

Seat No.	
-------------	--

Set	P
-----	---

**M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**BIOLOGY AND DIVERSITY OF FUNGI, BACTERIA, VIRUSES AND LICHENS**

Time: 2½ Hours

Max. Marks: 70

- Instructions:**
- 1) Figure to right indicate full marks.
  - 2) Question 1 is compulsory.
  - 3) Answer any two questions from Q.2, 3 & 4.
  - 4) Answer any two questions from Q.5, 6 & 7.
  - 5) Draw neat and labeled diagrams wherever necessary.

**Q.1 Rewrite the following sentences by choosing correct alternative:-** **14**

- 1) Order Mucorales belongs to class \_\_\_\_\_.  
a) Zygomycetes  
b) Myxomycetes  
c) Disomycetes  
d) Oomycetes
- 2) The cephalotrichous bacteria having \_\_\_\_\_ flagella at one end only.  
a) One  
b) Two or more  
c) Both a and b  
d) None of them
- 3) The class Plasmodiophoromycetes belongs to division \_\_\_\_\_.  
a) Zygomycotina  
b) Ascomycotina  
c) Basidiomycotina  
d) Myxomycota
- 4) Bacteriophages are \_\_\_\_\_ parasites of bacteria.  
a) Fungal  
b) Bacterial  
c) PPLO  
d) Viral
- 5) In 1936, \_\_\_\_\_ studied TMV in crystalline form, from sap of infected tobacco plant.  
a) Hershey  
b) Stanley  
c) Twort  
d) Herelly
- 6) The term \_\_\_\_\_ is used for non-motile sporangiospores.  
a) Aplanospores  
b) Chlamydospores  
c) Zoospores  
d) Both a & b
- 7) In 1898, \_\_\_\_\_ has discovered mycoplasma as disease incitant in animals.  
a) Borrel *et al.*  
b) Leeuwenhoek  
c) Nowak  
d) Nocard & Roux
- 8) \_\_\_\_\_ bacteria have true flagella or motile.  
a) Artichous  
b) Trichous  
c) Polar  
d) Non polar
- 9) The diseases occurring widely and periodically are termed as \_\_\_\_\_ disease.  
a) Epiphytotic  
b) Endemic  
c) Sporadic  
d) None of them
- 10) \_\_\_\_\_ means, bacteria are capable of changing their morphology as environment.  
a) Filamentous  
b) Pleomorphic  
c) Coccus  
d) Spirillum

- 11) Lichens are the mutualism of algae and \_\_\_\_\_.
- |             |                   |
|-------------|-------------------|
| a) Bacteria | b) Viruses        |
| c) Fungi    | d) Bacteriophages |
- 12) \_\_\_\_\_ is present in bacterial cell.
- |                  |                 |
|------------------|-----------------|
| a) Chromosome    | b) Mitochondria |
| c) Golgi complex | d) Ribosomes    |
- 13) The shape of \_\_\_\_\_ bacteria is comma like.
- |                          |                     |
|--------------------------|---------------------|
| a) <i>Vibrio</i>         | b) <i>Sarcina</i>   |
| c) <i>Staphylococcus</i> | d) <i>Spirillum</i> |
- 14) Cell wall of bacteria composed of NAG, NAM and peptide chain of \_\_\_\_\_ amino acids.
- |        |         |
|--------|---------|
| a) 3-4 | b) 4-5  |
| c) 5-6 | d) 5-12 |

**Q.2 Write about:-**

- |  |           |
|--|-----------|
| a) General account on Eubacteria.            | <b>07</b> |
| b) Types of bacillus bacteria, with example. | <b>07</b> |

**Q.3 Describe in short:-**

- |  |           |
|--|-----------|
| a) Structured to Tobacco Mosaic Virus. | <b>07</b> |
| b) General character of lichens.       | <b>07</b> |

**Q.4 Explain:-**

- |   |           |
|---|-----------|
| a) Reproduction in Ascomycotina.                                  | <b>07</b> |
| b) What is flagellum in bacteria? Provide its types with example. | <b>07</b> |

**Q.5 a) Write short notes on:-**

- |   |           |
|---|-----------|
| 1) General character of plant viruses.      |           |
| 2) Fungi as bio-control agents.             |           |
| <b>b) Vegetative reproduction in fungi.</b> | <b>04</b> |

**Q.6 a) Write short notes on:-**

- |   |           |
|---|-----------|
| 1) Discuss symbiotic association in lichens.  |           |
| 2) General characteristics of fungi.          |           |
| <b>b) Economic importance of plant virus.</b> | <b>04</b> |

**Q.7 a) Write note on any three of the following:-**

- |   |           |
|---|-----------|
| 1) Types of lichens with suitable example.  |           |
| 2) Replication and transmission in viruses. |           |
| <b>b) Ultrastructure of bacterial cell.</b> | <b>04</b> |

Seat  
No.

Set **P**

**M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018  
Botany**

**BIOLOGY AND DIVERSITY OF ALGAE, BRYOPHYTES AND PTERIDOPHYTES**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) All sections are compulsory.  
 2) Attempt any two questions from section – II and any two from section – III.  
 3) Answer to all the three sections should be written in the same answer book.  
 4) Draw neat and labeled diagrams wherever necessary.  
 5) Figures to be right indicate full marks.

