

DECEMBER 2017

P/ID 40221/PBTA

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

Explain/Define :

1. Phycobilins.
2. Sea weeds.
3. Heterothalism in fungi.
4. Edible mushrooms.
5. Symbionts.
6. Capsular staining.
7. Viral vectors.
8. Aflatoxins.
9. *Xanthomonas citrii*.
10. Uses of *Usnea*.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Write the general account on green algae.

Or

- (b) Comment on algal blooms.

12. (a) Write about the reproduction in Saprolegnia.

Or

- (b) Write down the economic importance of fungi.

13. (a) Differentiate aerobic and anerobic respiration in bacteria.

Or

- (b) Shortly explain the differential staining method.

14. (a) Briefly explain Koch's postulates.

Or

- (b) Write down the classification of plant diseases based on symptoms.

15. (a) Write short notes on TMV.

Or

(b) Write down the uses of *Cladonia*.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) Write the classification of algae by Fritsch.

Or

(b) Write a detail account on economic importance of algae.

17. (a) Write down the structure, reproduction and life cycle of *Cercospora*.

Or

(b) Write notes on : (i) *Morchella* (ii) *Puccinia*
(iii) *Fusarium* (iv) *Alternaria*.

18. (a) Explain the following : (i) Bacterial conjugation (ii) Bacterial transformation.

Or

(b) Write an essay on bacterial growth kinetics.

19. (a) Write the etiology, symptoms, causative agents and transmission of red rot of sugarcane.

Or

- (b) Write the classification of plant viruses.

20. (a) Give a detail account on vegetative and sexual reproduction in lichens.

Or

- (b) Explain the mode of viral transmission in plants.
-

DECEMBER 2017

P/ID 40222/PBTB

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

1. Hepaticae.
2. Protonema.
3. Apospory.
4. Capsule.
5. *Sphagnum*.
6. Amphiphloic.
7. Tapetum.
8. Eusporangiate.
9. Annulus.
10. *Anabaena azollae*.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Write down the general uses of bryophytes.

Or

- (b) Write short notes on Mosses.

12. (a) Draw the structure of Anthoceros – Sporophyte.

Or

- (b) Write about the life cycle of Funaria.

13. (a) Briefly explain the telome theory.

Or

- (b) Write the economic importance of pteridophytes.

14. (a) Give an account on soral evolution.

Or

- (b) Write the reproduction mechanism in *Osmunda*.

15. (a) Give a structure of Angiopteris.

Or

(b) Comment on general features of Psilotum.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) Write a life cycle of Reboulia.

Or

(b) Explain asexual and sexual reproduction in bryophytes.

17. (a) Write the structural features and reproduction in Riccia.

Or

(b) Explain the sporophyte of Polytrichum.

18. (a) Write down the classification of Peridophytes.

Or

(b) Discuss about the gametophytic evolution in pteridophytes.

19. (a) Write the detail account on life cycle of *Isoetes*.

Or

(b) Explain the reproduction cycle of Marcilea.

20. (a) Compare the features of Osmunda and *Salvinia*.

Or

(b) Discuss about the life cycle of Azolla.

DECEMBER 2017

P/ID 40223/PBTC

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

1. Star rings.
2. Corallorhiza.
3. Ligule.
4. *Sagenopteris*.
5. Tent Pole.
6. Hypostase.
7. Pycnoxylic.
8. Amber.
9. Casts.
10. Pollination Drop.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Illustrate and write the external morphology of *cycas* habit.

Or

- (b) Explain about *Sphenophyllum*.

12. (a) Illustrate and explain the mature ovule of *Taxus*.

Or

- (b) Enumerate the angiosperm-like characters of *Gnetum*.

13. (a) Describe with the help of suitable sketches, the staminate strobilus of *Ephedra*.

Or

- (b) Give an account on evolutionary tendencies in Gymnosperms.

14. (a) Draw the V.S. of ovule of *Lyginopteris oldhamia*.

Or

- (b) Illustrate the female fructification of *Glossopteris*.

15. (a) Write about the microsporophyll of *Caytonia*.

Or

- (b) Write an account on the secondary growth in the root of *Cordaites*.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) Give an account on Sporne's classification of Gymnosperms.

Or

- (b) Describe the female gametophytes of *Cycas* and trace the changes leading to seed formation.

17. (a) Give a comprehensive account of *Glossopteris* and comment on its reconstruction.

Or

- (b) Explain the development of female gametophyte of *Gnetum*.

18. (a) Describe the sexual reproduction in *Ephedra*.

Or

- (b) Write about reproduction in Ginkgoales.

19. (a) Describe the male and female strobilus of *Cordaites*.

Or

- (b) Illustrate and write the L.S. of *Cardiocarpus* ovule and label the parts.

20. (a) Write an essay on fossilization methods.

