenolic compounds
11. Bryophytes are amphibians because
- (1) They require a layer of water for carrying out sexual reproduction
 - (2) They occur in damp places
 - (3) They are mostly aquatic
 - (4) All the above
12. juvenile state of Moss is
- (1) Protonema
 - (2) Prothallus
 - (3) Capsule
 - (4) All the above
13. Number of peristome teeth in *Funaria* capsule is
- (1) 16 in one whorl
 - (2) 16 in two whorls
 - (3) 32 in two whorls
 - (4) 32 in one whorls
14. In Bryophytes, the posterior part of archegonium grows to protect the embryo. It is
- (1) Paraphysis
 - (2) Apophysis
 - (3) Calyptra
 - (4) Hypophysis
15. Which one is true moss
- (1) Bog Moss
 - (2) Reindeer Moss
 - (3) Club Moss
 - (4) Irish Moss

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- 16.** Kidney-shaped soral covering of *Dryopteris* is
- | | |
|--------------|----------------|
| (1) Ramentum | (2) Placenta |
| (3) Indusium | (4) Sporophyll |
- 17.** Neck canal cells in *Dryopteris* are
- | | |
|--------------------------|----------|
| (1) One with two nuclei | (2) Two |
| (3) One with one nucleus | (4) Four |
- 18.** Endodermis is trabecular in
- | | |
|--------------------------------|--------------------------|
| (1) Capsule axis of Moss | (2) Stem of <i>Pinus</i> |
| (3) Stem of <i>Selaginella</i> | (4) Stem of <i>Cycas</i> |
- 19.** Independent alternation of generations is present in
- | | |
|-----------------|-------------------|
| (1) Bryophytes | (2) Pteridophytes |
| (3) Gymnosperms | (4) Angiosperms |
- 20.** Basal swollen part of ligule of *Selaginella* is
- | | |
|-----------------|------------------|
| (1) Protonema | (2) Hydathodes |
| (3) Rhizopodium | (4) Glossopodium |
- 21.** The classification of Gymnosperms according to Sporne is based on
- | | |
|--------------------|------------------|
| (1) Wood anatomy | (2) Leaf form |
| (3) Seed structure | (4) All of these |
- 22.** The smallest Gymnosperm is
- | | |
|-----------------------------|---------------------------------|
| (1) <i>Ephedra triandra</i> | (2) <i>Thuja orientalis</i> |
| (3) <i>Zamia pygmaea</i> | (4) <i>Microcycas calocarpa</i> |

23. It is generally accepted that the earliest Gymnosperms arose in
(1) Devonian era (2) Carboniferous era
(3) Cretaceous era (4) All of these
24. How many living species of *Cycas* are found in India
(1) 10 (2) 8 (3) 6 (4) 4
25. From base to top, in a series T.S. cut of *Pentoxylon* stem, the number of xylem at the top is
(1) 3 (2) 4 (3) 5 (4) 6
26. Which one is not a monotypic genera
(1) *Biota orientalis* (2) *Pinus wallichiana*
(3) *Ginkgo biloba* (4) *Welwitschia mirabilis*
27. Presence of vessels is the characteristic of
(1) *Cycas* (2) *Ginkgo*
(3) *Gnetum* (4) *Pinus*
28. Mono, bi, tri tetra, and penta foliar spurs occur in
(1) *Cycas* (2) *Ephedra*
(3) *Gnetum* (4) *Pinus*
29. Maiden hair tree is
(1) *Cephalotaxus* (2) *Ginkgo*
(3) *Gnetum* (4) *Winwardia*

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30. The seed bearing organ of *Pentoxylon* is

- | | |
|-------------------------|-----------------------|
| (1) <i>Sahnia</i> | (2) <i>Bucklandia</i> |
| (3) <i>Carnoconites</i> | (4) None of these |

31. Two sterile spines in micro/megasporophylls are present in

- | | |
|------------------------|--|
| (1) <i>Ceratozamia</i> | (2) <i>Macrozamia</i> |
| (3) <i>Zamia</i> | (4) 1 st and 3 rd both |

