| Code No. | J – 2269 |
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# Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2020

## CSS

## BIODIVERSITY CONSERVATION

**General Instructions**

1. The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).
2. Objective type questions which carry 1 mark each are to be (✓) 'tick marked' in the response sheets against the appropriate answers provided.
3. 8 questions are to be answered out of 12 questions carrying 5 marks each in Part 'B'.
4. **Negative marking** : 0.25 marks will be deducted for each wrong answer in Part 'A'.

**Time : 2 Hours** **Max. Marks : 100**

| To be filled in by the Candidate | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Register Number | in Figures | | | | | | | | |
| | in words | | | | | | | | |

PART – A

(Objective Type)

Choose appropriate answer from the options in the questions. **One** mark **each**.

**(60 × 1 = 60 marks)**

1. Where does passage cells occur?

   a) Epidermis b) Pericycle

   c) Endodermis d) Phloem

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2. Floridean starch is the reserve food in

   a) Chlorophyceae
   b) Xanthophyceae
   c) Cyanophyceae
   d) Rhodophyceae

3. Similarities of pteridophytes with bryophytes

   a) Heteromorphic alternation of generations
   b) Sexual reproduction is anisogamous
   c) Water is not essential for fertilization
   d) Sex organs doesn't have any protection layers

4. Which one is known as '*goddess of fertility*'

a) *Azolla pinnata* b) *Equisetum arvense*

c) *Cyathea contaminans* d) *Pteridum aquilinum*

5. Silicula fruits are common in the family

a) Apiaceae b) Brassicaceae

c) Annonaceae d) Anacardiaceae

6. Which layer of temperate lake have lower photosynthetic rate?

a) Thermocline b) Hypolimnion

c) Epilimnion d) Littoral zone

7. Single letter code of Lysine

a) L b) I

c) K d) Y

8. Carboxyl methyl cellulose having negative charge is used in

a) Anion exchange chromatography b) Cation exchange chromatography

c) Gel filtration chromatography d) Size exclusion chromatography

9. *Pythium graminicolum* belongs to

a) Oomycetes b) Basidiomycete

c) Ascomycete d) Zygomycete

10. Characteristics of *r*-selected species

a) Body size large b) Length of life long

c) Reproductive rate high d) Reproductive age late

11. In glycolate pathway $CO_2$ was liberated out in

a) Peroxisome b) Mitochondrion

c) Cytosol d) Chloroplast

12. Photosystem I and II was present in

a) Thylakoid lumen
b) Thylakoid membrane
c) Stroma
d) Chloroplast inner membrane

13. In tissue culture experiment for the initiation of root from callus the medium must contain

a) Low auxin and high cytokinin
b) High auxin and high cytokinin
c) High auxin and low cytokinin
d) Low auxin and low cytokinin

14. Isoelectric focusing is associated with

a) Western blotting
b) 2-D gel electrophoresis
c) Affinity chromatography
d) Ion exchange chromatography

15. Order of sexual reproduction events in fungi

a) Karyogamy – Meiosis – Plasmogamy
b) Karyogamy – Plasmogamy – Meiosis
c) Plasmogamy – Karyogamy – Meiosis
d) Meiosis – Karyogamy – Plasmogamy

16. Homologous structure is seen in

a) Pentadactyl limb of invertebrates
b) Insect mouth parts
c) Jointed legs of insects and vibrates
d) Wings of bat, birds, insects

17. Kino veins are found in

a) Eucalyptus
b) Rubber
c) Citrus
d) Euphorbia

18. The unit used for representing ozone layer thickness

a) Dobson
b) Kilometre
c) Metre
d) Decibal

19. Arbuscular mycorrhizae association helps for the absorption of

a) Calcium
b) Magnesium
c) Sulphur
d) Phosphorous

20. Which of the following codons is popularly know as “amber”?

a) AUG
b) UAA
c) UAG
d) UGA

21. An enzyme that catalyses the transfer of phosphate groups from high-energy, phosphate-donating molecules to specific substrates.

a) Phosphatase
b) Kinase
c) Peptidase
d) Peptidyl transferase

22. Allosteric enzyme possesses

a) Active site and an allosteric site
b) Active site and two types of allosteric sites
c) Active site and three types of allosteric sites
d) Three types of allosteric

