

Master of Science – I (Botany) Examination: Oct / Nov 2016
Semester – I (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM 123	Wednesday 16/11/2016	10.30 AM to 01.00 PM	Biology and Diversity of Fungi, Bacteria, Viruses and Lichens	HCT 1.1	

- Instructions:**
- 1) Question no. 1 is compulsory.
 - 2) Attempt any two questions from question no.2 to 4
 - 3) Attempt any two questions from question no.5 to 7
 - 4) Attempt totally five questions.
 - 5) Figures to the right indicate full marks.
 - 6) Draw neat and labeled diagram wherever necessary.

Total Marks: 70

Q.1 Rewrite the following sentences by selecting correct answers from given alternative. 14

- 1) _____ had first time discovered mycoplasma as a disease incitant in animals.
 - a) Leeuwenhoek
 - b) Ainsworth
 - c) K. C. Mehta
 - d) Nocard & Roux

- 2) TMV is not affected by _____.
 - a) UV-rays
 - b) X-ray
 - c) β -rays
 - d) All of the above

- 3) The Viruses possess _____ enclosed within protein coat.
 - a) DNA
 - b) RNA
 - c) DNA or RNA
 - d) DNA and RNA

- 4) The third kingdom Protista was proposed by _____, he was a German biologist.
 - a) E. Haeckel
 - b) Leeuwenhoek
 - c) Doi et al.
 - d) Dickson

- 5) According to Berry's manual bacteria belongs to class _____.
 - a) Actinomycetes
 - b) Basidiomycetes
 - c) Deuteromycetes
 - d) Schizomycetes

- 6) The disease wilt of cotton is caused by _____.
 - a) Alternaria dianthicola
 - b) Fusarium oxyspora
 - c) Cladosporium spp.
 - d) Cotton leaf spot

- 7) In photosynthetic bacteria _____ are present instead of chloroplast.
 - a) chromosomes
 - b) DNA
 - c) chromatophores
 - d) ribosomes

- 8) In 1676 _____ has discovered the microbial world.
 - a) A. Leeuwenhoek
 - b) L. Pasteur
 - c) E. Haeckel
 - d) R. Hook

- 9) Lichen thallus is formed by the mutualism of _____ and algae.
 - a) Fungi, bacteria
 - b) Bacteriophages
 - c) Viruses
 - d) Fungi

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SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM – 124	Friday 18/11/2016	10.30 AM to 01.00 PM	Biology and diversity of Algae, Bryophytes and Pteridophytes	HCT 1.2	

- Instructions:**
- 1) Attempt totally five questions
 - 2) Question no. 1 is compulsory
 - 3) Attempt any two questions from Q. No. 2 to Q. No. 4
 - 4) Attempt any two questions from Q. No. 5 to Q. No. 7
 - 5) Figures to the right indicate full marks.

Total Marks: 70

Q.1 A) Choose correct alternatives and rewrite the sentence

14

- 1) Fucus is a _____ alga.
 - a) fresh water
 - b) soil
 - c) marine water
 - d) both a and c

- 2) In algae, _____ type of sexual reproduction is regarded as most evolved one
 - a) isogamous
 - b) oogamous
 - c) anisogamous
 - d) none of these

- 3) _____ is an example of prokaryotic alga
 - a) Oscillatoria
 - b) Chlamydomonas
 - c) Ulothrix
 - d) Spirogyra

- 4) Members of blue green algae are involved in _____
 - a) formation of mycorrhizae
 - b) disease development
 - c) nitrogen fixation
 - d) both a and b

- 5) _____ are absent in the class Cyanophyceae.
 - a) Zoospores
 - b) Flagellated motile cells
 - c) Gametes
 - d) All the above

- 6) Aplanogametes are formed in _____ class of algae
 - a) Cyanophyceae
 - b) Chlorophyceae
 - c) Myxophyceae
 - d) all the above

- 7) _____ class of bryophyte is considered as most evolved one.
 - a) Haepaticopsida
 - b) Anthocerotopsido
 - c) Bryopsida
 - d) Both a and c