32. The largest spermatozoids are present in

- | | |
|---------------|-----------------|
| (1) Cycadales | (2) Coniferales |
| (3) Gnetales | (4) Ginkgoales |

33. Birbal Sahni reconstructed

- | | |
|-------------------------------------|--------------------------------|
| (1) <i>Williamsonia scottii</i> | (2) <i>Williamsonia sahnii</i> |
| (3) <i>Williamsonia seawardiana</i> | (4) <i>Williamsonia indica</i> |

34. Inverted cortical vascular bundles are present in the stem of

- | | |
|-----------------------|-----------------------|
| (1) <i>Boerhaavia</i> | (2) <i>Nyctanthes</i> |
| (3) <i>Bignonia</i> | (4) <i>Tinospora</i> |

35. Multiple epidermis occur in

- | | |
|---------------------------|----------------------------|
| (1) <i>Strychnos</i> stem | (2) <i>Leptadenia</i> stem |
| (3) <i>Vanda</i> root | (4) <i>Bignonia</i> root |

36. The anomalous feature in *Dracaena* stem is

- | | |
|---------------------|----------------------|
| (1) Amphivasal V.B. | (2) Amphicrival V.B. |
| (3) Included phloem | (4) None of these |

37. Adnate stipules are present in

- | | |
|------------------------------|-----------------------------|
| (1) <i>Potentilla supina</i> | (2) <i>Prunus persica</i> |
| (3) <i>Rosa indica</i> | (4) <i>Malva sylvestris</i> |

38. The caducous calyx is present in

- | | |
|------------------|--------------------|
| (1) Papaveraceae | (2) Asclepiadaceae |
| (3) Solanaceae | (4) Acanthaceae |

39. Epipetalous Androecium is present in

- | | |
|---------------|-------------------|
| (1) Myrtaceae | (2) Cucurbitaceae |
| (3) Lamiaceae | (4) Acanthaceae |

40. *Withania somnifera* belongs to

- | | |
|----------------|-----------------|
| (1) Solanaceae | (2) Apocynaceae |
| (3) Apiaceae | (4) Rubiaceae |

41. Which part of *Ferula assfoeitida* yield the Hing

- | | |
|------------|----------|
| (1) Stem | (2) Leaf |
| (3) Flower | (4) Root |

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- 42.** Bentham and Hooker's classification is based on
- (1) Jussieu's system
 - (2) de Candolle's system
 - (3) 1st and 2nd both
 - (4) None of these
- 43.** The demerit of Bentham and Hooker's system of classification is
- (1) Position of Gymnosperms between dicots and monocots
 - (2) Based on artificial system
 - (3) In Polypetalae, the families with inferior ovary are placed afterwards
 - (4) All of these
- 44.** Based on Takhtajan's system of classification, the most primitive order is
- (1) Annonales
 - (2) Ranunculales
 - (3) Arales
 - (4) All of these
- 45.** On the basis of chemotaxonomy, the unrelated family pair is
- (1) Liliaceae and Amaryllidaceae
 - (2) Asclepiadaceae and Gentianaceae
 - (3) Chenopodiaceae and Cactaceae
 - (4) Liliaceae and Chenopodiaceae
- 46.** The role of coconut milk in the embryo culture is
- (1) Nutritive
 - (2) Protective
 - (3) Adhesive
 - (4) 2nd and 3rd both

47. The functional position of an organism in the ecological system is known as
- (1) Habitat (2) Niche
(3) Population (4) Herbivory
48. Amount of living material in different trophic levels or in a component population is known as
- (1) Functional kingdom (2) Standing crop
(3) Ecological pyramid (4) Standing state
49. The maintenance of relatively constant internal environment under varying external environment is defined as
- (1) Ectotherm (2) Endothermic
(3) Homeostasis (4) None
50. The value of lapse rate is
- (1) 6.5°C per 100 km (2) 6.5°C per 1000 m
(3) 6.5°C per 100 m (4) None
51. Concept of r and k selection for population growth and dynamics was proposed by
- (1) E.P. Odum (2) Mc Arthur
(3) Chapman (4) Barbour, Bork and Pitts

