

Total No. of Printed Pages:02

**SUBJECT CODE NO:- B-2159**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. F.Y (Sem.-II) Examination OCT/NOV 2019**  
**Botany Paper- IV**  
**Diversity of Cryptogams-II**

[Time: 1:30 Hours]

[Max. Marks:50]

Please check whether you have got the right question paper.

- N.B i) Attempt all questions.  
 ii) Draw neat and well – labeled diagram wherever necessary.
- Q.1 Describe the external structure of Marchantia thallus and add a note on T. S of thallus. 20
- OR
- Explain in detail life cycle of funaria
- Q.2 Give an account of various types of gametophytes found in Lycopodium. 20
- OR
- Explain in brief: (any four)
- A. Gemma cup
  - B. Sent features of Bryophyta
  - C. synangium.
  - D. Rhizophore
  - E. Sporocarp
  - F. Strobilus of selaginella
- Q.3 Multiple choice questions. 10
1. Bryophytes grow in habitats that are:
- a) dry                      b) Moist                      c) salty                      d) Marshy
2. Bryophytes are
- a) Aquatic                      b) Amphibians                      c) Terrestrial                      d) Aerial.

3. In Bryophytes embryonic development of zygote takes place in.

- a) Antheridium      b) sporangium      c) capsule      d) Archegonium.

4. ----- plant is called as cord moss.

- a) marchantia      b) funaria      c) Marsilea      d) psilotum

5. Whisk fern is -----

- a) psilotum      b) selaginella      c) Lycopodium      d) Marsilea.

6) Class Eligulopsida is of -----

- a) psilotum      b) Lycopodium      c) selaginella      d) Marsilea

7. Trabeculae in selaginella are modified:

- a) Endodermal cells  
b) Pericycle cells.  
c) cortical cells  
d) Pericycle and endodermal cells.

8. Rhizophore is a

- a) Root      b) stem      c) sui- generis      d) Rhizoids.

9. Ridges and grooves are present on the stem of:

- a) psilotum      b) Marsilea      c) selaginella      d) Equisetum.

10. Presence of air cavities in the stem of Equisetum indicates the feature of

- a) Hydrophytes      b) Xerophytes      c) mesophytes      d) Halophytes.

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**SUBJECT CODE NO:- B-2160**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. F.Y (Sem.-II) Examination OCT/NOV 2019**  
**Botany Paper-V**  
**Histology, Anatomy and Embryology**

[Time: Three Hours]

[Max.Marks:50]

- N.B Please check whether you have got the right question paper.
- i) Attempt all questions.
  - ii) Draw neat and well – labeled diagrams whenever necessary.

- Q.1 Describe Various theories for Root Apex organization 20  
 OR  
 Describe microsporogenesis and development of male gametophyte 20
- Q.2 Describe in detail the T. S of Dicot leaf. 20  
 OR  
 Write short Notes on (any four) 20
- a) Anemophily
  - b) L.S. of orthotropous ovule.
  - c) Collenchyma
  - d) Structure of phloem
  - e) Structure of Dicot and monocot seed
  - f) Helobial type of endosperm
- Q.3 Multiple choice questions. 10
- 1) When xylem is surrounded by phloem the vascular bundle is called -----  
 a) Collateral      b) Radial      c) Amphicribal      d) Amphivasal
  - 2) Wood is the common name of -----  
 a) Cambium      b) Vascular bundles      c) Phloem      d) secondary xylem
  - 3) Sap wood differ from heart wood in being -----  
 a) Darker and non- conducting  
 b) Softer and non- conducting  
 c) Lighter and conducting  
 d) Harder, darker and less conducting.
  - 4) Dermatogen is a tissue formed by apical meristem and it develops into -----  
 a) cortex      b) Xylem      c) Epidermis      d) Pith

- 5) In fertilization -----  
a) synergids fuse with the antipodal cell.  
b) The egg cell fuses with antipodal cell.  
c) Pollen is transferred to the stigma.  
d) The male nucleus fuses with the egg cell.
- 6) The entry of pollen tube into ovule through micropyle is called -----  
a) mesogamy      b) Anisogamy      c) Porogamy      d) chalazogamy
- 7) A microspore mother cell forms -----  
a) An ovule      b) Embryo sac      c) Pollen sac      d) Pollen grains
- 8) After fertilization, seed coat develops from -----  
a) Integuments      b) Embryo sac      c) chalaza      d) Ovule
- 9) In angiosperms free nuclear division occurs during -----  
a) Gamete formation      b) Embryo formation  
c) Endosperm formation      d) flower formation
- 10) Pollination which can occur in the same plant is -----  
a) Herkogamy      b) Cleistogamy      c) Dichogamy      d) Dicliny.

