

Seat No.	
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**M.Sc. (Botany) (Semester – I) (New) (CBCS) Examination, 2017
BIOLOGY AND DIVERSITY OF FUNGI, BACTERIA, VIRUSES AND LICHENS**

Day & Date: Tuesday, 18-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B. :** 1) Q.1 is **compulsory**.
 2) Attempt **any two** questions from Q. 2, 3 and 4.
 3) Attempt **any two** questions from Q. 5, 6 and 7.
 4) Figures to the **right** indicate **full** marks.
 5) Draw neat and labeled diagram wherever necessary.

Q.1 Choose correct alternatives:

10

- 1) The bacteria are _____ means they have flagella or motile.
 a) artichous b) trichous c) polar d) non polar
- 2) Viral parasites of bacteria are known as _____.
 a) phytoplasma b) vibrio bacteria
 c) bacteriophages d) plasmids
- 3) _____ had first time discovered mycoplasma as a disease incitant in animals.
 a) Leeuwenhoek b) Mehta
 c) Nocard & Roux d) Ainsworth
- 4) The Tobacco Mosaic Virus in crystalline state from the sap of infected tobacco plant was studied by _____.
 a) Hershey b) Herelly c) Twort d) Stanley
- 5) Myxomycophyta are _____.
 a) Slime molds b) Diatoms
 c) Brown algae d) Green algae
- 6) *Usnea* is _____ lichen.
 a) crustose b) foliose c) fruticose d) both b & c
- 7) The diseases which commonly occurs widely but periodically is termed as _____.
 a) sporadic b) endemic c) epidemic d) both a & b
- 8) The Viruses possess _____ enclosed within protein coat.
 a) DNA or RNA b) DNA and RNA c) DNA d) RNA
- 9) In bacterial cells _____ is present.
 a) Hemicellulose b) Cellulose c) Protein d) Mitochondria

- 10) According to Berry's manual bacteria belongs to class _____.
a) Actinomycetes b) Deuteromycetes
c) Schizomycetes d) Basidiomycetes
- 11) Mutualism of ____ and algae forming lichen thallus.
a) Fungi, bacteria b) Viruses c) Fungi d) bacteriophages
- 12) Aplanospores are also called as _____.
a) Chlamydo-spores b) Oospores
c) Sporangiospores d) Zoospores
- 13) In bacteria endoplasmic reticulum and Golgi complex absent but _____ is present.
a) ribosomes b) mitochondria c) chromosome d) plastids
- 14) When cells form cubical masses of cocci is _____ type of bacteria.
a) spirilla b) sarcina c) staphylococcus d) vibrio

Q.2 Write about: **14**
a) General characters of bacteria and its nutrition.
b) What is flagella and pili, illustrate with its type.

Q.3 a) Write on lichens with its type and economic importance. **07**
b) Write on Complex symmetry of viruses and its structural variations. **07**

Q.4 Explain: **14**
a) Size of bacteria with special reference to spiral/helical and its types.
b) Fungi as bio control agents and note on mycorrhizae.

Q.5 A) Write short notes on: **10**
1) Nutrition and reproduction in bacteria
2) Classification of plant viruses
B) Write in detail flagella and pili in bacteria. **04**

Q.6 A) Write short notes on: **10**
1) Recent trends in Classification of fungi
2) Types of lichens, based on morphological characters
B) Distribution, biology and any five importance of lichens **04**

Q.7 A) Write short notes on: **10**
1) Ultrastructure and composition of cell wall of fungi
2) Replication and transmission in viruses.
B) Write in short on ultrastructure and size of bacteria. **04**

- 9) The vascular tissues are absent in _____.
 a) algae b) fungi c) bryophytes d) All the above
- 10) _____ stele is regarded as the most primitive one
 a) Sipohono b) Haplo c) Dictyo d) atacto
- 11) A fertile spike with sporangia is formed in _____.
 a) Ophioglossum b) Psilotum
 c) Marsilea d) Siver fern
- 12) Salvinia belongs to the class _____.
 a) Psilosida b) Lycopsida
 c) Pterosida d) Sphenosida
- 13) _____ is used for the cultivation of fresh water algae.
 a) Richard's solution b) Pateur's medium
 c) Bold's basal medium d) Ricker aand Ricker medium
- 14) The photosynthetic lamellae in algal cells are _____ in nature.
 a) Lipid b) Vitamin c) Protein d) Both a aand c