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52. Who coined the term biocoenosis

- | | |
|-------------------|---------------------------|
| (1) Carl Mobius | (2) Schroter and Kirchner |
| (3) Edward Forbes | (4) Clements |

53. Transition zone between two ecosystems is known as

- | | |
|--------------|-------------|
| (1) Ecocline | (2) Ecotype |
| (3) Ecotone | (4) Ecads |

54. On the basis of variation in mean temperature along latitude tropical region comes under

- | | |
|---|---|
| (1) (0° - 20° latitude) | (2) (60 - 80° latitude) |
| (3) (20° - 40° latitude) | (4) (40° - 60° latitude) |

55. The zone of the lake water body where light does not reach is known as

- | | |
|--------------|---------------|
| (1) Limnetic | (2) Littoral |
| (3) Benthic | (4) Profundal |

56. The plant which grows better under sunlight is called as

- | | |
|----------------|-----------------|
| (1) Sciophytes | (2) Heliophytes |
| (3) Halophytes | (4) Hydrophytes |

57. The environmental resistance stands

- | | |
|-------------|-------------|
| (1) r | (2) dN/dt |
| (3) $K-N/K$ | (4) N |

58. The relationship between two species where one species is benefited while other unaffected is known as
- (1) Commensalism (2) Protocooperation
(3) Predation (4) Amensalism
59. Grassland with scattered tree is known as
- (1) Prairie (2) Steppe
(3) Savanna (4) None
60. The number of species per unit area is known as
- (1) Richness (2) Evenness
(3) Both (4) None
61. Brown air pollution is generated in traffic congested city is due to
- (1) O_3 (2) PAN
(3) NO_x (4) None
62. In pond water body the pyramid of biomass is
- (1) Upright (2) Both
(3) Inverted (4) None
63. Blue baby syndrome occurs due to excess of which chemical effluent in groundwater
- (1) NO_3^- (2) PO_4^{3-} (3) SO_4^{2-} (4) CO_3^{2-}

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- 64.** Which greenhouse gas is more warming potential than other gases ?
- | | |
|--------------------|------------------------|
| (1) Methane | (2) Nitrous oxide |
| (3) Carbon dioxide | (4) Chlorofluorocarbon |
- 65.** What proceeds wood land stage of hydrosere ?
- | | |
|------------------------|---------------------------|
| (1) Forest stage | (2) Rooted floating stage |
| (3) Sedge-meadow stage | (4) Reed-swamp stage |
- 66.** Which serves as good indicator of land productivity ?
- | | |
|----------------|--------------------|
| (1) Grass land | (2) Pond ecosystem |
| (3) Forests | (4) All of these |
- 67.** Which chemical toxicants causes Knock-Knee syndrome ?
- | | | | |
|--------|--------|--------|-------|
| (1) Hg | (2) Pb | (3) Cd | (4) F |
|--------|--------|--------|-------|
- 68.** SCOPE defined as
- (1) Scientific Committee on Problems of the Environment
 - (2) Scientific Corporation on the problems of the Environment
 - (3) Scientific Council on Problems of the Environment
 - (4) Scientific Committee on pollution of the Environment
- 69.** The regional biotic units delimited by major vegetation type is known as
- | | |
|---------------|---------------|
| (1) Ecosystem | (2) Landscape |
| (3) Biome | (4) None |

- 70.** Most prevalent index organism for faecal contamination in ground water is
- (1) *Salmonella typhi* (2) *Escherichia coli*
(3) *Streptococcus faecalis* (4) *Clostridium perfringens*
- 71.** Which of the following processes helps in nutrient conservation ?
- (1) Mineralization (2) Nitrification
(3) Leaching (4) Immobilization
- 72.** In oceans, the productivity is generally limited by
- (1) P (2) N (3) S (4) O₂
- 73.** Initiation codon of protein synthesis is:
- (1) AUG (2) GUA (3) GCA (4) CCA
- 74.** Codons that do not code for any amino acid are known as:
- (1) Termination codons (2) Nonsense codons
(3) Both A and B (4) None of the above
- 75.** Molybdenum deficiency affects the activity of:
- (1) Nitrogenase (2) Nitrate reductase
(3) Chlorate reductase. (4) All of the above
- 76.** In blue-green algae, the structure specialized for aerobic fixation is
- (1) Akinete (2) Heterocyst
(3) Aplanospore (4) Endospore