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**SUBJECT CODE NO:- B-2167**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc S.Y. (Sem.-IV) Examination OCT/NOV 2019**  
**Botany Paper – XI**  
**Gymnosperms & Utilization of Plants**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B    i)      Attempt all questions.  
           ii)     Illustrate your answer with suitable well labelled diagram.

**Q.1** Describe the external morphology of Gnetum and add a note on reproduction of Gnetum. 20

OR

What is fossilization? Add a note on types of fossil you studied.

**Q.2** Write in details cultivation, harvesting and economic importance of Ground nut. 20

OR

Write short notes on **any four** of following

- a) Salient features of Gymnosperms.
- b) Male cone of Cycas.
- c) Uses of Cotton
- d) Jute
- e) Nirgudi
- f) Cumin

**Q.3** Multiple Choice questions. 10

1. \_\_\_\_\_ is called living fossils.  
 a) Cycas                      b) Pinus                      c) Gnetum                      d) none of these
2. \_\_\_\_\_ pollination is common in Gymnosperms.  
 a) Anemophilous                      b) Eutemophilous                      c) both of these                      d) none of these
3. Megasparophyll is commonly seen in \_\_\_\_\_.  
 a) Gnetum                      b) Pinus                      c) Cycas                      d) All of these
4. Gymnosperm differs from Angiosperms due to presence of \_\_\_\_\_ mostly.  
 a) Xylem Parenchyma                      b) Sieve tubes                      c) Trachieds                      d) Vessels
5. The common name of *Helianthus annus* is \_\_\_\_\_.  
 a) Wheat                      b) Jowar                      c) Sunflower                      d) Groundnut
6. The botanical name of Neem is \_\_\_\_\_.  
 a) *Acacia nilotica*  
 b) *Tectona grandis*  
 c) *Dalbergia Sissoo*  
 d) *Azadirachta Indica*.

7. Jowar is a \_\_\_\_\_ crop.  
e) Pulses                      b) Cereal                      c) both of these                      d) none of these
8. \_\_\_\_\_ state is the leading producer of coffee.  
a) Maharashtra                      b) Karnataka                      c) Tamilnadu                      d) Gujarat
9. Botanical name of Turmeric is \_\_\_\_\_.  
a) *Curcuma longa*  
b) *Mangifera indica*  
c) *Orgza Sativa*  
d) *Phyllanthus emblica*
10. 'Yarn' is associated with \_\_\_\_\_.  
a) Ground nut                      b) Cotton                      c) Sunflower                      d) Safflower

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**SUBJECT CODE NO:- B-2168**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. S.Y (Sem.-IV) Examination OCT/NOV 2019**  
**Botany Paper- XII**  
**Plant Physiology**

[Time: 1:30 Hours]

[Max.Marks:50]

N.B

Please check whether you have got the right question paper.

- i) Attempt all questions.
- ii) Illustrate your answer with suitable labeled diagram.

Q.1 Describe in detail the concept by water absorption unplants. 20

OR

Explain the phases of growth.

Q.2 What is CAM pathway? Explain in detail. 20

OR

Write Short Notes (Any Four)

- a) Ascent of sap
- b) Starch-sugar hypothesis
- c) Lock & key theory of enzyme
- d) Cytokinins
- e) Chloroplast
- f) C3 cycle

Q.3 Multiple choice questions. 10

- 1) Stomata open at night & close during day time in
  - a) Xerophytes
  - b) Mesophytes
  - c) Succulents
  - d) Hydrophytes
- 2) The end product of glycolysis is
  - a) Acetyl co-enzyme
  - b) Pyruvic acid
  - c) CO<sub>2</sub> & H<sub>2</sub>O
  - d) Fructose

3) Dieback disease of shoot is caused due to deficiency of

- a) Copper
- b) Chlorine
- c) Sulphur
- d) Iron

4) IAA is also known as

- a) Indoleacetaldehyde
- b) Indolepyruvic acid
- c) Indole acetonitrile
- d) Indole 3 acetic acid