- Q.2** **A)** Describe the multicellular forms of algae. **07**
 B) Give the economis importance of algae. **07**
- Q.3** **A)** Discuss the diversity in bryophytes with respect to reproduction. **07**
 B) Describe the modern trends of classification in algae. **07**
- Q.4** **A)** Describe the salient features and phylogeny of Anthocerotales. **07**
 B) Explain the stellar evolution in pteridophyte with suitable examples. **07**
- Q.5** **A)** Give salient features of the class-chlorophyceae. **05**
 B) Describe in brief the ultra structure of BGA cell. **05**
 C) Describe the method of preservation of algae. **04**
- Q.6** **A)** Describe the methods of asexual reproduction in algae. **05**
 B) Describe the marine water forms of algae. **05**
 C) Add a note on current trends of research in pteridophytes. **04**
- Q.7** **Writes note on any three:** **14**
 A) Explain the phylogeny and interrelationship of sphenosida and pterosida.
 B) Describe in brief the diversity in bryophyte with respect to morphology.
 C) Describe the telome concept.
 D) Describe the salient features of lycopsida.

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M.Sc. (Botany) (Semester I) (New) (CBCS) Examination, 2017
PLANT ECOLOGY

Day & Date: Saturday, 22-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B. :** 1) Attempt in **all five** questions.
2) Section-I is **compulsory**.
3) Attempt any **two** questions from Section - II and any **two** questions from Section – III.
4) Figures to the right indicate **full** marks.

Q.1 Rewrite the following sentences by choosing correct alternatives: 14

- 1) An _____ is a community of living organisms in conjunction with the nonliving components of their environment.
a) succession b) ecosystem c) biosphere d) forest
- 2) In ecology, _____ succession is the succession which driven by the abiotic components of an ecosystem.
a) allogenic b) heterogenic c) autogenic d) homogenic
- 3) IUCN was established in _____.
a) 1945 b) 1951 c) 1948 d) 1940
- 4) Biosphere reserves are areas comprising _____ ecosystem
a) terrestrial b) marine c) coastal d) all of these
- 5) Mangroves are growing in _____ ecosystems.
a) Riverine b) Estuarine c) Scrub jungles d) Grassland
- 6) _____ are expelled from high temperature combustion, and are also produced during thunderstorms by electric discharge.
a) Sulfur oxides (SO_x)
b) Nitrogrn oxides (NO_x)
c) Volatile organic compounds(VOC)
d) Carbon monoxide (CO)
- 7) The energy that flows through ecosystems is obtained primarily from the _____.
a) moon b) sun c) producers d) consumers
- 8) _____ is the major cycled within wetlands.
a) oxygen b) Humus c) Magnesium d) Carbon
- 9) A greenhouse gas is a gas in an atmosphere that absorbs and emits radiation within the thermal _____ range.
a) UV b) visible c) dark d) infrared

- 10) Climatic factors include _____.
 a) rain b) temperature c) wind d) all of these
- 11) As the green plants manufacture their own food they are known as _____.
 a) heterotrophs b) autotrophs
 c) consumers d) decomposers
- 12) The Indian government has established _____ Biosphere Reserves in India.
 a) 15 b) 16 c) 10 d) 18
- 13) The emission of ODS account for roughly _____ of total Depletion of ozone layer in stratosphere.
 a) 80% b) 90% c) 95% d) 72%
- 14) MAB aims to establish a scientific basis for the improvement of relationships between _____.
 a) people and their environments
 b) wetlands and their environments
 c) ecosystem and their environments
 d) forest and their environments

Serction – II

- | | | | |
|----------------------|---------------------------------|---|-----------|
| Q.2 | A) | Explain in detail fresh water ecosystem | 07 |
| | B) | What is land pollution? Comment up on pesticide residue and their effects on soil. | 07 |
| Q.3 | A) | Write an essay on ‘environmental toxicology’ studied by you. | 07 |
| | B) | Comment up on applications of remote sensing technique in vegetation analysis and wild life management. | 07 |
| Q.4 | A) | What are the wetlands? Explain characteristic features of wetlands. | 07 |
| | B) | Impact of toxic environment on ecosystems. | 07 |
| (Section III) | | | |
| Q.5 | A) | Effects of water pollution. | 05 |
| | B) | IUCN. | 05 |
| | C) | Phytovolatilization | 04 |
| Q.6 | A) | Mangrove ecosystem. | 05 |
| | B) | Green house gases | 05 |
| | C) | Rhizofiltration | 04 |
| Q.7 | Writes note on any three | | 14 |
| | A) | Climatic climax | |
| | B) | MAB. | |
| | C) | Effects of water pollution | |
| | D) | Toxic chemicals | |

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**M.Sc. Botany (Semester- I) (New) (CBCS) Examination, 2017
TOOLS & TECHNIQUES IN BOTANY**

Day & Date: Tuesday, 25-04-2017

Marks: 70

Time: 10.30 AM to 1.00 PM

- Instruction :** 1) Attempt totally **five** questions.
 2) Question no.1 is **compulsory** (Section-I)
 3) Attempt any two **questions** from question no.2 to 4 (Section – II).
 4) Attempt any two questions from question No.5 to 7(**Section – III**)
 5) Figures to the **right** indicate full **marks**.