**SECTION – I**

**Q.1 Select the correct answer from the given alternatives and rewrite the sentences:- 14**

- 1) The chlorophyll a and b are found in the members of the class \_\_\_\_\_.
  - a) Chlorophyceae
  - b) Charophyceae
  - c) Euglenophyceae
  - d) All the above
- 2) Sexual reproduction is absent in the class \_\_\_\_\_.
  - a) Cyanophyceae
  - b) Charophyceae
  - c) Euglenophyceae
  - d) Chlorophyceae
- 3) \_\_\_\_\_ are the unicellular forms of algae.
  - a) *Chlamydomonas*
  - b) *Chlorella*
  - c) *Euglena*
  - d) All the above
- 4) Heterotrichous habit is observed in \_\_\_\_\_.
  - a) *Nostoc*
  - b) *Oscillatoria*
  - c) *Ectocarpus*
  - d) *Oedogonium*
- 5) The prokaryotic cells are observed in the members of the class \_\_\_\_\_.
  - a) Cyanophyceae
  - b) Charophyceae
  - c) Euglenophyceae
  - d) Chlorophyceae
- 6) Among the bryophytes, the members of order \_\_\_\_\_ are much evolved.
  - a) Marchantiales
  - b) Anthocerotales
  - c) Polytrichales
  - d) Jungermanniales
- 7) Plastid are absent in the class \_\_\_\_\_.
  - a) Cyanophyceae
  - b) Charophyceae
  - c) Euglenophyceae
  - d) Chlorophyceae
- 8) Septate rhizoids are present in the members of \_\_\_\_\_.
  - a) Marchantiales
  - b) Sphagnales
  - c) Anthocerotales
  - d) Jungermanniales
- 9) *Equisetum* belongs to the class \_\_\_\_\_.
  - a) Psilopsida
  - b) Lycopsida
  - c) Sphenopsida
  - d) Pteropsida
- 10) Haplostele is present in the stem of \_\_\_\_\_.
  - a) *Ophioglossum*
  - b) *Psilotum*
  - c) *Selaginella*
  - d) *Marsilea*

- 11) Sporophyte is parasitic on the gametophyte in the members of \_\_\_\_\_.  
a) Pteridophytes                                      b) Algae  
c) Bryophytes    d) All the above
- 12) \_\_\_\_\_ are considered as the vascular cryptogams.  
a) Algae    b) Bryophytes  
c) Fungi     d) Pteridophytes
- 13) Stele includes \_\_\_\_\_.  
a) Endodermis    b) Pericycle  
c) Vascular bundles and pith                      d) All the above
- 14) \_\_\_\_\_ members of pteridophyte are homosporous in nature.  
a) *Psilotum*    b) *Equisetum*  
c) Both a and b                                         d) *Selaginella*

**SECTION – II**

- Q.2** a) Give the salient features of the class Chlorophyceae and state the interrelationship between chlorophyceae and phaeophyceae. **07**  
b) Add a note on the Ultra structure of algal cell. **07**
- Q.3** a) Explain the diversity in bryophyte with respect to thallus structure and interrelationship between the order Marchantiales and Anthocerotales. **07**  
b) Define stele and add a note on the stellar evolution in Pteridophyte. **07**
- Q.4** a) Give an account of isolation, culture and preservation of algae. **14**  
b) Discuss the modern trends of classification of Pteridophyte. **14**

**SECTION – III**

- Q.5** a) Add a note on telome concept. **05**  
b) Describe the method of sexual reproduction in the members of sphagnales. **05**  
c) Describe the unicellular forms of algae. **04**
- Q.6** a) Write the economic importance of bryophytes. **05**  
b) Describe the asexual method of reproduction of algae. **05**  
c) Give the salient features of the class Pteropsida. **04**
- Q.7** a) Give an account sexual reproduction in *Equisetum*. **05**  
b) Describe the modern trends of classification of bryophytes. **05**  
c) Add a note on aquatic forms of algae. **04**

Seat No.	
----------	--

**M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018**  
**Botany**  
**PLANT ECOLOGY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:**
- 1) Answers any five questions.
  - 2) Figures to the right indicate full marks.
  - 3) Question 1 is compulsory.
  - 4) Answer any two essay questions from Q.2, 3 & 4.
  - 5) Answer any two short notes questions from Q.5, 6 & 7.

**Q.1 Choose the correct answer form the given alternatives:-****14**

- 1) Trophic level in ecosystem is formed by \_\_\_\_\_.
 

a) only herbivores	b) only plants
c) only bacteria	d) Organism linked in food chain
- 2) All of the members of a particular species that live in one area are called a (an):
 

a) Biome	b) Population
c) Community	d) Ecosystem
- 3) Which one of the following is not a functional unit of an ecosystem?
 

a) Productivity	b) Stratification
c) Energy flow	d) Decomposition
- 4) MAB is \_\_\_\_\_.
 

a) Man and the Biodiversity	b) Man and the Biology
c) Man and the Biosphere	d) Man and the Biome
- 5) EIA is the assessment of the environmental \_\_\_\_\_ consequences.
 

a) only positive	b) only negative
c) both positive and negative	d) none of these
- 6) \_\_\_\_\_ is suppose to be most reproductive ecosystem in world.
 

a) Mangrove	b) Ocean
c) Lake	d) Grassland
- 7) In remote sensing \_\_\_\_\_ are concerns with the time lapse between two successive images of the same area.
 

a) Spatial resolution	b) Spectral resolution
c) Temporal resolution	d) Pixel resolution
- 8) \_\_\_\_\_ are sensitive only to radiation from a natural origin.
 

a) Active sensors	b) Passive sensors
c) Chemical sensors	d) Electrical sensors
- 9) The ozone layer prevents light \_\_\_\_\_ wavelengths.
 

a) visible	b) dark
c) infrared	d) ultraviolet

- 10) The tendency of pollutants to concentrate as they move from one trophic level to the next is known as \_\_\_\_\_.
- a) bioaccumulation
  - b) biomagnification
  - c) biostatistic
  - d) biotransformation
- 11) \_\_\_\_\_ is the increase of Earth's average surface temperature due to effect greenhouse gases.
- a) Global warming
  - b) Global cooling
  - c) Global marketing
  - d) Globalization
- 12) Heavy metals can be removed by \_\_\_\_\_ process.
- a) Phytoextraction
  - b) Biotransformation
  - c) Bioaccumulation
  - d) Biomagnification
- 13) CFC refers to \_\_\_\_\_.
- a) Chlorincarbon
  - b) Chlorofluorocadmium
  - c) Chlorofluorocarbon
  - d) All of these
- 14) Water hyacinth is native to the \_\_\_\_\_.
- a) America
  - b) Asia
  - c) Australia
  - d) Amazon basin