Or

- (b) Illustrate and explain the anatomy of primary and secondary stem structure in the fossil *Lyginopteris oldhamia*.
-

DECEMBER 2017

P/ID40224/PBTD

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions each in 50 words.

1. Aboriginal Name.
2. Diclony.
3. Artificial Classification.
4. Sequential key.
5. Isonym.
6. Protopine.
7. Polygamous Flowers.
8. *Cardiospermum Helicacabum*.
9. Nomen nudum.
10. Rostellum.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Compare the qualitative and quantitative variations in taxonomic characters determination.

Or

- (b) List out the categories of taxonomy.

12. (a) Give any five demerits of Bentham and Hooker's classification.

Or

- (b) Discuss the demerits of Takhtajan's classification.

13. (a) Write a short account on Biosystematics.

Or

- (b) Discuss the role of alkaloids in taxonomic delimitation of various taxa.

14. (a) What is an isotype? Give an example.

Or

- (b) Write about flora and its types.

15. (a) Enlist any five edibles of family Poaceae.

Or

(b) Illustrate the floral diagram and write the floral formula of family Bignoniaceae.

PART C — (5 × 10 = 50 marks)

Answer ALL questions each in 500 words.

Draw diagrams wherever necessary.

16. (a) What are the characters to be considered before plant identification and explain their methods of identification?

Or

(b) Describe in detail the role of BSI and its achievements in plant identification and conservation.

17. (a) Give an account of Linnaeus classification.

Or

(b) Outline the classification of Hutchinson.

18. (a) Discuss in detail the phytochemical characters of taxonomic importance.

Or

(b) What is the scientific basis of botanical nomenclature? What are the important rules in the system?

19. (a) What is Typification? Give an account of various nomenclatural types.

Or

- (b) Describe the diagnostic features of family Vitaceae and Sapindaceae. Mention atleast three important genera of each family and give their economic importance.

20. (a) Compare the floral variations of family Amaryllidaceae with Orchidaceae.

Or

- (b) Illustrate and describe the vegetative and reproductive characters of family Typhaceae.
-

DECEMBER 2017

P/ID 40225/PBTE

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

Write short notes on :

1. Microspore tetrad.
2. Campylotropous ovule.
3. Pollen tube wall.
4. Nuclear endosperm
5. Dedifferentiation.
6. Morphogenetic factors.
7. Pollen allergy.
8. Tunica-carpus.
9. Xylem fibres.
10. Internal secretory Structure.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) List out the events which occur during microsporogenesis.

Or

- (b) With suitable diagrams explain the megasporogenesis.

12. (a) Mention the post-fertilization changes.

Or

- (b) Discuss the structure of monocotyledonous embryo.

13. (a) Write an account on physical method of sterilization.

Or

- (b) How floral vasculature is arranged? Explain.

14. (a) How pollen analysis is done?

Or

- (b) Elaborate the seasonal activity of vascular cambium

15. (a) Detail the types of woods found in Angiosperms.

Or

- (b) Describe the Kranz anatomy and its uses.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) What is microgametogenesis? Explain with suitable diagram.

Or

- (b) Draw the ultra structure of egg, synergids and antipodals. Specify their importance.

17. (a) Give an account on factors affecting fertilization.

Or

- (b) What is apomixis and polyembryony? Mention their roles in horticulture.

18. (a) Detail the various steps present in ovary culture and its importance.

Or

- (b) Explain the role of extracellular matrix in morphogenesis.

19. (a) How anomalous thickening occurs in *Dracaena*?

Or

(b) How vascular cambium is originated? Point out their role in secondary growth of Plants.

20. (a) With suitable diagrams discuss the structure and types of phloem tissue.

Or

(b) Give an elaborate account on stomatal types.

DECEMBER 2017

P/ID 40226/PBTF

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions each in 50 words.

1. Microconsumers
2. Zurich-Montpellier tradition.
3. Trophic level.
4. Sere.
5. Pedogenesis.
6. Ecotone.
7. Greenhouse effect.
8. Gene bank.
9. Biomes.
10. Cryopreservation.

PART B — (5 × 6 = 30 marks)

Answer ALL questions each in 250 words.

11. (a) Explain the major components of ecosystem.

Or

- (b) Write an account on productivity of ecosystem.

12. (a) Explain the zonation in a community.

Or

- (b) Explain the types of estuaries based on geomorphology.

13. (a) Write an account on soil erosion and its management.

Or

- (b) Explain the concept of habitat niche.

14. (a) Write a general account on urbanization and its impact on biodiversity loss.

Or

- (b) Highlight the feasibility of obtaining energy from biomass.

15. (a) Explain the phenomenon of continental drift.

Or

- (b) Write an account on Age and area hypothesis.

PART C — (5 × 10 = 50 marks)

Answer ALL questions each in 500 words.