SECTION I

Q.1 Rewrite the following sentences by choosing correct Alternatives. **14**

- 1) The Application of statistical methods in Biology is called _____.
 a) Statistic in Biology b) Statistic in vivo
 c) Biostatistics d) Biological statistics

- 2) _____ is regarded as father of Biostatistics.
 a) Fisher b) Karl Pearson
 c) Francis Galton d) Francis Bacon

- 3) The Correlation coefficient is used to determine _____.
 a) A specific value of the y-variable given a specific value of The x-variable.
 b) A specific value of the x-variable given a specific value of The y- variable.
 c) The strength of the relationship between the x and y Variables.
 d) No relationship between the x and y variables.

- 4) _____ light is suitable for getting maximum resolution.
 a) Red b) Blue c) Green d) Orange

- 5) The resolving power of unaided human eye is _____.
 a) 1 cm b) 100 μm c) 200nm d) 400nm

- 6) _____ of the following is used to visualize live cells.
 a) SEM b) TEM
 c) Phase contrast microscope d) All of these

- 7) DNA absorbs light in _____nm.
 a) 100 b) 200 c) 260 d) 280

- 8) In UV–VIS spectrophotometer _____ resolves polychromatic radiation into its individual wavelength.
- a) Detector b) Monochromator
c) Light source d) Sample holder
- 9) _____ lamp is used as a source of UV rays in Spectrophotometer.
- a) Hydrogen b) Deuterium c) halogen d) Both a & b
- 10) _____ chromatography is used to separate the molecules based on charge.
- a) Gel filtration b) Ion exchange
c) Affinity d) Gas
- 11) In gel filtration chromatography the particles are separated based on _____.
- a) Affinity b) Ion c) Molecular size d) Gel size
- 12) _____ technique is used to separate molecules based on molecular size and charge.
- a) Ultracentrifugation b) Gas chromatography
c) HPLC d) Isoelectric focusing
- 13) _____ technique is used to study the metabolic pathway in Living organism.
- a) Tracer b) NMR
c) Cytophotometry d) photomicrography
- 14) ANOVA stands for _____.
- a) Analysis of variables. b) Analysis of variance
c) Analysis of variety d) Anatomical variance

SECTION II

- | | | |
|------------|---|------------------------|
| Q.2 | A) Give an account Coefficient of variation.
B) Write in brief principle and applications of fluorescence microscopy. | 07
07 |
| Q.3 | A) What is SEM? Describe the working principle of scanning electron microscope.
B) Discuss the technique of isoelectric focusing | 07
07 |
| Q.4 | A) Write the principles and applications of NMR.
B) Explain how permanent slides are prepared. | 07
07 |

SECTION III

- Q.5 A) Herbarium preparation technique. 05
B) Application of radioisotopes in Biology. 05
C) Write a note on ultracentrifugation 04
- Q.6 A) Types of presentation of biological data 05
B) Analysis of variance 05
C) Use of Cystophotometry 04
- Q.7 Write notes on **any three**: 14
A) Principles UV spectrophotometer.
B) Application of affinity chromatography
C) Binomial distribution
D) Uses of Dosimetry

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M.Sc. Botany (Semester – II) (New) (CBCS) Examination, 2017
BIOLOGY & DIVERSITY OF GYMNOSPERMS & PALAEOBOTANY

Day & Date: Wednesday, 19-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B. :**
- 1) Attempt **total five** questions.
 - 2) Questions **NO.1 is Compulsory**.
 - 3) Attempt **any two** questions from Question.NO.2 to 4
 - 4) Attempt **any two** questions from Question NO.5 to 7
 - 5) Figures to the **right** indicate **full** marks.