23. Hibernation is exhibited by

a) Ectotherm
b) Endotherm
c) Homeotherm
d) Heterotherm

24. Mating system between single female and multiple males

a) Polygynandry
b) Polyandry
c) Monogamy
d) Polygyny

25. Intine is made up of

a) Sporopollenin
b) Peptidoglycan
c) Pectin
d) Cellulose

26. Name the aerial and terrestrial algae

a) Protococcus b) Sargassum

c) Ulva d) Spirogyra

27. Inter petiolar stipules are present in

a) Rubiaceae b) Annonaceae

c) Lamiaceae d) Poaceae

28. Which of the events causes greenhouse effect?

a) Condensation b) Evaporation

c) Radiation d) Vaporisation

29. Monoecious gymnosperm is

a) Agathis b) Cycas

c) Ginkgo d) Gnetum

30. Lateral roots originate from

a) Endodermis b) Cortex

c) Pericycle d) Epidermis

31. 'Round up' pesticide is an inhibitor of

a) Acetate mevalonate pathway b) DOXP pathway

c) Shikimic acid pathway d) Hatch and Slack pathway

32. Vincristine and vinblastine is obtained from

a) *Euphobia peplus* b) *Taxus brevifolia*

c) *Camptotheca acuminate* d) *Catharanthus roseus*

33. Crossing of unknown genotypic individual with a known homozygous recessive parent.

a) Reciprocal cross b) Test cross

c) Back cross d) Dihybrid cross

34. Organism with largest number of chromosome

a) Cycas
b) Giant sequoia
c) Ophioglossum
d) Sargassum

35. If the sequence of the mRNA is 5'AUCG 3' then the sequence of sense strand will be

a) 3' TAGC 5'
b) 5' TAGC 3'
c) 3' ATCG 5'
d) 5' ATCG 3'

36. In *Drosophila melanogaster*, the sex determination is made on the basis of

a) Ratio between X chromosome and Y chromosome
b) Ratio between X chromosome and autosome
c) Ratio between Y chromosome and autosome
d) Both (b) and (c)

37. In Mendelian dihybrid cross the various phenotypes are in the ratio

a) 9 : 3 : 3 : 1
b) 9 : 3: 3 : 3 : 1
c) 9 : 3 : 1
d) 9 : 1

38. Meiotic cell division results in cells that have

a) *n* chromosomes and are genetically identical
b) *n* chromosomes and are genetically different
c) 2 *n* chromosomes and are genetically identical
d) *2 n* chromosomes and are genetically different

39. Which one is type II topoisomerase?

a) DNA gyrase
b) DNA helicase
c) DNA primase
d) DNA ligase

40. In terms of DNA and RNA structure, what is a nucleotide?

a) A nucleotide is a heterocyclic base

b) A nucleotide is a sugar molecule covalently bonded to a heterocyclic base

c) A nucleotide is a sugar molecule bonded to phosphate group/s and a heterocyclic base

d) A nucleotide is a heterocyclic base bonded to phosphate group/s

41. Which of the following is **not** a researched means of delivering therapeutic DNA for gene therapy?

a) Polymers b) Bacteria

c) Virus d) Liposomes

42. Number of autosomes in humans

a) 44 b) 21 pairs

c) 45 d) 46

43. Maiden hair fern is

a) Pteris b) Adiantum

c) Lycopodium d) Osmunda

44. Smallest gymnosperm

a) *zamia pygmaea* b) *zamia pumila*

c) *zamia skinneri* d) *zamia Montana*

45. The elemental composition of Bordeux mixture is

a) Sulphur : Carbon : Water

b) Copper : Sulphur : Water

c) Copper : Sulphate : Lime : Water

d) Copper : Chloride : Lime : Water

46. Witches Broom disease was caused by the deficiency of

a) Mn
b) Mg
c) N
d) B

47. Which one of the following biogeochemical cycle is connected with enhanced greenhouse effect?

a) Nitrogen cycle
b) Oxygen cycle
c) Carbon cycle
d) Phosphorous cycle

48. Precursor of Indole Acetic Acid (IAA) is

a) Tryptophan
b) Methionine
c) Aspartic acid
d) Glutamic acid

49. Blast disease of paddy is caused by

a) *Helminthosporium oryzae*
b) *Xanthomonas oryzae*
c) *Pyricularia oryzae*
d) *Dreschlera oryzae*

50. An equilibrium between a liquid phase trapped inside the pores of stationary porous structure and a mobile liquid phase is called

a) Adsorption chromatography
b) Partition chromatography
c) Gel chromatography
d) Ion-exchange chromatography

