Model Question Paper

M.Sc. (Chemistry) I Semester

Paper IV

Time : Three Hours Maximum Marks : 60

Note: Attempt all questions. Each question carries equal marks.

UNIT I

1. Write a note on qualitative analysis. Explain the term with the help of suitable examples.

OR

What do you mean by sampling? How will you perform sampling in solid phase?

UNIT II

2. Discuss different types of errors. How can these be minimized?

OR

(a) Explain the difference between accuracy and precision.

(b) In the determination of zinc by complexometric titration, the following six corresponding titer value amounts (in mg) of zinc are:

6.568, 6.763, 6.328, 6.665, 6.337, 6.545

Calculate the standard deviation and the relative standard deviation

UNIT III

16.9.19

3. What are the different ways of expressing concentrations of the solutions? How will you prepare normal solutions (1N) of $KMnO_4$ acidic, basic, and neutral mediums.

OR

Write a note on different types of titrations commonly used in analytical chemistry. Discuss acid- base and redox titrations with the help of suitable examples.

UNIT IV

4. (a) With suitable examples explain the difference between Co-precipitation and post-precipitation

   (b)Write a note on scope of gravimetric analysis

   OR

   (a) Discuss the role of organic precipitants in gravimetric analysis

   (b) Describe the use of any two of the following as gravimetric reagent.

   Dimethyl glyoxime, Cupferron, 1-nitroso 2-napthol

UNIT V

5. (a)Give the schematic representation of spot test of group IIA metal ions.

   (c) Describe the spot test identification of any two of the following functional groups.

   Hydroxy,Carboxylic,Amino

   OR

   Discuss the semi micro determination of sulphur and nitrogen in organic compounds

16.9.19

M.Sc. (Botany) First Semester
Examination
Bryology and Pteridology
Paper : III
(BOT-503)

Time Allowed :Three Hours **Maximum Marks:60**

Note: Answer **Five** questions by selecting **One** question from each unit. **All** questions carry equal marks.

Unit-I

1. Discuss the Antithetic theory of Alternation of generations in Bryophytes and give proper evidences in support of this theory.
2. Write short notes on any two of the followings:
   (a) Fossil History of Bryophytes
   (b) Endemic liverworts of India
   (c) Vegetative Reproduction in Bryophytes
   (d) Economic uses of Bryophytes

Unit-II

3. Discuss the characters of the group **Anthocertopsida** and discuss the affinities of this group.
4. Write short notes on any two of the followings:
   (a) **Takakia**
   (b) Moss Protonema
   (c) Conducting strands of Mosses
   (d) **Buxbaumia**

Unit-III

5. Describe how Pteridophytes are different from Bryophytes and Gymnosperms?
6. What are **Monilophytes**? Give the classification according to Smith et al., 2006.

Unit-IV

7. Describe the origin and evolution of sorus and annulus in ferns?
8. Write short notes on any two of the followings:
   (a) Pteridophytes as ecological indicators
   (b) Heterospory in Pteridophytes
   (c) Parthenogenesis in Pteridophytes
   (d) Gametophytes of Eusporangiate Ferns.

Unit-V

9. Describe morphology, anatomy and reproductive biology of the group **Rhyniophytina.**
10. Discuss critically on any two of the following:
    (a) Arborescent Lycopods
    (b) Occurrence of vessels in Pteridophytes
    (c) Sporocarp structure of water Ferns
    (d) Secondary growth in Pteridophytes

M.Sc. (Botany)
Third Semester Examination
Cytogenetics , Plant Breeding & Biostatistics
(BOT-603)

Time Allowed: Three Hours **Maximum Marks: 60**

Note: Attempt **Five** questions in all. At least **One** question should be from each unit. All questions carry equal marks.

Unit-I

1- What are the principals of Mendelian Inheritance? Discuss its status in present scenario of advanced Genetics.

2- Differentiate any four of the following:
(i) Epistatic and Non- Epistatic Interactions
(ii) Cistron and Muton
(iii) Alleles and Pseudo-alleles.
(iv) Meiosis I and Meiosis II
(v) Penetrance and Expjressivty
(vi) Back cross and Test cross

Unit –II

3- What is sex- Chromosome? Discuss sex determination in plants with the help of suitable examples.

4- Write short notes on any **four** of the following:
(i) Maternal Inheritance
(ii) Meiotic crossing over
(iii) Three- stranded double cross overs
(iv) Evolution of linkage concept
(v) Arrangement of linked genes
(vi) Kinds of linkage

Unit –III

5. What is Induced mutatin ? Discuss the molecular basis of mutations.

6. Answer any **Four** of the following :
(i) Autopolyploidy
(ii) Allopolyploidy
(iii) Aneuploidy
(iv) Deficiency
(v) Inversions
(vi) Translocations

Unit –IV

7. What are plant breeding systems ? Discuss the role of plant breeding in crop-Improvement.

8. Write brief notes on any **Four** of the following.
(i) Hybrid vigour
(ii) Back cross breeding
(iii) Mutation breeding
(iv) Pedigree breeding
(v) Pure- line breeding
(vi) Male- sterility

Unit –IV

9. Discuss the significance of biostatistics in presentation of biological data.

10. Write short notes on any **Four** of the following.
(i) Sampling methods
(ii) Chi- square test
(iii) t- test
(iv) Comparison of means
(v) Analysis of variance
(vi) Simple experimental design.

MODEL QUESTION PAPER

M.Sc. (Zoology) First Semester

Paper: First (Non-Chordata)

[Time Allowed: Three Hours] **[Maximum Marks: 60]**

Note: Attempt **five** questions, selecting **one** question from each unit. **All** questions carry equal marks.

Unit-I

1. Write an essay on different modes of locomotion in Protozoa.

OR

Give an account of asexual mode of reproduction in Protozoa.

Unit-II

2. Give a comparative account of canal system in Porifera.

OR

Write a note on skeletal system of sponges.

Unit-III

3. Define the term Metagenesis with reference to *Obelia*.

OR

Give a detailed account of polymorphism in *Obelia*.

Unit-IV

4. Describe evolution of parasitism in platyhelminthes.

OR

Write an essay on tegumental organs in Helminthes.

Unit-V

5. Give the structural details of trocophore larva and comment upon its significance.

OR

Describe metameric segmentation in Annelida.