16. (a) “Ecological pyramids are indicators of the functions of an ecosystem” – Justify the statement.

Or

- (b) Write an essay on energy flow in an ecosystem.

17. (a) Elucidate different characteristics of a population.

Or

- (b) Write an essay on water pollution.

18. (a) Trace the influence of wind and tidal energy on economic growth.

Or

- (b) Explain the various methods adopted to assess the loss of biodiversity.

19. (a) Discuss the role of National parks in biodiversity conservation.

Or

- (b) Assess the composition and functions of IUCN.

20. (a) Analyse the impact of IPR on patent registration.

Or

(b) Discuss the role of remote sensing and its applications.

DECEMBER 2017

P/ID 40227/PBTG

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions each in 50 words.

Write short notes on :

1. Phase plate.
2. Shadow casting.
3. Leucoplast.
4. F₁ particle.
5. Histone.
6. S-phase.
7. Satellite body.
8. Balbiani ring.
9. Transposon.
10. Clastogen.

PART B — (5 × 6 = 30 marks)

Answer ALL questions each in 250 words.

11. (a) Explain the procedure of freeze-etching.

Or

- (b) Explain the working principle of phase contrast microscope.

12. (a) Explain the ontogeny of chloroplast.

Or

- (b) Write the functions of lysosomes.

13. (a) Explain the ultra structure of nucleolus.

Or

- (b) Narrate the stages of mitotic cell cycle.

14. (a) Explain the fine structure of chromatin organization.

Or

- (b) Give an account on isochromosomes.

15. (a) Write a short notes on mutagenic agents.

Or

- (b) Write an account on chromosomal aberrations.

PART C — (5 × 10 = 50 marks)

Answer ALL questions each in 500 words.

16. (a) Describe the technique of differential centrifugation.

Or

- (b) Describe the working of scanning tunneling electron microscope.

17. (a) Explain the ultra structure of mitochondria.

Or

- (b) Chloroplast is a semi autonomous organelle-Justify.

18. (a) Explain the different molecular changes manifested during first meiotic division.

Or

- (b) Explain the nucleo cytoplasmic relationship.

19. (a) Give a comparative account on heterochromatin and euchromatin.

Or

- (b) Describe the fine structure, chemical composition and functions of chromosomes.

20. (a) Explain the different types of mutation.

Or

(b) Explain the phenomenon of polyploidy and its types. Add a note on its practical applications.

DECEMBER 2017

P/ID 40229/PBTJ

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions each in 50 words.

Write short notes on :

1. Monochromatic light.
2. Topoisomerase.
3. Endonuclease.
4. DNA modification.
5. RNA splicing.
6. Polypeptide.
7. Structural genes.
8. Shuttle vectors.
9. NCBI.
10. Swiss-Prot.

PART B — (5 × 6 = 30 marks)

Answer ALL questions each in 250 words.

11. (a) Explain the density gradient centrifugation technique.

Or

- (b) Explain the principle of spectroscopy.

12. (a) Write a short note on various types of DNA.

Or

- (b) Explain the procedure of isolation of DNA from cell mass.

13. (a) Highlight the enzymology of prokaryotic DNA replication.

Or

- (b) Explain the phenomenon of mRNA synthesis in prokaryotes.

14. (a) Explain the attenuation process in gene regulation.

Or

- (b) Give a detailed account on YAC vectors.

15. (a) Write a short notes on electroporation.

Or

- (b) Write an account on DNA databases.

PART C — (5 × 10 = 50 marks)

Answer ALL questions each in 500 words.

16. (a) Describe the procedure of PAGE.

Or

- (b) Describe the stepwise procedure of differential centrifugation.

17. (a) Explain the gene regulation mechanism in *lac* operon of *E.coli*.

Or

- (b) Describe the Southern hybridization technique.

18. (a) Describe the procedure to obtain glyphosate resistance.

Or

- (b) Explain the post-transcriptional processing of mRNA.

19. (a) Differentiate between 'Ara' and 'trp' operon.

Or

- (b) Explain the procedure of RFLP.

20. (a) Describe *Agrobacterium* mediated genetic transformation in plants.

Or

(b) Explain in detail how micro array technique is being used to construct the phylogenetic tree.

DECEMBER 2017

P/ID 40230/PBTK

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions each in 50 words.

Write short notes on :

1. Orbital.
2. Half-life.
3. Glycosidic linkage.
4. Mutarotation.
5. Peptide bond.
6. Cis and Trans isomers.
7. Polymerisation.
8. Enthalpy.
9. Isomerases.
10. Exergonic and endergonic reactions.

PART B — (5 × 6 = 30 marks)

Answer ALL questions each in 250 words.

11. (a) Explain various types of chemical bonds.

Or

- (b) Explain the procedure to calculate radioactivity.