- Q.2** a) Describe various stages in succession with suitable example. **14**  
b) Explain various causes of ozone depletion.
- Q.3** a) Give an account on impact of toxic environment on ecosystems. **14**  
b) Define phytoextraction and describe stages involved in it.
- Q.4** a) Comment upon green house effect. **14**  
b) Explain in detail fresh water ecosystem.
- Q.5 Describe:** **14**  
a) Rhizofiltration  
b) Water hyacinth  
c) Bio-accumulation of pollutants
- Q.6 Explain:-** **14**  
a) Carbon credit  
b) Structural components of an ecosystem.  
c) Phytoextraction
- Q.7 Write a short note on:-** **14**  
a) Consequences of climate changes  
b) MAB  
c) Remote sensing in vegetation.

Seat No.	
----------	--

Set **P**

**M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**TOOLS AND TECHNIQUES IN BOTANY**

Time: 2½ Hours

Max. Marks: 70

**Instructions:** 1) Question 1 is compulsory.

2) Attempt any two questions from Q.2, 3 &amp; 4

3) Attempt any two short notes questions from Q.5, 6 &amp; 7

4) Draw neat and labeled diagrams wherever necessary.

5) Figures to the right indicate full marks.

**Q.1 Rewrite the following sentences by choosing correct alternative:- 14**

- 1) Biostatistics is also called as \_\_\_\_\_.
  - a) Statistics in biology
  - b) Biometry
  - c) Statistics in vivo
  - d) Bionemerology
- 2) Variables whose value can be expressed numerically are called \_\_\_\_\_.
  - a) Quantitative variable
  - b) Qualitative variable
  - c) Absolute variable
  - d) Continuous variable
- 3) Correlation coefficient is a number between \_\_\_\_\_.
  - a) +1 and +2
  - b) 0 and +1
  - c) -1 and 0
  - d) -1 and +1
- 4) \_\_\_\_\_ light source is used in Fluorescence microscopy.
  - a) Xenon arc lamps
  - b) Mercury-vapor lamps
  - c) UV lamps
  - d) Both a & b
- 5) C18 columns are used in \_\_\_\_\_ chromatography.
  - a) HPLC
  - b) Gel filtration
  - c) Ion Exchange
  - d) Affinity
- 6) Sodium and potassium metal ions concentration is determined using \_\_\_\_\_ instrument.
  - a) NMR
  - b) Flame spectrophotometry
  - c) ESR
  - d) UV
- 7) DNA absorbs light in \_\_\_\_\_ nm.
  - a) 100
  - b) 200
  - c) 260
  - d) 280
- 8) The absorption maximum shifts towards higher wavelengths due to the presence of auxochrome is called \_\_\_\_\_.
  - a) Bathochromic shift
  - b) Hypsochromic shift
  - c) Hyperchromic shift
  - d) Hypochromic shift
- 9) \_\_\_\_\_ technique uses magnetic properties of atomic nuclei.
  - a) Colorimetry
  - b) Spectrophotometry
  - c) NMR
  - d) Fluorescence

- 10) \_\_\_\_\_ is used extensively for radiation protection.  
 a) Fluorometry    b) Dosimetry  
 c) Nephelometry                                         d) Potentiometry
- 11) Handling of incoming specimens in herbarium maintenance involves \_\_\_\_\_.  
 a) Fumigation    b) Heating  
 c) Poisoning    d) All of these
- 12) \_\_\_\_\_ instrument is used for detecting and measuring radioactivity.  
 a) Scintillation counter                                b) Atomic absorption spectroscopy  
 c) Flame spectrophotometer                         d) Ultra sonicator
- 13) ANOVA stands for \_\_\_\_\_.  
 a) Analysis of variables                                b) Analysis of variance  
 c) Analysis of variety                                    d) Anatomical variance
- 14) \_\_\_\_\_ is used to study internal structure of cells is  
 a) Scanning electron microscope  
 b) Transmission electron microscope  
 c) Light microscope  
 d) Compound microscope

- Q.2 Write about:-** **14**  
 a) Principle and applications of Immuno fluorescence microscopy.  
 b) What is TEM? Describe the working principle of Transmission electron microscope.
- Q.3** a) Write the working principle and applications of UV-VIS spectrophotometry. **14**  
 b) Explain Principle and applications of HPLC.
- Q.4 Explain:-** **14**  
 a) Write the principle and applications of Immuno fluorescence microscopy.  
 b) Explain the effect of radiation on biological systems.
- Q.5 A) Write a short note on:-** **14**  
 1) Applications of computer in life sciences  
 2) Herbarium Preparation technique  
 B) Uses of phase contrast microscope
- Q.6 A) Write a short note on:-** **14**  
 1) Types of presentation of biological data  
 2) Ultracentrifugation  
 B) Buffers and its uses
- Q.7 A) Write a short note on:-** **14**  
 1) Radioisotopes  
 2) Important herbaria in India  
 B) Binomial distributions



Seat  
No.

**M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**BIOLOGY & DIVERSITY OF GYMNOSPERMS AND PALAEOBOTANY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Attempt total five questions.  
2) Figures to the right indicate full marks.  
3) Question 1 is compulsory.  
4) Answer any two essay questions from Q.2, 3 & 4.  
5) Answer any two short notes questions from Q.5, 6 & 7.