- 8) _____ is absent from the capsule of Haepaticopsida
 - a) Calyptra
 - b) Columella
 - c) Spores
 - d) None of these

- 9) The _____ are regarded as the first vascular plants.
 - a) algae
 - b) pteridophytes
 - c) bryophytes
 - d) fungi

Master of Science – I (Botany) Examination: Oct / Nov 2016
Semester – II (Old CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM-137	Saturday 19/11/2016	10:30 A.M to 01:00 P.M	Taxonomy of Angiosperms	VI	

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

Total Marks: 70

SECTION I

Q.1 Rewrite the following sentences by selecting correct answers from given alternative. 14

- 1) Spot out the statement which is false for Zingiberaceae _____
 - a) Usually the roots are thick and fleshy
 - b) The venation is parallel
 - c) Pollination takes place through the agency of water (Hydrophily)
 - d) The bracts are spirally arranged.

- 2) Taxonomic group of any rank within the system is termed as _____
 - a) Division
 - b) Family
 - c) Taxon
 - d) Genus

- 3) Fruits of angiosperms are variously classified as _____
 - a) Simple or Compound
 - b) Dry or Fleshy
 - c) Dehiscent or Indehiscent
 - d) All of these

- 4) 'Labellum' petal is present in the family _____
 - a) Moraceae
 - b) Orchidaceae
 - c) Onagraceae
 - d) Poaceae

- 5) Flora of Marathwada is the work of _____
 - a) Wadood Khan
 - b) S. Punekar
 - c) V. N. Naik
 - d) S. R. Yadav

- 6) _____ type of germination is supposed to be primitive in flowering plants.
 - a) Hypogeal
 - b) Epigeal
 - c) Perigeal
 - d) Syngel

- 7) When pollination is carried out by wind, it is called as _____
 - a) Anemophily
 - b) Entomophily
 - c) Cantharophily
 - d) Ornithophily

- 8) Mangroves are growing in _____ ecosystem.
 - a) Riverine
 - b) Grassland
 - c) Estuarine
 - d) Decidious

Master of Science – II (Botany) Examination: Oct / Nov 2016
Semester – III (New CBCS)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM-144	Wednesday 16/11/2016	2:30 P.M to 5:00 P.M	Plant Embryology and Palynology	IX	

- Instructions:**
- 1) Question no. 1 is compulsory.
 - 2) Attempt any two questions from question no.2, 3 to 4.
 - 3) Attempt any two questions from question no.5, 6 to 7.
 - 4) Figures to the right indicate full marks.
 - 5) Draw neat and labeled diagram wherever necessary.

Total Marks: 70

Q.1 Rewrite the following sentences by selecting correct answers from given alternative. 14

- 1) _____type of endosperm is restricted largely to be the Monocots.
 a) Cellular
 b) Helobial
 c) Polyembryony
 d) None
- 2) Stub pollination has proved effective in overcoming _____
 a) Pollination
 b) Fertilization
 c) Incompatibility
 d) None
- 3) Fusion of the egg nucleus with sperm nucleus is called _____
 a) Syncarpous
 b) Synonyms
 c) Syngamy
 d) Progamy
- 4) Pollen tube entry into the ovule through the funiculus is called _____
 a) Chalazogamy
 b) Mesogamy
 c) Porogamy
 d) Hologamy
- 5) The pollen intine is _____ in nature.
 a) Sporopollenin
 b) Pecto-cellulosic
 c) Pectin
 d) Legnin
- 6) Highly reduced exine is adaptation for _____ forests.
 a) humid tropical
 b) dry deciduous
 c) hot thorny
 d) dry tropical
- 7) Age of tree could be cause for _____
 a) polyembryony
 b) apomixes
 c) apospory
 d) diplospory
- 8) Transfer of pollen grains from male parent to stigma by bats is called _____
 a) anemophily
 b) entomophily
 c) ornithophily
 d) cheiropterophily
- 9) _____ovules are present in Chenopodiaceae.
 a) Amphilotropous
 b) Circinotropous
 c) Anatropous
 d) Campylotropous
- 10) _____of the following induces polyembryony.
 a) NAA
 b) Kinetin
 c) Gibberellins
 d) None

Master of Science – II (Botany) Examination: Oct / Nov 2016
Semester – III (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM-146	Monday 21/11/2016	02:30 P.M to 05:00 P.M	Advances in Plant Metabolism and Biochemistry	XI	

- Instructions:**
- 1) Question no. 1 is compulsory.
 - 2) Attempt any two questions from question no.2, 3 to 4
 - 3) Attempt any two questions from question no.5, 6 to 7
 - 4) Figures to the right indicate full marks.
 - 5) Draw neat and labeled diagram wherever necessary.