5) The protein part of enzyme is called

- a) Apoenzyme
- b) Holoenzyme
- c) Zymogen
- d) Prosthetic group

6) Slow & Steady growth of plant occurs during

- a) Lag phase
- b) Log phase
- c) Senescence phase
- d) None of these

7) Seed dormancy can be broken by

- a) Ethylene
- b) Gibberellin
- c) Auxin
- d) Cytokinin

8) Dimorphic Chloroplasts are present in

- a) All Types
- b) Sugar cane
- c) China rose
- d) Wheat



9) Emerson effect proves

a) Photophosphorylation

b) Two photosystem in plants

c) Photorespiration

d) None of these

10) At night green plants release

a)  $\text{CO}_2$

b) Water

c)  $\text{O}_2$

d) All of these

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**SUBJECT CODE NO:- B-2163**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y (Sem.-VI) Examination OCT/NOV 2019**  
**Botany Paper- XIX**  
**(Genetics and Biotechnology)**

**[Time:1:30 Hours]****[Max. Marks:50]**

Please check whether you have got the right question paper.

- N.B i) Attempt all questions.  
 ii) Draw neat & well labeled diagram wherever necessary.
- Q.1 Discuss interaction of gene. Explain in details supplementary genes or recessive epistasis with suitable example? 20
- OR
- What is sex-linked inheritance? Add a note on colour blindness & haemophilia in man?
- Q.2 Define gene cloning? Explain plasmids & phase vectors? 20
- OR
- Write short notes (any- four)
- Sex determination in birds.
  - G.J. Mendel.
  - Gynandromorphs
  - Restriction endonucleases
  - Alkaptonuria
  - Bt- Brinjal.
- Q.3 Multiple choice Questions 10
- A cross between  $f_1$  & its recessive parent is called
    - Back cross
    - Test cross
    - Dihybrid cross
    - Recessive cross

2) Genic balance theory was proposed by

- A) Calvin Bridges B) Bateson C) Mendel D) Castle

3) In dihybrid cross, the number of gametes are?

- A) 2 B) 4 C) 6 D) 8

4) In incomplete dominance when Red flower (RR) are crossed with white flowers (rr), the  $F_1$  hybrid have ----- coloured flowers.

- A) Red B) White C) Black D) Pink

5) One of the genes present exclusively on the X chromosome in human is concerned with

- A) Baldness B) Haemophilia  
C) Night blindness D) none of these

6) In case of Man males are -----

- A) Homogametic B) Heterogametic C) A&B D) None

7) PCR was invented by?

- A) Boyer & Cohen B) Watson & Crick C) Kary Mullis D) None of these.

8) The most commonly used bacterium in plant transformation is?

- a) Rhizobium b) E. coli c) Azotobacter d) Agrobacterium

9) One gene one enzyme hypothesis was proposed by

- a) Beadle b) Morgan c) Mendel d) None of these

10) Sex determination in plants was studied in -----

- a) Cassia b) Melandrium c) Geranium d) None of these.

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**SUBJECT CODE NO:- B-2164**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y (Sem-VI) Examination OCT/NOV 2019**  
**Botany Paper- XX**  
**(A) Diversity of Angiosperms - II**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B
- 1) Attempt all questions.
  - 2) Draw neat and well labelled diagram wherever necessary.
- Q.1 Define Binomial nomenclature Add note on its' principle & rules. 20
- OR
- Describe in details family Euphorbiaceae. Add a note on Economic importance for any two plants.
- Q.2 Write an essay on origin of Angiosperms. Add a note on one of the theory of origin of Angiosperms. 20
- OR
- Write short notes on (any four)
- 1) Herbarium
  - 2) Botanic Garden
  - 3) Merits of Takhtajan system
  - 4) Floral characters of oleaceae
  - 5) Economic Importance of Verbanaceae
  - 6) Economic Importance of Amaranthaceae
- Q.3 Multiple choice questions 10
- 1) Vouchers specimen number is related with \_\_\_\_\_  
 a) Herbarium      b) Plant pathology      c) Plant physiology      d) Cytology
  - 2) Botanic garden of NBRI is Located at \_\_\_\_\_  
 a) Mumbai      b) Bhopal      c) Lucknow      d) Chennai
  - 3) Caytonial theory is proposed by \_\_\_\_\_  
 a) Wettstien      b) Halliez      c) Thomas      d) Darwin
  - 4) Present Binomial nomenclature is proposed by \_\_\_\_\_  
 a) Armen Takhtajan      b) Adolf Engler      c) John Hutchinson      d) Lazlous Linnaeas
  - 5) Primitive group of Takhtajan system of classification is \_\_\_\_\_  
 a) Myrtales      b) LiLiales      c) Magnoliales      d) Pandanales.
  - 6) Gloriosa Superba belongs to family \_\_\_\_\_  
 a) Ozchidaceae      b) Commelinaceae      c) LiLiaceae      d) Poaceae