Q.1 Choose the correct alternative given in the bracket. 14

- 1) Lens shaped and obliquely placed pit pore are present in _____.
 - a) Cupressus
 - b) Podocarpus
 - c) Araucaria
 - d) Agathis

- 2) Presence of the hump is the characteristics of the male cone of _____.
 - a) Taxus
 - b) Ginkgo
 - c) Ephedra
 - d) Pinus

- 3) The order Coniferales does not include the following family.
 - a) Taxaceae
 - b) Pinaceae
 - c) Cupressaceae
 - d) Podocarpaceae

- 4) In the _____ tracheids are characterized by tertiary spiral thickenings.
 - a) Welwitschia
 - b) Ephedra
 - c) Cycas
 - d) Taxus

- 5) In Zamia the arrangement of megasporophylls along the central axis is _____.
 - a) Axillary
 - b) Velvet
 - c) Papilaceous
 - d) Overlapping

- 6) The medullary rays containing are known as _____ medullary rays.
 - a) Linear
 - b) Pitted
 - c) Fusiform
 - d) All of the above

- 7) The stem and seed of _____ yield starch known as 'Sago'.
 - a) Ginkgo
 - b) Araucaria
 - c) Cycas
 - d) Agathis

- 8) In the nodal region *Medullosa heterostelica* _____ steles are present.
 a) 2 b) 3 c) 70 d) 23
- 9) *Thamnopteris* belongs to the family _____ .
 a) *Gleicheniaceae* b) *Osmundaceae*
 c) *Schizaceae* d) *Marsileaceae*
- 10) *Nilssonia* is _____ genus of *Cycadales*.
 a) Stem a) Leaf b) Seed c) Flower
- 11) Horizontal pit pores is the characteristics of _____.
 a) *Podocarpus* b) *Araucaria* c) *Zamia* d) *Taxus*
- 12) Winged pollen grains observed in _____.
 a) *Cupressus* b) *Ginkgo* c) *Ephedra* d) *Podocarpus*
- 13) *Ginkgois* considered one of the wonders of the world because, it is _____
 a) Persisted with little change
 b) Living fossil
 c) Oldest and Persisted with little change
 d) Oldest
- 14) *Coniferales* have _____ wood.
 a) *Manoxylic* b) *Polyxlic* c) *Pycnoxylic* d) *Monoxylic*

- Q.2** 1) Give diversity of gymnosperms with respect to morphology. **07**
 2) Describe techniques used for fossil studies. **07**
- Q.3** 1) Justify how the *Coniferales* are economically important? **07**
 2) Give general characters of family *Rhyniaceae*. **07**
- Q.4** 1) Describe reproductive structure of *Taxus*. **07**
 2) Write salient features of *Benettitales* **07**
- Q5 Describe:**
- 1) Male flower of *Ephedra*. **05**
 2) Economic importance of *Ginkgoales*. **05**
 3) *Kaloxylon Hookeri*. **04**
- Q.6 Explain**
- 1) Male cone of *Cupressus*. **05**
 2) *Etapteris* **05**
 3) *Rodeites* **04**
- Q.7 Write notes on any two.** **14**
- 1) Male cone of *Araucaria*
 2) Male cone of *Ginkgo*
 3) *Stigmaria*

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M.Sc.(Botany) (Semester – II) (New) (CBCS) Examination, 2017
Taxonomy Of Angiosperms (HCT 2.2)

Day & Date: Friday, 21-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

- N.B. :** 1) Question no.(1)is compulsory.
 2) Answer any one questions from 2,3 to Q.4..
 3) Write any two question from question 5,6 and7.
 4) Draw neat and labeled diagram wherever necessary.
 5) Figure to right indicate full marks.

Q.1 A) Rewrite the following sentences by choosing correct answer : 14

- 1) The family Urticaceae belongs to subclass _____.
 a) Hamamelidaceae b) Rosidae
 c) Arecidae d) Asteridae
- 2) Perianth is present in the _____ family.
 a) Scrophulariaceae b) Sapotaceae
 c) Tiliaceae d) Araceae
- 3) _____ is the salient feature of Zingiberaceae.
 a) Tepals three b) Perianth 6 in 2 whorls
 c) Pinnate leaves d) staminodes absent
- 4) Current activity of botanical nomenclature governed by the _____.
 a) ICBN b) ICNB c) ICNCP d) BSI
- 5) The herbarium specimen is basic tool for plant _____.
 a) Indentification b) Nomenclature
 c) phylogeny d) classification
- 6) A _____ represents a group of closely related species.
 a) family b) genus c) order d) division
- 7) International Association of Plant Taxonomy (IAPT) publish _____.
 a) IUCN a) b) ICVCN c) ICBN d) ICZN
- 8) According to Besseyan cactus order _____ is belongs to Alternarifoliae.
 a) Lamiales b) Ebenales
 c) Iridales d) Cactales

- 9) Hookers ' Flora of British India ' is a best example of _____
a) monograph b) regional flora
c) local flora d) continental flora
- 10) The term 'Taxonomy' was coined by _____.
a) Sir J.D.Hooker b) C.V.Linnaeus
c) A.P de Candolle d) C.Bessey
- 11) Typology is one of the type of _____
a) typification b) species concept
c) chemotaxonomy d) alpha taxonomy
- 12) Malus malus is an example of _____.
a) tautonym b) later homonym
c) isonym d) synonym
- 13) Isotype is a duplicate of the _____ which collected by same author from same locality.
a) Lectotype b) Holotype
c) neotype d) syntype
- 14) The genus Grewia and Corchorus belongs to _____ family.
a) Tiliaceae b) Geraniaceae
c) Sapotaceae d) Araceae

Q.2 Write about. 14
a) The general account on Magnoliophyta up to subclass level.
b) Effective and valid publication.