Total Marks: 70

Q.1 Rewrite the following sentences by selecting correct answers from given alternative. 14

- 1) Glycolic acid synthesise in _____ is transferred to peroxysomes.
 - a) Mitochondria
 - b) Cytoplasm
 - c) Chloroplast
 - d) Nucleus

- 2) When oxygen is released as a result of photosynthesis, it is by-product of ____ of the following
 - a) Reducing NADPH
 - b) Splitting of water molecules
 - c) Chemiosmosis
 - d) Electron transfer system of PS II

- 3) The end product of _____ metabolism is glutathione.
 - a) Phosphorous
 - b) Sulfate
 - c) Flavonoids
 - d) Starch

- 4) In plant cell in _____ ATP synthase complex are located.
 - a) Thylakoid membrane
 - b) Inner mitochondrial membrane
 - c) Both a and b
 - d) Plasma membrane

- 5) Reaction centre in photosystem I is _____
 - a) P₇₀₀
 - b) D₆₈₀
 - c) P₆₇₀
 - d) P₆₀₀

- 6) _____ is the substrate of starch synthesis in plant plastids.
 - a) UTP – glucose
 - b) ATP – glucose
 - c) ADP – glucose
 - d) UDP – glucose

- 7) First stage in the assimilation of CO₂ into biomolecules is the _____
 - a) Carbon regulation
 - b) Carbon fixation reaction
 - c) Carbon synthesis reaction
 - d) Carbon metabolism

- 8) Sucrose is synthesized in the _____
 - a) Ribosome
 - b) Endoplasmic reticulum
 - c) Mitochondria
 - d) Cytosol

- 9) Phosphofructokinase II converts fructose 6 Phosphate into _____
 - a) Glucose 6 phosphate
 - b) Fructose 1, 6 bisphosphate
 - c) Fructose 2, 6 bisphosphate
 - d) Fructose 1 phosphate

Master of Science – II (Botany) Examination: Oct / Nov 2016
Semester – III (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM – 148	Wednesday 23/11/2016	02.30 PM to 05.00 PM	Physiology of Plant Growth and Development	XII	

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

Total Marks:70

Q.1 Write the correct alternatives from given alternatives 14

- 1) Jasmonate is synthesized from _____
 - a) Linolenic acid
 - b) Palmitic acid
 - c) Aspartic acid
 - d) Ascorbic acid

- 2) TIBA acts as an _____ transport inhibitor.
 - a) Gibberellins
 - b) Auxin
 - c) Kinetin
 - d) H⁺

- 3) Senescence of entire plant after a single reproductive cycle is called _____
 - a) Sequential
 - b) Overall
 - c) Monocarpic
 - d) Deciduous

- 4) _____ is a non-climacteric fruit
 - a) Banana
 - b) Lemon
 - c) Apple
 - d) Mango

- 5) *Arabidopsis thaliana* is used as a research tool by plant
 - a) Physiologists
 - b) Geneticists
 - c) Molecular biologists
 - d) Cytologists

- 6) Ca independent signal transduction pathway involves _____ as signaling intermediate.
 - a) Calmodulin
 - b) Cyclic GMP
 - c) Cyclic AMP
 - d) Protein kinase

- 7) Polyamines contain two or more amino acids and are _____
 - a) Polyvalent cations
 - b) Polyvalent anions
 - c) Zwitter ions
 - d) Both a & c

- 8) Ex-situ conservation of orthodox seeds is not problematic due to _____
 - a) Tolerance to desiccation
 - b) Long life span
 - c) Freeze tolerance
 - d) All of these