- 7) Botanical name of Amla (Avla) is \_\_\_\_\_  
a) Phyllanthus emblica b) Euphorbia hirta  
c) Ricinus Communis d) Manihot esculanta.
- 8) Lantana Camera belongs to family \_\_\_\_\_  
a) Verbanaceae b) Commelinaceae c) Oleace d) Convolvulaceae
- 9) Follicle fruit type is present in \_\_\_\_\_  
a) Liliaceae b) Verbanaceae c) Asclepiadaceae d) Convolvulaceae
- 10) Genus Calatropis belongs to family \_\_\_\_\_  
a) Oleaceae b) Amaranthaceae c) Asclepiadaceae d) Liliaceae

OR

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**SUBJECT CODE NO:- B-2164**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y (Sem-VI) Examination OCT/NOV 2019**  
**Botany Paper- XX**  
**(B)Economic Botany**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B 1) Attempt all questions.  
 3) Draw neat & well labelled diagram wherever necessary.
- Q.1 Write in detail origin, history, morphology, cultivation and uses of Rice. 20  
 OR  
 Write in brief  
 a) Morphology, cultivation and uses of castor.  
 b) Cultivation and uses of Maize.
- Q.2 Write in detail Morphology, cultivation, processing and uses of Tea. 20  
 OR  
 Write short notes on any four of the following  
 a) Cultivation and uses of Jowar.  
 b) Processing and uses of Cotton.  
 c) Morphology and uses of Orange.  
 d) Cultivation and uses of Black pepper  
 e) Morphology and uses of Potato.  
 f) Morphology and uses of Rose.
- Q.3 Multiple choice questions. 10
- Cereals belongs to family\_\_\_\_\_  
 a) Poaceae      b) Fabaceae      c) Rutaceae      d) Malvaceae
  - Scientific name of Bengal gram\_\_\_\_\_  
 a) Cajanus cajan      b) Phaseolus mungo      c) cicer arietinum      d) Phaseolus radiata
  - which of the following is kharip crop?  
 a) Wheat      b) Cotton      c) Both of these      d) None of these
  - Jute fibre is \_\_\_\_\_  
 a) Surface Fibre      b) Bast Fibre      c) Rough Fibre      d) Coir
  - Mustard oil is rich in \_\_\_\_\_  
 a) Erucic acid      b) Linoleic acid      c) Palmatic acid      d) Stearic acid
  - Coffee is a rich source of \_\_\_\_\_  
 a) Caffeine      b) Polyphenols      c) Essential oils      d) Sugar

7. Banana inflorescence is \_\_\_\_\_  
a) Spadix                      b) Raceme                      c) Head                      d) cluster of raceme
8. the botanical name of orange is \_\_\_\_\_  
a) Citrus reticulata                      b) Citrus sinensis                      c) Citrus lemoni                      d) All of the above
9. Which state of India is the largest Tea producer?  
a) West Bengal                      b) Assam                      c) Sikkim                      d) Manipur
10. Orchid flowers are having \_\_\_\_\_  
a) Long shelf life                      b) Short shelf life                      c) No shelf life                      d) All of the above

OR

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**SUBJECT CODE NO:- B-2164**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y (Sem-VI) Examination OCT/NOV 2019**  
**Botany Paper- XX**  
**(c) Microbiology and Disease Management**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B
- 1) Attempt all questions.
  - 2) Draw neat and well labelled diagrams wherever is necessary.
- Q.1 What is microscopy? Describe in detail the function of electron microscope. 20
- OR
- Describe in detail the concept and methods of seed treatment.
- Q.2 Give an account of biological control of plant disease management. 20
- OR
- Write short notes on ( Any four)
- a) Fungi as pathogen
  - b) Gram staining
  - c) Concept of sterilization
  - d) Pneumatic air pump
  - e) Nicotine
  - f) Copper fungicide
- Q.3 Multiple choice questions. 10
- 1) With dissecting microscope the object may be magnified from\_\_\_\_\_ times.
    - a) 5 to 50      b) 50 to 500      c) 4 to 40      d) 4 to 400
  - 2) \_\_\_\_\_fungicide mixture is product of reaction of copper sulphate and calcium hydroxide
    - a) Burgundy      b) chestnut      c) Chaubattias      d) All of above
  - 3) Pyrethrin is obtained from
    - a) Neem      b) Urtica dioica      c) Tagetes      d) Chrysanthemum cinerianifolium
  - 4) Bacillus thuringiensis produce\_\_\_\_\_
    - a) Insecticidal protein      b) Nematodal protein      c) Fungicidal protein      d) All of above
  - 5) Sterilization is done by autoclave consisting of exposure to steam about.
    - a) 120<sup>0</sup>C      b) 170<sup>0</sup>C      c) 121<sup>0</sup>C      d) 116<sup>0</sup>C