Q.3 Describe. 14
1) Endemic and genetic diversity.
2) Typological species concept.

Q.4 Explain. 14
1) Aims and principles of the Taxonomy.
2) Principles of ICBN.

Q.5 A) Write Short notes on: 10
1) What is magnitude and distribution?
2) Subclass-Commelinadeae with example
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 Typification and comment on articles?
B) Write in brief characterization and generation of biodiversity. 04

Q.7 A) Write short notes on: 10
1) Species concept
2) Chemotaxonomy
B) Write in brief account on loss and maintenance of biodiversity. 04

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M.Sc. (Botany) (Semester-II) (New) (CBCS) Examination, 2017
Cell and Molecular Biology of Plants

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 10.30 AM to 01.00 PM

Instructions :

- 1) Attempt totally five questions.
- 2) Question No. 1 is compulsory.
- 3) Attempt any two questions from question No. 2 to 4
- 4) Attempt any two questions from question No. 5 to 7
- 5) Figures to right indicate full marks.

Q.1 Choose the correct answer from given alternatives : 14

- 1) proteins are firmly associated with the membrane.

A) Extrinsic	B) Integral
C) Peripheral	D) External

- 2) Neutral fats like are absent in cell membrane.

A) Cholesterol	B) Ergosterol
C) Triglycerides	D) Phytosterol

- 3) A membrane which allows the passage of the solvent but not of solute is called..... membrane.

A) Permeable	B) Semi permeable
C) Transparent	D) Rigid

- 4) The golgi complex play an important role in.....

A) Glycosylation	B) Sulphatain
C) Plasma membrane formation	D) All of the above

- 5) The rough endoplasmic reticulum is so called because the membranes are covered with giving them a rough appearance.

A) Ribosomes	B) Chloroplasts
C) Mitochondria	D) Liposomes

- 6) Histones are rich in basic amino acids, arginine and lysine, but completely lack.....

A) Tyrosine	B) Tryptophan
C) Proline	D) Histidine

- 7) The electron transport chain of is similar to the mitochondrial respiratory chain, but electron flow is in the opposite direction.
- A) Leucoplast
B) Rodoplast
C) Pheoplast
D) Chloroplast
- 8) In colchicines treated dividing cells, mitosis is blocked at metaphase because of the breakdown of the spindle microtubules leading to
- A) Monoploidy
B) Diploidy
C) Nullploidy
D) Polyploidy
- 9) The phosphoesterases that require a terminus for hydrolysis and cut off terminal nucleotides are called.....
- A) Polymerase
B) Endonucleases
C) Exonucleases
D) Correndonucleases
- 10) The starting amino acid in the synthesis of most of the eukaryotic protein chains is
- A) Lysine
B) Arginine
C) Methionine
D) Histidine
- 11) The wobble hypothesis was proposed by
- A) Watson (1965)
B) Crick (1966)
C) Sanger (1977)
D) Watson and Crick (1953)
- 12) has direct role in apoptosis.
- A) Nitric oxide
B) Adenylcyclase
C) Camp
D) Cytochrome C
- 13) Chromosome mapping is done by using.....
- A) GISH
B) FISH
C) GISH and FISH
D) None of the above
- 14) Indirect immunofluorescence involves fluorescently labeled
- A) Immunoglobulin specific antibodies
B) Antigen specific antibodies
C) Heptane specific antibodies
D) Carrier specific antibodies

- Q2** A) Describe the characters of plasma membrane. **07**
B) Describe the structure and function of golgi bodies. **07**
- Q3** A) Describe any two models suggesting the structure of plasma membrane. **07**
B) Comment upon the gene expression and the nucleochloroplastic interaction. **07**

Q4	A) Describe the structure and role of the plasmodesmata in the movement of molecules.	07
	B) Explain the biogenesis and evolutionary origin of mitochondria.	07
Q5	Write briefly on :	
	a) Du Praw's model of chromosome.	05
	b) Control mechanism of cell division.	05
	c) Methods of DNA detection.	04
Q6	Describe:	
	a) <i>In situ</i> hybridization.	05
	b) Properties of genetic code	05
	c) Confocal microscopy.	04
Q7	Writes notes on any three :	14
	a) Wobble hypothesis.	
	b) ELISA technique.	
	c) Okazaki fragments.	
	d) Retinoblastoma.	