**Q.1 Choose the correct answer from given alternatives:-**

14

- 1) Atmospheric nitrogen is fixed by \_\_\_\_\_ through the presence of coralloid roots.
  - a) *Ephedra*
  - b) *Gnetum*
  - c) *Cycas*
  - d) *Araucaria*
- 2) The credit of investigating "Thin ground technique" goes to \_\_\_\_\_.
  - a) Nicol
  - b) Sanderson
  - c) Witham
  - d) Harris
- 3) *Glossopteris* flora is the features of \_\_\_\_\_.
  - a) Lower Gondwana
  - b) Middle Gondwana
  - c) Upper Gondwana
  - d) Deccan Intertrappean
- 4) Pycnoxylic wood is characterized by the presence of \_\_\_\_\_.
  - a) Small pith and small cortex
  - b) Small pith and large cortex
  - c) Large pith and large cortex
  - d) Large pith and small cortex
- 5) *Kaloxylon hookeri* is \_\_\_\_\_ genus of Pteridospermales.
  - a) Stem
  - b) Leaf
  - c) Root
  - d) fruit
- 6) *Sporogonites* belongs to \_\_\_\_\_ period.
  - a) Cambrian
  - b) Devonian
  - c) Silurian
  - d) Permian
- 7) \_\_\_\_\_ is the stem genus of family palmae.
  - a) Palmoxyton
  - b) Rhizopalmoxyton
  - c) Palmocarpon
  - d) Palmocaulon
- 8) In *Lyginopteris oldhamia* primary xylem is \_\_\_\_\_ type.
  - a) Exarch
  - b) Endarch
  - c) Mesarch
  - d) Polyarch
- 9) *Enigmocarpon* is \_\_\_\_\_.
  - a) Monocot fruit
  - b) Monocot leaf
  - c) Dicot root
  - d) Dicot fruit
- 10) In *Medullosa thompsoni* \_\_\_\_\_ steles are present.
  - a) 2
  - b) 3
  - c) 23
  - d) 70

- 11) *Nilssonia* is \_\_\_\_\_ genus of Cycadales.  
a) Stem  
b) Seed  
c) Leaf  
d) Flower
- 12) The stem and seed of \_\_\_\_\_ yield starch known as 'Sago'.  
a) *Ginkgo*  
b) *Araucaria*  
c) *Cycas*  
d) *Agathis*
- 13) In *Zamia* the arrangement of megasporophylls along the central axis is \_\_\_\_\_.  
a) Axillary  
b) Valvet  
c) Papilaceous  
d) Overlapping
- 14) In the \_\_\_\_\_, tracheids are characterized by tertiary spiral thickenings.  
a) *Welwitschia*  
b) *Ephedra*  
c) *Cycas*  
d) *Taxus*

- Q.2 a) Explain the diversity of gymnosperms with respect to reproduction. 07  
b) Describe out line of Indian fossil flora. 07
- Q.3 a) Give economic importance of Order Cycadales. 07  
b) Describe family Osmundaceae. 07
- Q.4 a) Reproductive structure of *Welwitschia*. 07  
b) Family Rhyniaceae. 07
- Q.5 Describe:-  
a) Male cone of *Ginkgo* 05  
b) Wood of *Conifer* 05  
c) *Medullosa thompsoni* 04
- Q.6 Explain:-  
a) Female cone of *Araucaria* 04  
b) *Lepidocarpon* 05  
c) *Lyginopteris* 05
- Q.7 Write notes on any two of the following:- 14  
a) Male cone of *Podocarpus*  
b) Petrification  
c) Coal Maceration

Seat  
No.

Set P

**M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018**  
**Botany**  
**TAXONOMY OF ANGIOSPERMS**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Figures to the right full marks.  
 2) Question 1 is compulsory.  
 3) Answer any two questions from Q.2, 3 & 4.  
 4) Answer any two questions from Q.5, 6 & 7.  
 5) Draw neat and labeled diagrams wherever necessary.

**Q.1 Rewrite the following sentences by choosing correct alternative:-** **14**

- 1) According to Besseyan cactus order \_\_\_\_\_ belongs to Alternarifoliae.
  - a) Lamiales
  - b) Ebenales
  - c) Iridales
  - d) Cactales
- 2) Current activity of botanical nomenclature governed by the \_\_\_\_\_.
  - a) BSI
  - b) ICNB
  - c) ICNCP
  - d) ICBN
- 3) \_\_\_\_\_ is the salient feature of Zingiberaceae.
  - a) tepals three
  - b) perianth 6 in 2 whorls
  - c) pinnate leaves
  - d) staminodes absent
- 4) The long form ICBN is \_\_\_\_\_.
  - a) Indian Code of Botanical Nomenclature
  - b) International Congress of Botanical Nomenclature
  - c) International Code of Botanical Nomenclature
  - d) Indian Congress of Botanical Nomenclature
- 5) Cronquist's system of classification is \_\_\_\_\_ system of classification.
  - a) Evolutionary
  - b) Natural
  - c) Phylogenetic
  - d) Artificial
- 6) Typology is one of the type of \_\_\_\_\_.
  - a) Typification
  - b) Species concept
  - c) Chemotaxonomy
  - d) Alpha taxonomy
- 7) The herbarium specimen is basic tool for plant \_\_\_\_\_.
  - a) Identification
  - b) Nomenclature
  - c) Phylogeny
  - d) classification
- 8) Hookers 'Flora of British India' is a best example of \_\_\_\_\_.
  - a) Monograph
  - b) Regional flora
  - c) Local flora
  - d) Continental flora
- 9) The term 'Taxonomy' was coined by \_\_\_\_\_.
  - a) Sir J. D. Hooker
  - b) C. V Linnaeus
  - c) A.P. de Candolle
  - d) C. Bessey
- 10) *Malus malus* is an example of \_\_\_\_\_.
  - a) Tautonym
  - b) Later homonym
  - c) Isonym
  - d) Synonym

