

PLANT DIVERSITY

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Coenobium algal form
2. Prokaryotic algae
3. Cleistothecium
4. Crozier formation
5. Types of rhizoids in bryophytes
6. Protonema in mosses
7. Sporocarp
8. Leptosporangiate pteridophytes
9. Pycnoxylic wood
10. Apogeotropic roots of cycas.

PART B — (7 × 5 = 35 marks)

Answer any **SEVEN** questions.

11. Describe the cell structure of cyanophyceean algae.
12. Enumerate the economic importance of algae.
13. Write a short account on Deuteromycotina.
14. Outline the recent trends in fungal classification.
15. Describe the internal structure of Anthocerotopsida thallus.
16. Describe the internal structure of Bryopsida sporophyte.
17. State the salient features of Psilopsida.
18. Explain homosporous and heterosporous with reference to pteridophytes.
19. Mention the economic importance of gymnosperms.
20. Describe the internal structure of needle leaf of coniferals.

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PART C — (3 × 15 = 45 marks)

Answer any **THREE** questions.

21. Outline the Fritsch classification of algae and add a note on the criteria for the algal classification.
22. Give a general account on the types, reproductive bodies and economic importance of lichens.
23. Describe the thallus structure in Hepaticopsida.
24. Discuss the stelar evolution on Petridophytes.
25. Describe the reproduction in Cycas.

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1738/PBOT02

NOVEMBER 2016

**TAXONOMY OF ANGIOSPERMS AND ECONOMIC
BOTANY**

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer need to be given for ALL questions.

1. Conditions for valid publication.
2. Author's citation.
3. Androgynophore.
4. Obdiplo stemonous.
5. Syngenesions.
6. Follicle.
7. Spike.
8. Aquatic family.
9. Atropa Belladona.
10. Morphology of useful part of cloves.

PART B — (7 × 5 = 35 marks)

Answer any SEVEN questions need to be answered.

11. What are the advantages of Binomial nomenclature?
12. What are the features based on the classification of Linnaeus system?
13. Write notes on androecium of myrtaceae.
14. Explain how magnoliaceae to be most primitive taxon of living angiosperms.
15. Compare convolvulaceal and scrophulariaceae.
16. Write an account of verbenaceae.
17. Mention the significant features of viscum and Loranthus.
18. With suitable diagrams mention only the striking features of Amaranthaceae.
19. Discuss the development of ethnobotany as a branch of natural science.
20. Write about the leaves used as spices.

PART C — (3 × 15 = 45 marks)

Answer any THREE questions need to be answered.

21. Compare and contrast Natural and Phylogenetic systems of classification.
22. Give a comparative account of Meliaceae and sapindaceae.
23. Elucidate the salient features of Apocynaceae with suitable diagrams.
24. With suitable diagrams discuss the characteristic features of Arecaceae.
25. Give an account of two timber yielding plants.

1739/PBOT03

NOVEMBER 2016

MICROBIOLOGY AND PLANT PATHOLOGY

Time : Three hours

Maximum : 100 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Episomes.
2. Gram stain.
3. Phytophaginae.
4. Eclipse.
5. Broth medium.
6. Hot air oven.
7. Pathogenesis.
8. Antibiotics.
9. Abscission layer.
10. PR proteins.

SECTION B — (7 × 5 = 35 marks)

Answer any SEVEN questions.

11. Write about fission and sporulation.
12. Describe the methods of determination of bacterial growth.
13. Write a brief account on characterization of virus.
14. Explain the multiplication of virus.
15. Give an account on nutritional types of microbes.
16. Write down the principle and mode of action of sterilization.
17. Give examples of plant disease which are influenced by light.
18. What is biological control of plant pathogens where it has been successfully used to control disease.
19. How does the pre-existing structures act against infection?
20. Explain the biochemical defense mechanism in plants.

SECTION C — (3 × 15 = 45 marks)

Answer any THREE questions.

21. Explain in detail about Bergey's classification.
22. Illustrate the lytic life cycle of phages.
23. Describe the different culture medium of microbial cultures.
24. Write an essay on causative organism, symptoms and control measures of angular leaf spot of cotton.
25. Explain the role of enzymes in host specificity.

1740/PBOT04

NOVEMBER 2016

CELL BIOLOGY, GENETICS, PLANT BREEDING
AND EVOLUTION

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Nucleoids.
2. Chromoplasts.
3. Genome.
4. Kinetochore.
5. RNA as genetic material.
6. Quantasomes.
7. Discontinuous variation.
8. Polyhybrid.
9. Convergent evolution.
10. Serial evolution.

PART B — (7 × 5 = 35 marks)

Answer any SEVEN questions

11. Explain the method of orientation of microfibrils in secondary wall.
12. Write notes on 'suicide bags'.
13. Describe the process of amitosis briefly.
14. Define homotypic division with an example.
15. What are degenerate codes? Give two examples.
16. Describe any one method used for the identification of DNA as genetic material.
17. Enlist some of the cultivable plants of Abyssinia origin.
18. Enumerate the achievements made on the breeding research on castor.
19. Describe the significance of Lamarckism.
20. Write any one way on origin of life.

PART C — (3 × 15 = 45 marks)

Answer any THREE questions.

21. Give an account on the morphology and functions of semi autonomous organelles found in a plant cell.
22. Write in detail about reduction division and add a note on its role in life cycle.
23. Describe the process of protein synthesis in detail.
24. Explain the process of mutation and mention its role on evolution.
25. Describe the theory of inheritance of acquired characters in detail.