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M.Sc. (Botany) (Semester – IV) (New) (CBCS) Examination, 2017
PHYTOGEOGRAPHY AND CONSERVATION BIOLOGY

Day & Date: Wednesday, 19-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :**
- 1) Attempt **totally five** questions.
 - 2) Questions **NO.1 Compulsory (section-I)**.
 - 3) Attempt **any two** questions from Question.NO.2 to 4 (Section-II).
 - 4) Attempt **any two** questions from Question NO.5 to 7 (Section-III).
 - 5) Figures to the **right** indicate **full** marks.
- (Section-I)**

Q.1 A) Choose the correct alternative given in the bracket. 14

- 1) _____ is the concept which is evolved sustainable agriculture.

a) Community seed bank	b) Polyhouse
c) Agro-forestry	d) Afforestation

- 2) Hunting of Wildlife animals are strictly prohibited under the _____ act.

a) Biological diversity Act	b) The Wildlife Protection Act
c) Forest Conservation Act	d) CITES

- 3) The term phytogeography means the _____
 - a) Distribution of plants & animals on earth surface
 - b) Distribution of phytoplanktons on earth surface
 - c) Distribution of animals in the geographical regions
 - d) Distribution of plants in the geographical regions

- 4) _____ are those forest fragments which are commonly protected and generally have important religious implication for protecting society.

a) Sanctuaries	b) Parks
c) Sacred grooves	d) Biosphere reserves

- 5) World's highest concentration of orchids and bamboos are found in _____ regions.
 - a) Eastern and Western Himalaya
 - b) Assam and Andaman-Nicobar island
 - c) Malbar and Deccan plateau
 - d) Northern and Western Ghats

- 6) Increase in fauna and decrease in flora would be increase in:

- a) Diseases
c) O₂
- b) CO
d) Radioactive pollution
- 7) Which one of the following is not a flora water biome?
a) Lotic b) Lentic c) Spings d) Deep sea
- 8) _____ is the endemic tree genera for India.
a) Acacia b) Hardwickia
c) Azadirachta d) Magnolia
- 9) For the successful polyhouse _____ is one of the most important component
a) CO₂ enrichment b) Heating
c) Mulching d) Ventilation
- 10) Threatened species are documented in _____
a) Rare plants of India
b) Endemic flowering plants of Maharashtra
c) Ethnobiology of India
d) Red Data Book
- 11) Climatic regions includes _____ with even climate and _____ with uneven climate.
a) Mountains and Deserts b) Oceanic and Mountains
c) Continental and Islands d) Oceanic and Continental
- 12) The term _____ means 'a particular Taxon has very restricted distribution'
a) Critically Endangered b) Low risk
c) Threatened d) Endemic
- 13) Wildlife protection act was established on _____
a) 1972 b) 2010 c) 1980 d) 2002
- 14) Climate of temperate and adjacent lands with means annual temperature is _____
a) Below 10⁰ C b) Below 0⁰ C
c) Above 10⁰ C d) Between 0⁰-10⁰ C

(Section –II)

- Q.2** 1) Explain 'Age and area hypothesis' **07**
2) Discuss up on 'Biological diversity act 2002'. **07**
- Q.3** 1) Comment up on Phytogeographical divisions o India. **07**
2) What is Endemism/ How is it important as biodiversity point of view? **07**
- Q.4** 1) Comment up on RET plants. **07**
2) Discuss on International biodiversity year-2010. **07**

(Section –III)

Q5 Describe briefly:

- | | |
|--------------------|-----------|
| 1) Social forestry | 05 |
| 2) Seed banks | 05 |
| 3) Hotspots | 04 |

Q.6 Discuss on:

- | | |
|----------------------------------|-----------|
| 1) Local vegetation in our area. | 05 |
| 2) Role of botanical gardens | 05 |
| 3) Types o terrestrial | 04 |

Q.7 Write notes on any three of the following:

- | | |
|--|-----------|
| 1) NBPGR | 14 |
| 2) Agroforestry | |
| 3) Cryopreservation | |
| 4) Role of NGO's biodiversity conservation | |

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**M.Sc. (Botany) (Semester – IV) (New) (CBCS) Examination, 2017
Plant Tissue Culture and Green House Technology and Hydroponics**

Day & Date: Friday, 21-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :** 1) Q.1 is **compulsory**.
 2) Attempt **any two** questions from Q. 2, 3 and 4.
 3) Attempt **any two** questions from Q. 5, 6 and 7.
 4) Figures to the **right** indicate **full** marks.
 5) Attempt total five questions.