- 11) A \_\_\_\_\_ represents a group of closely related species.  
a) Family                                      b) Genus  
c) Order    d) Division
- 12) International Association of Plant Taxonomy (IAPT) publishes \_\_\_\_\_.  
a) IUCN    b) ICVCN  
c) ICBN    d) ICZN
- 13) \_\_\_\_\_ means duplicate of the holotype collected by same author from same locality.  
a) isotype                                        b) lectotype  
c) neotype                                        d) syntype
- 14) *Manilkara zapota* belongs to \_\_\_\_\_ family  
a) Magnoliaceae                                b) Geraniaceae  
c) Sapotaceae                                  d) Araceae

- Q.2 Write about:-** **14**  
a) Principles of ICBN  
b) Aims and principles of the Taxonomy
- Q.3 Describe:-** **14**  
a) Typological species concept.  
b) Endemic and genetic diversity
- Q.4 Explain:-** **14**  
a) Effective and valid publications.  
b) The general account on Magnoliophyta up to subclass level.
- Q.5 A) Write short notes on:-** **10**  
1) Chemotaxonomy  
2) Species concept
- B) What is hotspot and comment on Indian hotspots?** **04**
- Q.6 A) Write short notes on:-** **10**  
1) Rejection of names  
2) What is magnitude and distribution?
- B) Write in brief account on loss and maintenance of biodiversity.** **04**
- Q.7 A) Write a short note on:-** **10**  
1) Subclass- Commelinadeae with example.  
2) What is Typification and comment on articles?
- B) Write in brief characterization and generation of biodiversity.** **04**

Seat No.	
----------	--

**M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**CELL AND MOLECULAR BIOLOGY OF PLANTS**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Answers any five questions.  
2) Figures to right indicate full marks.  
3) Question 1 is compulsory.  
4) Answer any two questions from Q.2, 3 & 4.  
5) Answer any two questions from Q.5, 6 & 7.

**Q.1 Choose the correct answer form the given alternatives:-**

**14**

- 1) The \_\_\_\_\_ proteins are extremely lipophilic and form the backbone of cell membrane.
  - a) Enzyme
  - b) Structural
  - c) Carrier
  - d) Storage
- 2) The lipid of the cell membrane contains hydrophilic heads and \_\_\_\_\_ tails.
  - a) hydrophilic
  - b) hydrophobic
  - c) no
  - d) both hydrophobic and hydrophilic
- 3) Singer and Nicolson (1972) put forward \_\_\_\_\_ model of membrane.
  - a) fluid-mosaic
  - b) lipid pillar
  - c) unit
  - d) greater
- 4) \_\_\_\_\_ involves folding of the plasma membrane around the material that is being engulfed and subsequent formation of an intracellular vesicle.
  - a) Phagocytosis
  - b) Pinocytosis
  - c) Secretion
  - d) Exocytosis
- 5) The liver cells have \_\_\_\_\_ golgi complexes.
  - a) one
  - b) ten
  - c) fifty
  - d) one hundred
- 6) The cytoplasm of all eukaryotic cells contains hollow fibrillar structures called \_\_\_\_\_.
  - a) capillaries
  - b) threads
  - c) microtubules
  - d) filaments
- 7) The rough endoplasmic reticulum is so called because the membranes are covered with \_\_\_\_\_, giving them a rough appearance.
  - a) ribosome
  - b) chloroplast
  - c) mitochondria
  - d) liposome
- 8) The inner membrane of mitochondria contain \_\_\_\_\_ enzyme.
  - a) Oxidase
  - b) Hexokinase
  - c) NADH cytochrome reductase
  - d) ATPase
- 9) The string of nucleosome is coiled in to a 300A diameter and from a structure of \_\_\_\_\_.
  - a) solenoid
  - b) cylinder
  - c) unit fiber
  - d) superhelliccal

- 10) The DNA strand (5' to 3') replicating in a discontinuous manner, synthesizes short fragments called \_\_\_\_\_.
- a) Replication fork
  - b) Kornberg fragment
  - c) Okazaki fragments
  - d) Template fragment
- 11) A triplet or three-letter genetic code was first suggested by the physicist \_\_\_\_\_.
- a) Crick (1952)
  - b) Gamow (1954)
  - c) Watson (1953)
  - d) Watson and Crick (1953)
- 12) The chiasma formation occurs in \_\_\_\_\_.
- a) Pachytene
  - b) Zygotene
  - c) Leptotene
  - d) Diplotene
- 13) Indirect immunofluorescence involves fluorescently labeled \_\_\_\_\_.
- a) Immunoglobulin specific antibodies
  - b) Antigen specific antibodies
  - c) Heptanes specific antibodies
  - d) Carriers specific antibodies
- 14) Inactivation of \_\_\_\_\_ is one of the steps leading to the development of cancer.
- a) Tumor suppressor genes
  - b) Oncogenes
  - c) Growth factors
  - d) Stem cells

- Q.2** a) Write in short about ion carriers and receptors in relation to plasma membrane. **07**
- b) Describe the structure and functions of microtubules and microfilaments. **07**
- Q.3** a) Describe the function of the plasma membrane. **07**
- b) Comment up on the genome organization in chloroplast. **07**
- Q.4** a) What are plasmodesmata? Describe its structure along with gap junction. **07**
- b) Write in short about biogenesis and functions of mitochondria. **07**
- Q.5** **Write briefly on:-**
- a) DNA Replication **05**
  - b) Retinoblastoma and E2F proteins **05**
  - c) Functions of satellite and selfish DNA **04**
- Q.6** **Describe:-**
- a) *In situ* hybridization technique **05**
  - b) Contribution of Nirenberg and Khorana **05**
  - c) Confocal microscopy **04**
- Q.7** **Write a short note on:- (Any three)** **14**
- a) Degeneracy of code
  - b) Apoptosis
  - c) DNA repair mechanism
  - d) Cyclins

Seat No.	
----------	--

Set	<b>P</b>
-----	----------

**M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**PLANT EMBRYOLOGY AND PALYNOLOGY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) All questions carry equal marks.  
2) Question 1 is compulsory.  
3) Answer any two questions from Q.2, 3 & 4.  
4) Answer any two questions from Q.5, 6 & 7.