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77. How many electrons are involved in the reduction of nitrate to ammonia:

- (1) 8 (2) 6 (3) 4 (4) 10

78. Respiratory quotient for germinating carbohydrate seeds is:

- (1) One (2) Less than one
(3) More than one (4) Variable

79. Which of the following exhibits the highest rate of respiration ?

- (1) Growing shoot apex (2) Germinating seed
(3) Root tip (4) Leaf bud

80. Glyoxylate cycle takes place in:

- (1) Mitochondria (2) Glyoxysomes
(3) Both a and b (4) None of the above

81. The presence of auxin was first demonstrated by:

- (1) Charles Darwin (2) Kogl
(3) F.W. Went (4) Hagensmit

82. Cytokinins cause

- (1) Cell division
(2) Expansion of cotyledons and leaves
(3) Delay in senescence
(4) All of the above

83. Increase in polyamine levels inhibits:

- | | |
|-----------------------|---------------------------|
| (1) Auxin activity | (2) Gibberellins activity |
| (3) Ethylene activity | (4) All of the above |

84. Each monomer of phytochrome has:

- | | |
|------------------------|-----------------------|
| (1) One Chromophore | (2) Two Chromophores |
| (3) Three Chromophores | (4) Five Chromophores |

85. Cholesterol is the precursor of:

- | | |
|------------------|-----------------------|
| (1) Progesterin | (2) Corticoids |
| (3) Both a and b | (4) None of the above |

86. During cell cycle DNA replicates :

- | | |
|----------------|----------------|
| (1) Once | (2) Twice |
| (3) Many times | (4) Not at all |

87. Translocation of water and mineral is :

- | | |
|------------------|-----------------------|
| (1) Apoplastic | (2) Symplastic |
| (3) Both a and b | (4) None of the above |

88. Allosteric enzymes for which substrate and modulators are identical are called:

- | | |
|-----------------|------------------|
| ✓(1) Homotropic | (2) Heterotropic |
| (3) Isotropic | (4) Mixotropic |

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89. Solute if mixed in water:

- (1) Raises water potential
- (2) Lowers water potential
- (3) Equals the water potential
- (4) Does not have any impact on water potential

90. Guttation results because of:

- (1) Increased relative humidity
- (2) Break in vein endings of leaf
- (3) Root pressure
- (4) Substomatal activity

91. Pumps are characterized as transport protein across the membrane, linked with :

- (1) NADPH
- (2) ATP
- (3) NAD⁺
- (4) ADP

92. Which of following energy rich phosphorous compound is known as universal currency of energy ?

- (1) Cytidine triphosphate (CTP)
- (2) Adenosine triphosphate (ATP)
- (3) Phosphoenol pyruvate (PEP)
- (4) Adenosine diphosphate (ADP)

93. Quantosomes are related with:

- (1) Respiration
- (2) Photosynthesis
- (3) Transpiration
- (4) β -oxidation

94. Photosynthetic oxygen evolution in plants is inhibited by:
- (1) DCCD (2) DCMU
(3) Methyl viologen (4) Arsenate
95. Which of the following elements take part in charge separation on oxygen evolving complex ?
- (1) Fe (2) Mo
(3) Cu (4) Mn
96. The end product of oxidative phosphorylation is:
- (1) NADH (2) Oxygen
(3) ADP (4) ATP+H₂O
97. Which of the following exhibits the highest rate of respiration ?
- (1) Growing shoot apex (2) Germinating seed
(3) Root tip (4) Leaf bud
98. Electron Transport System (ETS) is located in mitochondrial:
- (1) Outer membrane (2) Inter membrane space
(3) Inner membrane (4) Matrix
99. In *Oedogonium*, the androspore always germinates
- (1) On the oogonia
(2) On the soffulatory cell
(3) Free in water
(4) Any where close to oogonium