Q.1 Choose correct alternatives (MCQ): **14**

- 1) Transfer of a part of old culture to new culture vessel is known as
 - a) Subculture
 - b) Inoculation
 - c) Reculture
 - d) None of these
- 2) Differentiation of callus into plant parts is known as
 - a) Embryogenesis
 - b) Morphogenesis
 - c) Embryoid formation
 - d) Totipotency
- 3) Pollen embryoids were discovered by
 - a) Konal and Natraja
 - b) Guha and Maheshwari
 - c) Skoog and Miller
 - d) Helperin and Wetherell
- 4) Hardening is induced by keeping plantlets under
 - a) High light intensity and low humidity
 - b) Low light intensity and low humidity
 - c) Low light intensity and high humidity
 - d) High light intensity and high humidity
- 5) For maximum illumination, the direction of greenhouse should be
 - a) North to south
 - b) East to West
 - c) South east to North east
 - d) Both a and b
- 6) Tissue culture technique can produce indefinite number of new plants from a small parental tissue. The economic importance of this technique is in raising
 - a) Variants through picking up somaclonal variation
 - b) Genetically uniform population of an elite species
 - c) Homozygous diploid plants
 - d) Development of new species
- 7) Rock wool is the most probably widely used medium in hydroponics, which is obtained from
 - a) Fossil remains
 - b) Basalt rock

Seat No.	
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M.Sc. (Botany) (Semester-IV) (New) (CBCS) Examination, 2017
ENVIRONMENTAL PLANT PHYSIOLOGY

Day & Date: Monday, 24-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :**
- 1) Attempts **totally five** questions.
 - 2) Q.1 is **compulsory**.
 - 3) Attempts **any two** questions from Q.2 to Q.4
 - 4) Attempts **any two** questions from Q.5 to Q.7.
 - 5) Figures to the **right** indicate **full** marks.

Q.1 Write the correct answer from given alternatives. 14

- 1) Hydroxyl (OH^{*}) ions are harmful because they cause _____.
 - a) Decrease in chlorophyll content
 - b) Increase in RNAase
 - c) Peroxidation of membrane lipids
 - d) Inactivation of RUBISCO

- 2) An exposure to UV radiations stimulates synthesis of ____ in plants.
 - a) Phenols
 - b) Proline
 - c) Anthocyanins
 - d) Chlorophylls

- 3) There is a deficiency of _____ in the waterlogged soils.
 - a) Oxygen
 - b) CO₂
 - c) Nutrients
 - d) All the above

- 4) Accumulation of glycine betaine is observed in some crops in response to _____.
 - a) Water stress
 - b) Flooding
 - c) Pollution stress
 - d) All of these

- 5) Following is the main target of chilling stress _____.
 - a) Strach
 - b) Phospholipids
 - c) Proteins
 - d) Chlorophylls

- 6) Following enzyme plays an important role in the development of arenchyma in wetland species _____.
 - a) Cellulose
 - b) Peroxidase
 - c) Chitinase
 - d) Pectinase

- 7) Electrical conductivity of typical saline soil is _____.
 - a) Less than 4ds
 - b) More than 4ds
 - c) Equal to zero
 - d) Not measurable

- 8) Chilling injury occurs when warm region plants are exposed to a temperature of _____.
 a) $0 - 10^{\circ}\text{C}$ b) $10 - 15^{\circ}\text{C}$
 c) $25 - 35^{\circ}\text{C}$ d) *less than 0°C*
- 9) In frost injury, ice formation begins at _____.
 a) Freezing point
 b) Several degrees below freezing point
 c) Slightly above the freezing point
 d) 10°C
- 10) Disease occurs in the plants when the pathogen lacks _____.
 a) R genes b) Avr genes
 c) DIRI genes d) None of these
- 11) Slat glands are present in halophytes showing ____ Phenomenon.
 a) Salt evasion b) Salt tolerant
 c) Salt insensitive d) All of these
- 12) Elevated CO_2 , concentration causes _____.
 a) Increase in photosynthesis b) Decrease in photorespiration
 c) Increase in WUE d) All of these
- 13) CaSO_4 is used for reclamation of _____ Soil.
 a) Acidic b) Alkaline
 c) Saline d) Marshy
- 14) _____ is not a compatible solute.
 a) Proline b) Glycine-betain
 c) Sorbitol d) Malic acid

- Q2** **A)** Give an account of effect of salt stress on plant metabolism. **07**
B) Write a note on mechanism of salt tolerance in higher plants. **07**
- Q3** **Describe in brief:**
A) Effects of water stress on plant metabolism. **07**
B) Structural adaptations in xerophytes in response to water stress. **07**
- Q4** **A)** Describe the role of essential heavy metals in plants. **07**
B) Explain effects of heavy metal toxicity and the resistance mechanism. **07**
- Q5** **A)** Explain the effects of visible and UV radiations on plants. **07**
B) Add a note on the mechanism of UV tolerance. **07**
- Q6** **Write on:**
A) Effect of SO_2 on plant metabolism. **07**
B) Mechanism of flooding tolerance. **07**
- Q7** **Write short notes on (any three):** **14**
 a) Mechanism of disease resistance
 b) Allelochemicals
 c) Mechanism of heat and cold tolerance
 d) Antioxidants.