1741/PBOT05

NOVEMBER 2016

PLANT PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

PART A --- (10 × 2 = 20 marks)

Answer ALL the questions.

1. Imbibition.
2. Passive absorption.
3. Photophosphorylation.
4. C4 Plants.
5. Photoperiodism.
6. Breaking of seed dormancy.
7. Monosaccharides.
8. Prosthetic group.
9. Ramachandran Plot.
10. Nucleotides.

PART B — (7 × 5 = 35 marks)

Answer any **SEVEN** questions.

11. Write short notes on mechanism of stomatal movement.
12. Briefly give the mechanism of organic solute uptake.
13. Explain the structure and function of chlorophyll.
14. Write the short account on CAM pathways.
15. List out the physiological role of auxins and cytokinins.
16. Briefly explain the mechanism of fruiting and hormonal control of fruiting.
17. Write short notes on competitive and non-competitive inhibitors.
18. Briefly describe the polysaccharides.
19. Classify the carbohydrate with a schematic diagram.
20. Write the general reactions of amino acid metabolism.

PART C — (3 × 15 = 45 marks)

Answer any **THREE** questions.

21. Describe the mechanism of water absorption.
22. Describe the C3 cycle.
23. Explain the structure, physiological role and mode of action of gibberellins.
24. Give the detailed account on the structure and properties of lipids.
25. Describe the structure of Proteins.

1742/PBOT06

NOVEMBER 2016

PLANT ANATOMY AND EMBRYOLOGY

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Calyptrogen.
2. Conjunctive tissue.
3. Amoeboid tapetum.
4. Germ pore.
5. Pollen chamber.
6. Antipodals.
7. Suspensor.
8. Hypocotyl.
9. Haploids.
10. Plant cells.

PART B — (7 × 5 = 35 marks)

Answer any SEVEN questions.

11. Write briefly about atleast two theories on shoot apical organisation.
12. Explain any anomalous behavior of vascular cambium you have studied.
13. With suitable illustrations explain the stages of development of pollen wall during microporogenesis.
14. Describe the structure of a Circinotropous ovule.
15. Mention the various agencies of pollination.
16. Write about pollen storage in a brief way.
17. Describe the types of embryogeny briefly.
18. Briefly describe Synthetic Auxins.
19. Write notes on partenocarpy.
20. Describe the role of Auxin in differentiation.

PART C — (3 × 15 = 45 marks)

Answer any THREE questions.

21. Give an account of various theories proposed on root apical organization.
22. Explain the structure and origin of a bisporic embryo sac with examples.
23. Write an essay on various types of endosperm you have studied.
24. Mention in detail the process of protoplast culture and add a note on its significance.
25. Give an account of biochemical and physical factors in fruit development.

1743/PBOT07

NOVEMBER 2016

PLANT ECOLOGY, PHYTOGEOGRAPHY AND
BIODIVERSITY CONSERVATION

(For those who joined in July 2013 and 2014)

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define ecosystem. Give an example.
2. Distinguish between habit and habitat.
3. Distinguish between mortality and natality.
4. Define continental drift.
5. What is meant by species richness?
6. Define ecosystem stability?
7. Define endemism.
8. What are keystone species?
9. Comment on red data book.
10. What are home gardens?

PART B — (7 × 5 = 35 marks)

Answer any SEVEN of the following only.

11. Explain the biotic and abiotic components of an ecosystem with an example.
12. Distinguish food chain and food web with examples.
13. Explain the following terms :
 - (a) Life table
 - (b) Survivorship curves.
14. Write notes on inter specific competition.
15. Explain in brief the productivity and nutrient cycling in forests.
16. Describe the major floristic regions of the world.
17. Explain the biotic and abiotic theories for the species, richness gradients.
18. Write short notes on biodiversity hot spots of India.
19. List down the causes of species extinction.
20. Give an account of gemplasm conservation,

PART C — (3 × 15 = 45 marks)

Answer any THREE of the following only.

21. Write an essay on ecological succession.
22. Bring out the positive interactions in a population or community.
23. Write an account on the various patterns of biodiversity.
24. Describe in brief the phytogeographical regions of the world.
25. Write notes on the strategies to conserve biodiversity ex situ.

PLANT BIOTECHNOLOGY

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Tissue culture
2. Explant
3. Invitro androgenesis
4. Adventive embryos
5. Protoplast fusion
6. Cybrids
7. Ti Plasmids
8. Viroids
9. Gain of function
10. Virus resistant plants.

PART B — (7 × 5 = 35 marks)

Answer any SEVEN questions.

11. Give a brief account of the composition of the nutrient medium used for plant tissue culture.
12. Explain the need for having aseptic conditions for the culture of plant tissues.
13. Explain the methodology of anther culture.
14. Write a note on artificial seeds.
15. Give an account of the applications of plant protoplast culture.
16. Discuss the use of cybrids in crop improvement programmes.
17. Describe the structure of Ti plasmid with particular emphasis on T-DNA structure.
18. Write short notes on micro injection and liposome mediated gene transfer.
19. Write short notes on transgenic plants in monocotyledons.
20. Give an account on transgenic plants for molecular farming.

PART C — (3 × 15 = 45 marks)

Answer any THREE of the following questions.

21. Give an account of various sterilization methods used in plant tissue culture.
22. Describe the endosperm culture and nucleus culture.
23. Describe the culture of isolated protoplasts.
24. Discuss the role of Agrobacterium and its plasmids in transformation of dicotyledonous plants.
25. Write an essay on transgenic plants to regulated gene expression.