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100. Dichotomously branched sporangiphore is characteristic feature of

- | | |
|------------------------|-------------------------|
| (1) <i>Peronospora</i> | (2) <i>Phythium</i> |
| (3) <i>Saprolegnia</i> | (4) <i>Phytophthora</i> |

101. Name a bryophyte which harbours *Nostoc* colonies in its thallus

- | | |
|---------------------|-----------------------|
| (1) <i>Riccia</i> | (2) <i>Marchantia</i> |
| (3) <i>Sphagnum</i> | (4) <i>Anthoceros</i> |

102. Which of the following is known as 'resurrection plant' ? is due to

- | | |
|-----------------------|------------------------|
| (1) <i>Marchantia</i> | (2) <i>Selaginella</i> |
| (3) <i>Anthoceros</i> | (4) <i>Curcuma</i> |

103. Soil nibblers fungi

- (1) Deteriorate the soil quality
- (2) Enrich the soil quality
- (3) Kill some roots of plant to promote more root formation
- (4) Cause excessive damage to the plant by killing all the roots of

104. An important characteristic feature of the wood of *Pinus* is the presence of 'bars of Sanio'. These bars are formed by deposition of

- | | |
|----------------------------|--------------------------|
| (1) Cellulose and terpenes | (2) Cellulose and pectin |
| (3) Pectin and tannins | (4) Lignin and resin |

105. 'Shower of sulphur' occurs due to

- (1) Reaction of SO_2 with water during rain forming H_2SO_4
- (2) Release of sulphur rich pollutants from oil refineries
- (3) Mass release of microspores of *Cycas*
- (4) Mass release of microspores of *Pinus*

106. In a type of apomixis called adventive embryony embryos develop directly from

- (1) Synergids or antipodal cells of embryo sac
- (2) Zygote
- (3) Nucellus or integument
- (4) Accessory embryo sacs in the ovule

107. The phenomenon where transfer of pollen grains from the anthers to the stigma of another flower of the same plant is referred as

- | | |
|-----------------|-----------------|
| (1) Xenogamy | (2) Cleistogamy |
| (3) Geitonogamy | (4) Autogamy |

108. Slow rate of decomposition of fallen logs is due to

- | | |
|----------------------------|---------------------------|
| (1) Low moisture contents | (2) Anaerobic environment |
| (3) Low cellulose contents | (4) Poor nitrogen content |

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109. 'Agenda 21' an outcome of 'Earth Summit'

- (1) is a blue print for the nations for reducing pollution level at a certain level within given time in 21st century.
- (2) is a blue print for encouraging sustainable development of diversity through social, economic and environmental measures.
- (3) is a blue print for establishing high tech special industrial zones in developing countries to boost their economy and reduce pollution level.
- (4) is a blue print for the development of pucca house to every BPL family in 21st.

110. Ozone day is

- | | |
|-----------------|----------------|
| (1) September 6 | (2) April 21 |
| (3) December 25 | (4) January 30 |

111. Which particulate size is most harmful ?

- | | |
|---------------------------------------|---------------------------------------|
| (1) $8.0\mu\text{m} - 5.5\mu\text{m}$ | (2) $4.5\mu\text{m} - 4.0\mu\text{m}$ |
| (3) $2.5\mu\text{m} - \text{or less}$ | (4) $5.2\mu\text{m} - 3.5\mu\text{m}$ |

112. Active transport of solutes across a membrane against their gradient of electrochemical potential by coupling the uphill transport of one solute to the downhill transport of another is referred as

- | | |
|------------------------------|--------------------------------|
| (1) Facilitated transport | (2) Secondary active transport |
| (3) Primary active transport | (4) Kinetic transport |

113. Pheophytin is a chlorophyll in which the central magnesium atom has been replaced by

- (1) One manganese atom (2) One iron atom
 (3) Two iron atoms (4) Two hydrogen atoms

114. The NodB enzyme encoded by *nodB* gene

- (1) is a chitin-oligosaccharide deacetylase that removes the acetyl group from terminal non reducing sugar.
 (2) is a chitin-oligosaccharide synthase that links *N*-acetyl-D-glucosamine monomers.
 (3) is an *N*-acetyltransferase that catalyzes the addition of a fatty acyl chain.
 (4) determine the length and degree of saturation of the fatty acyl chain.