Seat No.	
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M.Sc. (Botany) (Semester-IV) (New) (CBCS) Examination, 2017
CROP PHYSIOLOGY

Day & Date: Wednesday, 26-04-2017

Max. Marks: 70

Time: 02.30 PM to 05.00 PM

- N.B. :**
- 1) Attempt totally **five** questions.
 - 2) Section-I is **compulsory**.
 - 3) Attempt any **two** questions from Q. no. **2 to 4** and **any two** questions from Q. no. **5 to 7**.
 - 4) Figures to the right indicate **full** marks.

Q.1 Choose correct answer form given alternative: 14

- 1) Chemicals of substances used to check the rate of transpiration is known as _____.
 - a) Growth retardants
 - b) Antitranspirants
 - c) Herbicides
 - d) None of these
- 2) Ratio of economic yield to the whole biological yield is :
 - a) Harvest index
 - b) NAR
 - c) Both (a) and (b)
 - d) None of the above
- 3) Substances used to kill the unwanted plants are called
 - a) Flowering hormone
 - b) Weedicides
 - c) Growth hormone
 - d) None of these above.
- 4) CIMAP research institute is located at
 - a) Jodhapur
 - b) Delhi
 - c) Banglore
 - d) Lucknow
- 5) Fruit ripening refers to changes in structure and composition of fruits which make the acceptable to eat. Such changes occurs during
 - a) Early stage of senescence
 - b) Maturation of Fruit
 - c) Abscission of Fruit
 - d) All of the above
- 6) Which of the following statement is incorrect?
 - a) Vernalization increases the vegetative period of plant.
 - b) Vernalization increases the flowering period
 - c) Both (a) and (b)
 - d) Only (a) or (b)
- 7) Which of the following elements are not called major elements or macroelements
 - a) C, H AND O
 - b) N, P and K
 - c) Ca, Sand Mg
 - d) Fe, Zn and Mo
- 8) Rom root hairs Rhizobia penetrate deep into root of plant _____ through
 - a) Nodule
 - b) Cortical cell walls

- c) Plasmodesmata d) Infection thread
- 9) The minimum or no growth occurs in :
 a) Exponential phase b) Log Phase
 c) Stationary phase d) All of the above
- 10) Florigen is associated with the process
 a) Photoperiodism b) Transpiration
 c) Both (a) and (b) d) None of the above
- 11) Which of the following is not biofertilizer?
 a) Trichoderma b) Rhizobia
 c) Vermicompost d) Urea
- 12) What is full form of _____ ICRISAT?
 a) Indian Crop. Research institute for semi arid tropics.
 b) International Crop Research institute for semi arid tropics.
 c) International cancer Research Institute for semi and tropics
 d) None of the above
- 13) Verbalization is done at
 a) Low light intensity b) High temp
 c) Low temp d) High light intensity
- 14) Which of the hormone promote flowering in long day plants.
 a) G. A. b) Auxin c) Ethylene d) Cytokine

- Q.2** a) What is growth? Add note on physiological role of growth regulators in agriculture. **07**
 b) Methods of applications of fertilizers. **07**
- Q3** a) Factors affecting on source and sink relationship. **07**
 b) Brief account on idea of physiological basis of yield of Jawar. **07**
- Q4** a) Explain physiology of N₂ Fixation in chickpea. **07**
 b) Give in detail about research activities occurs in CIMAP, Lucknow on crop physiology. **07**
- Q5** a) Write in short about physiology of mineral nutrition in groundnut. **05**
 b) Give the contribution of BARC in crop physiology. **05**
 c) Write about N-use efficiency. **04**
- Q6** a) Write note on antitranspirants in agriculture. **05**
 b) Give post harvest technology of any plant studied by you with respect to market strategy from field to consumer. **05**
 c) What is weedicide? Enlist the names of common weedicides. **04**
- Q7** **Write notes on any three.** **14**
 a) Photoperiodism
 b) Physiological basis of yield in sugarcane
 c) Fruit physiology of any one plant studied by you
 d) Organic farming.