**Q.1 Tick mark right answer of the following objectives:-= 14**

- 1) Development of microspore within another is known as \_\_\_\_\_.  
 a) Microsporogenesis                      b) Megasporogenesis  
 c) Microgametogenesis                    d) Spermatogenesis
- 2) Generally \_\_\_\_\_ megaspore develops into female gametophyte.  
 a) Micropylar                                 b) Chalazal  
 c) Bipolar                                      d) All of the above
- 3) Proubisch bodies in the tapetum are of \_\_\_\_\_ in nature.  
 a) lipid                                         b) lignin  
 c) protein                                      d) carbohydrate
- 4) \_\_\_\_\_ takes part in the exine ornamentation.  
 a) Ubisch bodies                             b) Proubisch bodies  
 c) Pollen kitt                                 d) All the above
- 5) Formation of the male sperms takes place by the division of \_\_\_\_\_.  
 a) Generative nucleus                     b) Vegetative nucleus  
 c) Prothallial nucleus                      d) Endosperm nucleus
- 6) In the formation of the pollen wall \_\_\_\_\_ plays important role.  
 a) Endothecium                              b) Epidermis  
 c) Tapetum                                    d) Middle layer
- 7) Filiform apparatus is present in the \_\_\_\_\_.  
 a) Antipodal cell                              b) Central cell  
 c) Egg cell                                     d) Synergid
- 8) Antipodals are \_\_\_\_\_ lived.  
 a) short                                         b) long  
 c) permanently                               d) none of these
- 9) \_\_\_\_\_ is the study of fossil pollen and spores.  
 a) Aeropalynology                         b) Paleopalynology  
 c) Copropalynology                        d) Palyotaxonomy
- 10) The branch that gives us information about pollen and spores, causing allergy is known as \_\_\_\_\_.  
 a) Forensic palynology                     b) Iatropalynology  
 c) Melittopalynology                       d) Aeropalynology
- 11) Honey is truly \_\_\_\_\_.  
 a) a plant product                         b) an insect product  
 c) a floral product                         d) a synthetic product

12) A person engaged in the study of Hay-fever or pollinosis is known as

- \_\_\_\_\_.
- a) Palynologist
  - b) Petrologist
  - c) Allergologist
  - d) Taxonomist

13) The term palynology was suggested by \_\_\_\_\_.

- a) Grew
- b) Malpighi
- c) P. K. K. Nair
- d) Hyde and Williams

14) When apertures are present in equatorial plane, it is described as \_\_\_\_\_.

- a) Catatrema
- b) Anacatrema
- c) Pore
- d) Zonal

<b>Q.2</b>	a) Megasporogenesis	<b>07</b>
	b) Use of pollen morphology in plant taxonomy in angiosperms.	<b>07</b>
<b>Q.3</b>	a) Pollen wall formation	<b>07</b>
	b) Melittopalynology	<b>07</b>
<b>Q.4</b>	a) Methods of overcome Incompatibility	<b>07</b>
	b) Techniques of Aeropalynology	<b>07</b>
<b>Q.5</b>	a) Technique of embryo culture	<b>05</b>
	b) Oil exploration	<b>05</b>
	c) Significance of another culture	<b>04</b>
<b>Q.6</b>	a) Significance of Apomixis	<b>05</b>
	b) Pollen storage	<b>05</b>
	c) Practical importance of polyembryony	<b>04</b>
<b>Q.7</b>	<b>Any three</b>	<b>14</b>
	a) Generative cell	
	b) Antipodals	
	c) Multifloral honey	
	d) Pollen calendar	



Seat No.	
----------	--

Set **P**

**M.Sc. (Semester - IV) ( New) (CBCS) Examination Mar/Apr-2018  
Botany**

**PHYTOGEOGRAPHY AND CONSERVATION BIOLOGY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Attempt totally five questions.  
2) Figures to the right indicate full marks.  
3) Question 1 is compulsory. (Section - I)  
4) Answer any two questions from Q.2, 3 & 4. (Section - II)  
5) Answer any two questions from Q.5, 6 & 7. (Section - III)

**SECTION - I**

**Q.1 Rewrite the following sentences by choosing correct alternative:-** **14**

- 1) \_\_\_\_\_ Organization is active for conservation of biodiversity at world level.
 

a) WWF	b) WCU
c) Both a and b	d) EE
- 2) \_\_\_\_\_ one is correct for individual of the same species.
 

a) Population	b) Biotic community
c) Ecosystem	d) All of these
- 3) Find odd one out: \_\_\_\_\_
 

a) Nanda Devi	b) Great Nicobar
c) Mannar	d) Thar
- 4) Animals and plants are used as a food that means \_\_\_\_\_.
 

a) Destruction value of biodiversity	b) Utility value of biodiversity
c) Ecosystem services	d) All of these
- 5) \_\_\_\_\_ type of information is obtained from Red-List.
 

a) Red colored flowers	b) Red eyed birds
c) Endangered plants and animals	d) Red colored insects
- 6) Which option is correct for endemism \_\_\_\_\_.
 

a) Any group which can be found in small region	b) Any group which can be found in large region
c) Group of species which can be found in definite region.	d) Any group which can be not found anywhere else
e) Endemic species which can be found everywhere	
a) a, b, c	b) a, c, d
c) b, c, e	d) Only b and e
- 7) \_\_\_\_\_ is one of the Hot spot of India.
 

a) Gangatic plain	b) Western Ghat
c) Eastern Ghat	d) Arravali mountain
- 8) \_\_\_\_\_ is included in types of biodiversity.
 

a) Genes	b) Species
c) Ecosystem	d) All of these



Seat No.	
----------	--

Set **P**

**M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018  
Botany**

**PLANT TISSUE CULTURE AND GREEN HOUSE TECHNOLOGY AND  
HYDROPONICS**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Answers total five questions.  
2) Figures to the right indicate full marks.  
3) Question 1 is compulsory.  
4) Answer any two questions from Q.2, 3 & 4.  
5) Answer any two questions from Q.5, 6 & 7.