115. In *N*-linked glycoproteins, the carbohydrate is attached to the nitrogen atom in the side chain of

- (1) Asparagine (2) Serine
 (3) Threonine (4) Either serine or threonine

116. In lysogeny *CIII* protein

- (1) binds next to the promoter for the *cIII* gene and stimulates RNA polymerase binding.
 (2) binds to O_R and O_L , turns off the transcription of the repressor Gene and represses P_{RM} function
 (3) protects *cII* protein from degradation by a host enzyme, the HFLA protease
 (4) stimulates transcription of somewhat early genes, one of which produces the sigma factor gp55

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117. Mycoplasmas do not have cell wall and are pleomorphic in nature and that's why they are insensitive to

- | | |
|------------------|---------------------|
| (1) Erythromycin | (2) Chloramphenicol |
| (3) Methicilin | (4) All |

118. The resistance of pears to fire blight caused by *Erwinia amylovora* is due to presence of a phenolic glucoside

- | | |
|-------------------|--------------|
| (1) Ipomeamarone | (2) Arbutin |
| (3) Lycomarasmine | (4) Victorin |

119. *Puccinia graminis tritici* is controlled by using hyperparasitism approach with the help of

- | | |
|---------------------------------|-----------------------------------|
| (1) <i>Fusarium roseum</i> | (2) <i>Bacillus subtilis</i> |
| (3) <i>Trichothesium roseum</i> | (4) <i>Trichophyton harzianum</i> |

120. The most common types of transposons in human being belongs to

- | | |
|-----------------------|-----------------|
| (1) <i>Alu</i> family | (2) SINE family |
| (3) LINE family | (4) Mu family |

121. Catabolic activator protein (CAP) activates lac genes only when

- (1) Glucose is present in the medium
- (2) Glucose is absent in the medium
- (3) Allolactose is absent in the medium
- (4) Both glucose and allolactose is present in the medium

122. Genetic maps of chromosomes are based on

- (1) Non disjunction (2) Translocation
(3) Chromosomal aberrations (4) Genetic recombination

123. Grain colour of wheat is determined by three pairs of polygenes. In cross $AABBCC \times aabbcc$, progeny resembling either parent in F_2 generation is

- (1) Half (2) One third
(3) Less than 5% (4) 75%

124. Length of DNA with 23 base pairs is

- (1) 78.4 \AA° (2) 78.2 \AA°
(3) 78.4 nm (4) 78.2 nm

125. Which of the following cell organelle is semi-autonomous in nature ?

- (1) Lysosomes (2) Golgi bodi
(3) Mitochondria (4) Ribosomes

126. Middle lamellae are present between

- (1) Soma cells
(2) Pollen mother cells
(3) Pollen grains
(4) Both, pollen mother cells and pollen grains

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127. During cell cycle the cell grows in

- | | |
|---------------|----------------|
| (1) Prophase | (2) Metaphase |
| (3) Telophase | (4) Interphase |

128. Mendelian principle which have always stood the test of time is

- (1) Law of segregation
- (2) Law of dominance
- (3) Law of independent assortment
- (4) All above

129. Which of the following is incorporated into DNA as a base analogue -

- | | |
|------------------------------|------------------|
| (1) Ethyl methane sulphonate | (2) Nitrous acid |
| (3) 5- Bromouracil | (4) Sodium azide |

130. Telomeres in acetocarmine stained preparations of chromosomes appear

- | | |
|---------------------|------------------------|
| (1) Lightly stained | (2) Moderately stained |
| (3) Dark stained | (4) Unstained |

131. 7:1:1:7 phenotypic ratio in a dihybrid cross refers to

- | | |
|--------------------------|------------------|
| (1) Incomplete dominance | (2) Co-dominance |
| (3) Interaction of genes | (4) Linkage |