- 6) Antibiotics are toxic to  
a) Plants                      b) Microorganism                      c) Fungicides                      d) All of these
- 7) The chemical substances that prevent or destroy the pathogenic fungi  
a) Fungicides                      b) Weedicides                      c) Foliage spray                      d) Eradication
- 8) Tetramethyl thiuram Disulphate. (TMTD) is called  
a) Ferbam                      b) Thiram                      c) Maneb                      d) Zineb
- 9) \_\_\_\_\_ are smallest known pathogens  
a) Bacteria                      b) Virus                      c) Nematodes                      d) Viroids
- 10) Which chemical is used for soil sterilization  
a) Formaldehyde                      b) Carbon                      c) Sulphur                      d) None of these

OR

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**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y (Sem-VI) Examination OCT/NOV 2019**  
**Botany Paper- XX**  
**(D) Bioinformatics**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B
- 1) Attempt all questions.
  - 2) Draw neat and well labelled diagrams wherever is necessary.
- Q.1 What is data collection and what are the different methods of data collection. 20  
 Explain in detail mean deviation? Add a note on chi-square test.  
 OR
- Q.2 Explain the key features of Microsoft windows. 20  
 OR
- Write short note on (any four) of the following
- a) Bar chart and Line chart
  - b) Mode and Median
  - c) CPU
  - d) Standard error
  - e) World Wide Web
  - f) PUB MED
- Q.3 Multiple choice questions. 10
- 1) In a Pie diagram data is represented through \_\_\_\_\_  
 a) Line      b) Bar      c) Circle      d) Picture
  - 2) Testing of null hypothesis is done in \_\_\_\_\_  
 a) Chi-square      b) Standard deviation      c) Mean      d) Standard error
  - 3) What is the mean of the sample 13,18,13,14,13,16,14,21,13 \_\_\_\_\_  
 a) 13      b) 18      c) 15      d) 14
  - 4) The main device in a computer is \_\_\_\_\_  
 a) CPU      b) Monitor      c) Mouse      d) Keyboard
  - 5) \_\_\_\_\_ is the technology that connects the machines and people within a bite in a small area.  
 a) WAN      b) LAN      c) MAN      d) None of these
  - 6) MS DOS is developed in \_\_\_\_\_  
 a) 1971      b) 1961      c) 1991      d) 1984

- 7) Navigating through pages of information on the web is called \_\_\_\_\_  
a) Looking                      b) Watching                      c) Surfing                      d) None of these
- 8) Most popular operating system is \_\_\_\_\_  
a) Windows                      b) Linux                      c) DOS                      d) Microsoft
- 9) URL stands for \_\_\_\_\_  
a) Uniform Request Locator                      b) Uniform Resource Locator  
c) Uniterct Request Line                      d) Universal Resource Locator
- 10) PUBMED is a search engine accessing database on \_\_\_\_\_  
a) References on life science                      b) Publisher                      c) Books                      d) Name of medicines

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**SUBJECT CODE NO:- B-2019**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. F.Y. (Sem-I) Examination Oct/Nov 2019**  
**Botany Paper-I**  
**Diversity of Cryptogams-I**

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

N.B

- 1) Attempt all questions
- 2) Illustrate your answer with well labelled diagram

Q.1 Describe in detail the structure of TMV and add a note on its multiplication. 20

OR

Explain in detail systematic position, thallus structure and reproduction in sargassum.