12. (a) Write any three chemical properties of monosaccharides.

Or

- (b) Write a note on glycoprotein.

13. (a) Explain Ramachandran plot.

Or

- (b) Explain in brief ion-exchange chromatography.

14. (a) Give a brief account on phospholipids.

Or

- (b) Give an account of enzyme regulation mechanisms.

15. (a) Explain the concept of Redox potential.

Or

- (b) Narrate the procedure of enzyme immobilization.

PART C — (5 × 10 = 50 marks)

Answer ALL questions each in 500 words.

16. (a) Explain the structure and functions of polysaccharides.

Or

- (b) Describe the secondary and tertiary structure of proteins.

17. (a) Write an elaborated account on the properties of enzymes.

Or

- (b) Explain the derivation of Michaelis-Menton equation.

18. (a) Describe the method of separation of proteins by SDS-PAGE.

Or

- (b) Explain various factors affecting enzyme reaction.

19. (a) Explain the β -oxidation pathway of lipids.

Or

- (b) Explain the method of separation of compounds using HPLC.

20. (a) Explain the structure of ATP and reactions of its hydrolysis.

Or

(b) Write a detailed account on Glycolipids and Steroids.

DECEMBER 2017

P/ID 40231/PBTL

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

Write short notes :

1. Fluorescence
2. Phosphotriose isomerase
3. Malonyl-CoA
4. Flavonoids
5. *Rhizobium*
6. Water potential
7. Passive absorption
8. IAA
9. Senescence
10. Heat shock proteins

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Differentiate Red drop and Emerson enhancement effect.

Or

- (b) What is Glycolysis? Explain its various reactions.

12. (a) Mention the steps found in Glyoxylate cycle.

Or

- (b) Give a note on secondary metabolites and their role in plants.

13. (a) What are nitrogen fixers? Explain their types.

Or

- (b) Elaborate the types of stomata.

14. (a) Give a note on translocation of solutes.

Or

- (b) Mention the role of auxins in plant development

15. (a) Comment on the factors responsible for seed germination.

Or

- (b) List the types of stresses experienced by plants.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) What is C3 cycle? Elucidate the steps and enzymes involved in it.

Or

- (b) Write the Pentose Phosphate Pathway and its significance in the cell in detail.

17. (a) Which is the site of fatty acid synthesis? Explain the process in detail.

Or

- (b) Compare the structure and functions of flavonoids and terpenoids

18. (a) What is *nif* gene? Explain the structure and function of it.

Or

- (b) Explain active and passive transport of water in plants.

19. (a) Mention the role of micronutrients and macro nutrients in plant growth.

Or

- (b) Narrate the steps found in cytokinin biosynthesis in plants.

20. (a) Why seed dormancy is important in plants? Discuss the methods to break seed dormancy.

Or

- (b) What is heat stress? Explain its effect on plants.

DECEMBER 2017

P/ID 40232/PBTM

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions, each in 50 words.

Write short notes on:

1. Thirumoolar
2. Ayurveda
3. Chooranam
4. Legium
5. Triterpene
6. Azadirachtin
7. Which family does Ocimum sanctum and Solanum trilobatum belongs to?
8. Phyllanthin
9. Medicinal garden
10. Preservation of siddha medicinal heritage.

PART B — (5 × 6 = 30 marks)

Answer ALL questions, each in 250 words.

11. (a) Give an account on allopathy medicine.

Or

- (b) Who are siddhars? Mention the 18 siddhars.

12. (a) Write an example give the details of preparation of a Thailam.

Or

- (b) Give the method of preparation of a kashayam you have studied.

13. (a) Write on the morphological characters and medicinal value of Acalypha indica.

Or

- (b) Write on the diagnostic features and medicinal values of Achyranthes aspera.

14. (a) Explain briefly the morphological characters of Lucas aspera.

Or

- (b) Explain the morphological characters of Sesbania grandiflora.

15. (a) How does ENVIS play role in conservation of medicinal plants.

Or

- (b) List any three endangered medicinal plants and give two medicinal uses for each.

PART C — (5 × 10 = 50 marks)

Answer ALL questions, each in 500 words.

16. (a) Give the comparative account of siddha and unani medicines.

Or

- (b) Write on the history of siddha medicine.

17. (a) Give three examples each for the preparation of extracts and oils.

Or

- (b) Give three examples of kashayam and thailam preparation.

18. (a) Give an account on medicinal values of Alternanthera sessilis and Mukia scabrella.

Or

- (b) Write the systematic position and medicinal uses of Ocimum sanctum.

19. (a) List the medicinal values of any two meliaceae members you have studied.

Or

- (b) Give the systematic position, morphology and three uses of Centella asiatica.

20. (a) How do you conserve endemic and endangered medicinal plants.

Or

- (b) Write five endemic and five endangered medicinal plants along with the respective families.