- 9) Conversion of Pr to Pfr occurs in presence of _____ light.
 - a) Red
 - b) Far red
 - c) Infra red
 - d) All of these

Master of Science – II (Botany) Examination: November 2016
Semester – IV (New CGPA)

SLR No.	Day & Date	Time	Subject Name	Paper No.	Seat No.
SLR – SM - 151	Saturday 19/11/2016	02.30 PM to 05.00 PM	Plant Tissue Culture & Green House Technology & Hydroponics	XIV	

- Instructions:**
- 1) Question no. 1 is compulsory.
 - 2) Attempt any two questions from question no.2 to 4
 - 3) Attempt any two questions from question no.5 to 7
 - 4) Attempt totally five questions.
 - 5) Figures to the right indicate full marks.
 - 6) Draw neat and labeled diagram wherever necessary.

Total Marks: 70

Q.1 Rewrite the following sentences by selecting correct answers from given alternative. 14

- 1) The embryo rescue is _____
 - a) treatment of embryo for the elimination of diseases
 - b) removing of embryo under controlled condition and formation of new plant
 - c) prevention of onset of dormancy of young embryo
 - d) for breaking of dormancy

- 2) In tissue culture the needle and forceps are sterilizes through _____
 - a) Water bath at 2000c
 - b) dry air oven
 - c) autoclave
 - d) sprit lamp

- 3) The best method to obtain virus free plant through tissue culture is _____
 - a) Embryo rescue
 - b) Protoplast culture
 - c) Meristem culture
 - d) anther culture

- 4) _____ is best frequently used to induce somaclonal variation.
 - a) PDB
 - b) 2,4 D
 - c) NAA
 - d) PEG

- 5) _____ is an initial for cybrid production.
 - a) emasculation
 - b) fertilization
 - c) pollination
 - d) protoplast isolation and fusion

- 6) In the process of protoplast isolation _____ is used to maintain proper osmotic pressure in the isolation mixture.
 - a) sucrose
 - b) Nacl
 - c) Mannitol
 - d) Phosphite buffer

- 7) What is agar?
 - a) A nutrient
 - b) Vitamins
 - c) Broth
 - d) A solidifying agent

- 8) Green house plants are photo synthetically more efficient because the high % of _____
 - a) N₂
 - b) O₂
 - c) CO₂
 - d) CO

- 9) Application of embryo culture is _____
- a) Clonal propagation b) Production of alkaloids
c) Overcoming hybridization d) Haploid production
- 10) Which one of the following cytokinin?
- a) Indole-3-acetic acid b) Thidiazuron
c) Dicamba d) Brassinosteroid
- 11) The relative humidity in greenhouse for plant growth is _____%.
- a) 30-50 b) 50-60
c) 20-30 d) 60-80
- 12) _____ is siliceous mineral of volcanic origin used as soil less culture for green house.
- a) Rock wool b) Perlite
c) Peat d) Glass wool
- 13) Callus culture formation is promoted by _____
- a) Excess of NAA b) Absences of salts
c) Darkness and sub culturing d) Proper light and sub culturing
- 14) The technique of protoplast fusion was given by _____
- a) Steward b) Visit and Haberlandt
c) Carison et al d) Barski et al
- Q.2** a) Describe the design of commercial plant tissue culture laboratory. **07**
b) Describe operation and management in tissue culture laboratory. **07**
- Q.3** a) What is synthetic seed? Describe in details synthetic seed production. **07**
b) Describe application of synthetic seed. **07**
- Q.4** a) What are the basic principles of in-vitro culture? **07**
b) Write critically on factor influencing morphogenesis. **07**
- Q.5 Answer in brief:**
- a) Write note on Anther culture **05**
b) Bioreactors **05**
c) Types of green houses **04**
- Q.6 Write brief notes on:**
- a) Fertigationin Greenhouse **05**
b) Cell suspension culture **05**
c) Types of hydroponics **04**
- Q.7 Write short notes on any three of the following:** **14**
- a) Embryo culture
b) Application of Hydroponics
c) Embryo rescuing
d) Pest and disease control in greenhouse