51. Columella is present in sporophyte of

a) Riccia
b) Marchantia
c) Anthoceros
d) Porella

52. The connecting compound between glycolysis and Kreb's cycle is

a) Ethanol
b) Malic acid
c) Pyruvic acid
d) $CO_2$

53. Lampbrush chromosomes are present in

a) Ascaris
b) Rattus
c) Drosophila
d) Balanoglosus

54. The function of chaperons

a) Protein folding
b) Protein synthesis
c) Nucleic acid synthesis
d) Lipid synthesis

55. A climax community

a) Is self-sustaining
b) Is never changing
c) Show growth proceeding in a predictable pattern
d) Is not likely to be distributed by localized climatic changes

56. Branched hydrophobic amino acids are

a) Valine, leucine, isoleucine
b) Valine, threonine
c) Leucine, valine, threonine
d) Threonine

57. When one gene affects more than one phenotype it is known as

a) Dominance
b) Epistasis
c) Pleiotrophy
d) Penetrance

58. The duplicate of holotype is referred as

a) Isotype
b) Lectotype
c) Syntype
d) Neotype

59. Bulliform cells are seen in

a) Nymphaea
b) Sorghum
c) Ficus
d) Brassica

60. Which one of the following are the best indicators of air pollution?

a) Algae
b) Fungi
c) Lichens
d) Bryophyte

ANSWER SHEET — PART – A

| | | | | | |
|---|---|---|---|---|---|
| 1 | A | B | C | D | E |
| 2 | A | B | C | D | E |
| 3 | A | B | C | D | E |
| 4 | A | B | C | D | E |
| 5 | A | B | C | D | E |
| 6 | A | B | C | D | E |
| 7 | A | B | C | D | E |
| 8 | A | B | C | D | E |
| 9 | A | B | C | D | E |
| 10 | A | B | C | D | E |
| 11 | A | B | C | D | E |
| 12 | A | B | C | D | E |
| 13 | A | B | C | D | E |
| 14 | A | B | C | D | E |
| 15 | A | B | C | D | E |
| 16 | A | B | C | D | E |
| 17 | A | B | C | D | E |
| 18 | A | B | C | D | E |
| 19 | A | B | C | D | E |
| 20 | A | B | C | D | E |

| | | | | | |
|---|---|---|---|---|---|
| 21 | A | B | C | D | E |
| 22 | A | B | C | D | E |
| 23 | A | B | C | D | E |
| 24 | A | B | C | D | E |
| 25 | A | B | C | D | E |
| 26 | A | B | C | D | E |
| 27 | A | B | C | D | E |
| 28 | A | B | C | D | E |
| 29 | A | B | C | D | E |
| 30 | A | B | C | D | E |
| 31 | A | B | C | D | E |
| 32 | A | B | C | D | E |
| 33 | A | B | C | D | E |
| 34 | A | B | C | D | E |
| 35 | A | B | C | D | E |
| 36 | A | B | C | D | E |
| 37 | A | B | C | D | E |
| 38 | A | B | C | D | E |
| 39 | A | B | C | D | E |
| 40 | A | B | C | D | E |

| | | | | | |
|---|---|---|---|---|---|
| 41 | A | B | C | D | E |
| 42 | A | B | C | D | E |
| 43 | A | B | C | D | E |
| 44 | A | B | C | D | E |
| 45 | A | B | C | D | E |
| 46 | A | B | C | D | E |
| 47 | A | B | C | D | E |
| 48 | A | B | C | D | E |
| 49 | A | B | C | D | E |
| 50 | A | B | C | D | E |
| 51 | A | B | C | D | E |
| 52 | A | B | C | D | E |
| 53 | A | B | C | D | E |
| 54 | A | B | C | D | E |
| 55 | A | B | C | D | E |
| 56 | A | B | C | D | E |
| 57 | A | B | C | D | E |
| 58 | A | B | C | D | E |
| 59 | A | B | C | D | E |
| 60 | A | B | C | D | E |

## BIODIVERSITY CONSERVATION

PART – B

(Descriptive Type)

Answer **any eight** questions. **(8 × 5 = 40 Marks)**

1. Explain stellar evolution in pteridophyes.

2. Explain genomics and proteomics.

3. List out common economically important plants.

4. Write a note on polyploidy breeding.

5. Explain the ‘Z-scheme’ in light reaction of photosynthesis.

6. Give a brief account on chromosome structure.

7. Explain eukaryotic cell cycle.

8. Explain the mechanism of sexual reproduction in Basidiomycetes.

9. Give an account on chromosomal aberrations.

10. Describe nitrogen metabolism.

11. Give a note on secondary thickening in monocots.

12. Differentiate between eukaryotic and prokaryotic replication.

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