132. A chromosomal region commonly known to contain most of the rRNA sequences is

- | | |
|----------------|-----------------|
| (1) Centromere | (2) NOR |
| (3) Telomere | (4) Kinetochore |

133. The amount of DNA in mitotic metaphase is equal to

- | | | | |
|--------|--------|--------|--------|
| (1) 1C | (2) 2C | (3) 4C | (4) 8C |
|--------|--------|--------|--------|

134. An organism has $2n=12$ chromosomes which form 6 bivalents at meiosis. A chromosomal variant of this organism with 4 bivalents and two univalents would be called

- | | |
|----------------|----------------------|
| (1) Disomic | (2) Double monosomic |
| (3) Nullisomic | (4) Trisomic |

135. Which of the following is considered a most potent mutagen ?

- | | |
|------------------------------|-----------------------|
| (1) Ethyl methane sulphonate | (2) Nitroso guanidine |
| (3) Colchicine | (4) Hydroxyl amine |

136. Bread wheat (*Triticum aestivum*) contains

- | | |
|-----------------------------|---------------------------|
| (1) Two different genomes | (2) Two similar genomes |
| (3) Three different genomes | (4) Six different genomes |

137. Which of the following is most prevalent in natural plant populations ?

- | | |
|--------------------|--------------------|
| (1) Aneuploids | (2) Triploids |
| (3) Autopolyploids | (4) Allopolyploids |

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138. Which of the following changes is called transversion ?

- (1) Adenine ↔ Guanine (2) Adenine ↔ Thymine
(3) Cytosine ↔ Thymine (4) Cytosine ↔ Uracil

139. Synaptonemal complex helps in :

- (1) Chromosome condensation (2) chromosome replication
(3) chromosome doubling (4) chromosome alignment

140. Which of the following is called "suicide bag" ?

- (1) Peroxisome (2) Mesosome
(3) Lysosome (4) Dictyosome

141. The secret of Mendel's success lies in the fact that

- (1) He worked on garden pea
(2) He studied only seven characters
(3) All characters were located on different pairs of chromosomes
(4) All characters segregated independently

142. Nucleoli are repository of

- (1) RNA (2) DNA
(3) Protein (4) Chromatin

143. Cross-over percentage between any two genes can never exceed

- (1) 15% (2) 25% (3) 50% (4) 75%

144. F_2 generation plants in a dihybrid cross consist of

- (1) Two phenotypes and two genotypes
- (2) Two phenotypes and four genotypes
- (3) Two phenotypes and eight genotypes
- (4) Four phenotypes and eight genotypes

145. Xy Sex-determining mechanism was demonstrated in

- (1) *Zea mays*
- (2) *Coccinia midica*
- (3) *Datura stramonium*
- (4) *Nicotiana tabaccaum*

146. Satellite DNA is made up of

- (1) Minichromosomes
- (2) Tandemly repeated sequences
- (3) Unique sequences
- (4) Interspersed repeated sequences

147. 9:7 phenotypic ratio results from an interaction of

- (1) Complementary genes
- (2) Supplementary genes
- (3) Epistatic genes
- (4) Inhibitory genes

148. Which of the following genomic combination refers to segmental allopolyploidy

- (1) AAAA
- (2) AABB
- (3) AAA_1A_1
- (4) AACC

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149. Karyotype changes occur due to

- (1) Chromosome structural changes
- (2) Chromosome numerical changes
- (3) Molecular changes
- (4) All above

150. Ideal homozygosity can be attained through

- (1) Selfing
- (2) Wide crosses
- (3) Tissue culture
- (4) Pollen culture

30

2,100

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ROUGH WORK
रफ़ कार्य

31

P.T.O.

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर दिये गए उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली-काली बाल-प्वाइंड पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्नपुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुक्रमांक और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिए आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो संबंधित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ एम आर उत्तर-पत्र परीक्षा भवन में जमा कर दें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित धंड का/की, भागी होगा/होगी।