Q.2 Describe the life cycle of Agaricus 20

OR

Write short notes on ( any four)

- a) General characters of Bacteria
- b) Types of lichens
- c) Globule & nucule
- d) Batrachospermum
- e) Asexual Reproduction in Mucor
- f) Gills of Agaricus

Q.3 Multiple choice questions. 10

- 1) Reproduction in Bacteria takes place by-----  
 a) Zoospores    b) conidia    c) Aplanospores    d) Binary fission
- 2) The Bacterial transformation discovered by -----  
 a) Leeuwenhoek    b) Griffith    c) Robert Hill    d) Khorana
- 3) TMV stands for -----  
 a) Total multiple virus    b) Tobacco mosaic virus  
 c) tomato mosaic virus    d) Tree Mosaic virus
- 4) Classification of cryptogam is based on -----  
 a) D.I. Arnon    b) Bateson    c) Smith    d) Robert Koch
- 5) The cyanobacteria are -----  
 a) Eukaryotic    b) prokaryotic    c) a & b both    d) None of the above
- 6) A kinate formation takes place in -----  
 a) Red Algae    b) yellow Algae    c) Diatoms    d) Blue green Algae

- 7) Sexual reproduction in Botrydium is -----  
a) Oogamous    b) Anisogamous    c) isogamous    d) All of the above
- 8) The sexual spores are ----- in mucor  
a) Motile    b) non- motile    c) flagellated    d) capsulated
- 9) Umbrella like cap of Mushroom is -----  
a) Pileus    b) Basidium    c) Gill    d) capsid
- 10) Tikka disease of groundnut is caused by -----  
a) Aspergillus    b) Albugo    c) Alternaria    d) cercospora

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**SUBJECT CODE NO:- B-2020**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. F.Y. (Sem-I) Examination Oct/Nov 2019**  
**Botany Paper-II**  
**Morphology of Angiosperms**

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

N.B

- 1) Attempt all questions
- 2) Illustrate your answer with well labelled diagram

Q.1 What is flower? Describe the various parts of typical flower and give their functions. 20

OR

Describe the structure of Androeceum explain cohesion of stamens

Q.2 Explain different types of venation of leaves. 20

OR

Write short notes on ( any four )

- a) Pneumatophores
- b) Stem tendrils
- c) Compound leaf
- d) Syconus fruit
- e) Cyathium type of Inflorescence
- f) Twisted and Imbricate aestivation

Q.3 Multiple choice questions. 10

- 1) Radish has a -----  
 a) Conical root    b) Fusiform root    c) Napiform root    d) Tuberous root
- 2) Ginger is a stem not a root because -----  
 a) It is bitter in test    b) It stores food  
 c) It is non- green in colour    d) It has nodes and internodes
- 3) Phylloclade is a modification of -----  
 a) Root    b) Stem    c) leaf    d) Flower
- 4) Carrot is a -----  
 a) Root    b) Stem    c) flower    d) Inflorescence
- 5) Flower with ovary seated on conical thalamus is called -----  
 a) Epigynous    b) perigynous    c) Hypogynous    d) syngenesious
- 6) Cotton seeds are dispersed by -----  
 a) Water    b) animals    c) censer mechanism    d) wind

- 7) The maize grain is -----  
a) Embryo    b) endosperm    c) cotyledon    d) fruit
- 8) Epipetalous is condition in which -----  
a) Petals attached to sepals  
b) Carpels attached to petals  
c) Stamens attached to petals  
d) Ovules attached to ovary
- 9) Aestivation of clitoria flower is -----  
a) Vexillary    b) contorted    c) valvate    d) Imbricate
- 10) Potato tuber is a modified -----  
a) Root    b) stem    c) leaf    d) petal

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**SUBJECT CODE NO:- B-2027**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. S.Y. (Sem-III) Examination Oct/Nov 2019**  
**Botany Paper-VII**  
**Taxonomy of Angiosperms**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- i) Attempt all questions.
- ii) Illustrate your answer with suitable well labelled diagram.

Q.1 Comment on origin and evolution of Angiosperms. 20

OR

Describe in details Embryology and Anatomy used in taxonomy.