**Q.1 Choose the correct answer form the given alternatives:-****14**

- 1) Pollen embryoids were discovered by
  - a) Konal and Natraja
  - b) Guha and Maheshwari
  - c) Skoog and Miller
  - d) Helperin and Wetherell
- 2) Differentiation of callus into plant parts is known as
  - a) Embryogenesis
  - b) Morphogenesis
  - c) Embryoid formation
  - d) Totipotency
- 3) Which of the following is an auxin?
  - a) IAA
  - b) BAP
  - c) Kn
  - d) Zeatin
- 4) In general, callus cultures are subcultured after which of the following periods?
  - a) 4-6 days
  - b) 4-6 Weeks
  - c) 8-10 Weeks
  - d) 2-3 months
- 5) In suspension cultures elicitation can be done by
  - a) Chitin
  - b) Pectin
  - c) U.V. light
  - d) All of these
- 6) Controlled release fertilizer "Osmocote" consists of
  - a) Fertilizers and resin
  - b) Fertilizers and gum
  - c) Fertilizers and tannin
  - d) Fertilizers and mucilage
- 7) Which country has developed advanced hydroponics technology due to its arid climate?
  - a) Sri Lanka
  - b) UAE
  - c) USA
  - d) Israel
- 8) The structures employed by P.R. White for first successful tissue culture were
  - a) Tomato roots
  - b) Tomato leaves
  - c) Tomato shoots
  - d) All of these
- 9) In greenhouse, the heat treatment is given to soil to remove used seeds at the temperature
  - a) 60 °C
  - b) 82.2 °C
  - c) 37.8 °C
  - d) 54.4 °C

- 10) A plant raised from a single pollen grain under cultural conditions would be  
a) Haploid  
b) Dihaploid  
c) Diploid  
d) None of these
- 11) Application of embryo culture is  
a) Clonal propagation  
b) Production of alkaloids  
c) Overcoming hybridization barrier  
d) Haploid production
- 12) Which of the following hydrogels have been used for encapsulation of hydrated somatic embryos?  
a) Sodium and potassium alginate  
b) Carageenan and Gel-Rite  
c) Sodium Pectate and Agar  
d) All of these
- 13) In synthetic plastic aggregate, media consists of  
a) Perlite  
b) Urea – formaldehyde foam  
c) Peat  
d) All of these
- 14) Which of the following is thermo stable?  
a) Zeatin  
b) ABA  
c) Both a and b  
d) None of these

- Q.2** Write an essay on hydroponics-soil less culture. **14**
- Q.3**  
a) Write an essay on embryo culture and embryo rescue. **07**  
b) What is clonal propagation? Describe different steps involved in clonal propagation using shoot tip culture. **07**
- Q.4**  
a) Describe in detail somatic embryogenesis and its applications. **07**  
b) Types of greenhouse **07**
- Q.5 Describe in brief:-**  
a) Fertilizers in greenhouse **07**  
b) Factors affecting anther culture. **07**
- Q.6 Write brief notes on:-**  
a) Micronutrients **07**  
b) Application of synthetic seeds **07**
- Q.7 Write a short note on:- (Any three)** **14**  
a) Elicitors used in secondary metabolite production.  
b) Totipotency  
c) Haploid plants  
d) Encapsulations of synthetic seeds

<b>Seat No.</b>	
-----------------	--

<b>Set P</b>
--------------

**M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018**  
**Botany**

**ENVIRONMENTAL PLANT PHYSIOLOGY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Answers any five questions.  
2) Figures to the right indicate full marks.  
3) Question 1 is compulsory.  
4) Answer any two questions from Q.2, 3 & 4.  
5) Answer any two questions from Q.5, 6 & 7.

**Q.1 Rewrite the following sentences by choosing correct alternative:-**

**14**

- 1) Tissue water potential is measured in the units of \_\_\_\_\_.  
a) amperes  
b) volts  
c) calories  
d) megapascals
- 2) Desert ephemerals are an example of \_\_\_\_\_ type of plants.  
a) drought resistant  
b) drought escape  
c) drought tolerant  
d) drought sensitive
- 3) Photorespiration in C<sub>3</sub> plants gets \_\_\_\_\_ when CO<sub>2</sub> level is increased.  
a) Increased  
b) Reduced  
c) Maintained  
d) Balanced
- 4) Depletion of ozone increases the amount of \_\_\_\_\_ radiations reaching the globe.  
a) Visible  
b) UV  
c) IR  
d) Gamma
- 5) Cell membranes of plants resistant to chilling injury contain \_\_\_\_\_ fatty acids in their lipid bilayer.  
a) saturated  
b) long chain  
c) unsaturated  
d) short chain
- 6) SOD catalyzes the reduction of \_\_\_\_\_ into hydrogen peroxide.  
a) molecular oxygen  
b) singlet oxygen  
c) ozone  
d) superoxide
- 7) Acid rain is caused by higher concentrations of \_\_\_\_\_ in the atmosphere.  
a) NO<sub>x</sub> and SO<sub>2</sub>  
b) NO<sub>2</sub> and O<sub>3</sub>  
c) SO<sub>2</sub> and O<sub>3</sub>  
d) CO<sub>2</sub> and SO<sub>2</sub>
- 8) \_\_\_\_\_ is a halophyte.  
a) *Suaeda*  
b) Sugarbeet  
c) Date palm  
d) Cotton
- 9) Accumulation of \_\_\_\_\_ phytohormone occurs during waterlogging.  
a) IAA  
b) Cytokinin  
c) Ethylene  
d) ABA
- 10) In sodic soils a high concentration of \_\_\_\_\_ is present.  
a) salt  
b) sodium  
c) potassium  
d) sand

- 11) Potassium ions play an important role in \_\_\_\_\_.
  - a) stomatal movements
  - b) protein synthesis
  - c) cell signaling
  - d) none of the above
- 12) Manganese toxicity in plants is identified by \_\_\_\_\_.
  - a) Chlorosis
  - b) Necrosis
  - c) Brown spots surrounded by chlorotic zones
  - d) All the above
- 13) Disease occurs in the plants when the pathogen lacks \_\_\_\_\_.
  - a) R genes
  - b) avr genes
  - c) DIR1 genes
  - d) None of these
- 14) \_\_\_\_\_ are considered to be the indicators of heavy metal stress.
  - a) Compatible solutes
  - b) Phytochelatins
  - c) LEA proteins
  - d) HSPs

- Q.2** What is disease? Describe biochemical changes occurring in the host tissue during fungal infection. **14**
- Q.3**
  - a) Give an account of effect of salt stress on plant metabolism. **14**
  - b) Write a note on mechanism of salt tolerance in higher plants.
- Q.4 Describe in brief:-** **14**
  - a) Effects of water stress on plant metabolism.
  - b) Structural adaptations in xerophytes in response to water stress.
- Q.5 Write on :-** **14**
  - a) Effect of SO<sub>2</sub> on plant metabolism
  - b) Chilling injury
- Q.6 Give an account of :-** **14**
  - a) Reactive oxygen species in plants and their origin
  - b) Antioxidants in plants and their role
- Q.7 Write a short note on:- (Any three)** **14**
  - a) Proline accumulation in plants
  - b) Heat shock proteins
  - c) Effects of flood and tolerance mechanism in plants
  - d) Impact of elevated CO<sub>2</sub> concentration on plants

Seat No.	
----------	--

**M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018**  
**Botany**  
**CROP PHYSIOLOGY**

Time: 2½ Hours

Max. Marks: 70

- Instructions:** 1) Question 1 is compulsory.  
 2) Attempt any two questions from Q.2, 3 & 4.  
 3) Attempt any two short notes questions from Q.5, 6 & 7.  
 4) Attempt totally five questions.  
 5) Figures to the right indicate full marks.

**Q.1 Rewrite the following sentences by choosing correct alternative:-** **14**

- 1) Which of the following affects on activity of stomata to check the loss of water in the form of water vapor?
  - a) Antitranspirants
  - b) Weedicides
  - c) Growth retardants
  - d) None of these
- 2) Harvest index is nothing but \_\_\_\_\_.
  - a)  $\frac{\text{Economic yield}}{\text{Biological yield}}$
  - b)  $\frac{\text{Biological yield}}{\text{Economic yield}}$
  - c) NAR
  - d) Both 'a' and 'b'
- 3) Weedicides used to kill \_\_\_\_\_.
  - a) Desired plants
  - b) Unwanted plants
  - c) Trees
  - d) Microbes
- 4) CIMAP research institute is located in \_\_\_\_\_.
  - a) Delhi
  - b) Maharashtra
  - c) Karnataka
  - d) Uttar Pradesh
- 5) Fruit ripening refers to change in structure and composition of fruit which make the acceptable to eat. Such changes occurs during
  - a) Maturation of Fruit
  - b) Early stage of senescence
  - c) Abscission of fruit
  - d) All of these
- 6) \_\_\_\_\_ condition required for initiation of flowering during vernalization.
  - a) Hot temp.
  - b) Cold temp.
  - c) Both 'a' and 'b'
  - d) None of these
- 7) Which of the following elements are not called minor element.
  - a) Fe, Zn and Mo
  - b) Ca, Mg, N
  - c) Cu, Mn, Co
  - d) All of these
- 8) Both the partners are benefited from each other such as association is known as \_\_\_\_\_.
  - a) Asymbiotic
  - b) Parasitic
  - c) Epl Physic
  - d) Symbiotic
- 9) The maximum or more plant growth occurs in \_\_\_\_\_.
  - a) Log phase
  - b) Lag phase
  - c) Stationary phase
  - d) Death phase

- 10) Florigen synthesis takes place in \_\_\_\_\_.
- Shoot apex
  - Stem
  - Roots
  - Leaves
- 11) Which of the following group is not biofertilizer?
- Rhizobium and Azotobacter culture
  - DAP and Urea
  - Vermicompost and green manure
  - Compost and cow dung
- 12) What is full form of ICRISA?
- Indian crop Research Institute for semi-arid Tropics
  - International crop Research Institute for semi arid Tropics
  - International Cancer Research Institute for semi arid Tropics
  - All of the above
- 13) \_\_\_\_\_ tissue in which loading and unloading of solute occurs
- Xylem
  - Pith
  - Epidermis
  - Phloem
- 14) GA growth hormone promotes Flouring in
- DNP
  - SDP
  - LDP
  - All of these
- Q.2** a) What is source and sink relationship? Add note on factor affecting on it. **07**  
b) Give an account of physiological basis of yield in wheat. **07**
- Q.3** a) Give an account of mode of action of any one weedicide studied by you. **07**  
b) Write the contribution of CIMAP institute in crop physiology. **07**
- Q.4** a) What is organic farming? Add note on its importance. **07**  
b) Explain physiology of N<sub>2</sub> fixation in chick pea. **07**
- Q.5** a) Write in short physiological basis of yield of sugarcane. **05**  
b) Explain the research activities carried out in ICRISAT in relation with crop physiology. **05**  
c) Write note on role of antitranspirants in agriculture. **04**
- Q.6** a) Write in short on post-harvest technology of grape w. r. t. market strategy from field to customer. **05**  
b) Define the term weedicide? Enlist common weeds and weedicides. **05**  
c) What is contribution of BARC in crop physiology? **04**
- Q.7** **Write notes on any three.** **14**
- Photoperiodism
  - Physiological basis of yield in cotton
  - Physiology of mineral nutrition of groundnut
  - Foliar application of fertilizer