Q.2 Explain in detail family solanaceae upto floral formula and floral diagram. Add a note on economic importance of few plants. 20

OR

Write Short notes on any four:

- a) Palynology
- b) Species concept
- c) Floral Structure of Liliaceae
- d) Economic importance of Poaceae
- e) Verticillaster inflorescence

Q.3 Multiple Choice Questions. 10

1. Ocimum sanctum belongs to family \_\_\_\_\_.  
 a) Liliaceae      b) Acanthaceae      c) Lamiaceae      d) None of these
2. Which of the following family does not belongs to polypetalac.  
 a) Malvaceae      b) Fabaceae      c) Caesalpinaceae      d) Solanaceae
3. Bilabiate type of corolla belongs to \_\_\_\_\_.  
 a) Acanthaceae      b) Solanaceae      c) Liliaceae      d) None of these
4. Attachment of Ovule with ovary wall is called as \_\_\_\_\_.  
 a) Aestivation      b) Placentation      c) Cohesion      d) None of these
5. Pulses crop belongs to family \_\_\_\_\_.  
 a) Acanthaceae      b) Mimosaceae      c) Fabaceae      d) Malvaceae
6. Monadelphous stamens belongs to family \_\_\_\_\_.  
 a) Malvaceae      b) Fabaceae      c) Mimosaceae      d) All of these
7. \_\_\_\_\_ is known as father of Botany.  
 a) Aristotle      b) Linnaeus      c) Theophrastus      d) None of these



8. *Saccharum officinarum* is called as \_\_\_\_\_.  
a) Cotton                      b) Sugarcane                      c) Jowar                      d) Maize
9. Bicarpellary ovary is commonly seen in \_\_\_\_\_.  
a) Solanaceae                      b) Malvaceae                      c) Fabaceae                      d) None of these
10. *Cajanus cajan* belongs to family.  
a) Fabaceae                      b) Caesalpinaceae                      c) Mimosaceae                      d) Annonaceae

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**SUBJECT CODE NO:- B-2028**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. S.Y. (Sem-III) Examination Oct/Nov 2019**  
**Botany Paper-VIII**  
**Plant Ecology**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- i) Attempt all questions.
- ii) Draw neat & well labelled diagram whenever necessary.

- Q.1 Give an account of major soil types of India? 20  
 Give an account of soil conservation? OR
- Q.2 Explain in detail the vegetation types of India. 20  
 Write short notes (Any Four) OR  
 a) Epiphytes  
 b) Food Chain  
 c) Phosphorus Cycle  
 d) Community Characteristics  
 e) Pyramid of energy  
 f) Chemical properties of water
- Q.3 Multiple Choice Questions. 10
1. Ranunculus is a
    - a) Free floating hydrophyte
    - b) Rooted emergent hydrophyte
    - c) Succulent
    - d) Halophyte
  2. Sclerenchyma is well developed in
 

(a) Casuarina	(b) Aloe vera
(c) Bryophyllum	(d) Opuntia
  3. Mangroves beach forest occur at
 

(a) Assam	(b) Malabar
(c) Andaman	(d) Central India
  4. Space between soil particle is called
 

(a) Pore space	(b) roots
(c) Velamen	(d) Water
  5. Shade tolerant species of plant is called as
 

(a) Heliophyte	(b) Sciophyte
(c) Hydrophyte	(d) Xerophyte

6. Plants grow in dry habitat are called as
  - (a) Hydrophyte
  - (b) Halophyte
  - (c) Mesophyte
  - (d) Xerophytes
7. Energy flow in ecosystem is
  - (a) Multidirectional
  - (b) Unidirectional
  - (c) Bidirectional
  - (d) None of these
8. Which is not a factor of abiotic ecosystem.
  - (a) Temperature
  - (b) Decomposer
  - (c) Sunlight
  - (d) Water
9. Which is the following not producer
  - (a) Mushroom
  - (b) Fern
  - (c) Sea weed
  - (d) Monocotyledons
10. Generally food chain has how many trophic levels.
  - (a) One
  - (b) Two
  - (c) Three
  - (d) Four

Total No. of Printed Pages:2

**SUBJECT CODE NO:- B-2023**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y.(Sem-V) Examination Oct/Nov 2019**  
**Botany Paper- XV**  
**Cell Biology & Molecular Biology**

[Time: 1:30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- i) Attempt all questions.
- ii) Draw neat and well-Labeled diagram whenever necessary.

- Q.1 Describe structure and function of Lysosome 20  
 OR  
 What is Meiosis? Explain the process in detailed with its significance 20
- Q.2 Define giant Chromosome. Explain the structure of polytene and Lampbrush Chromosome 20  
 OR  
 Write Short note on (any four) 20
- a) Function of nucleus
  - b) Significance of mitosis
  - c) Duplication
  - d) Function of DNA
  - e) Endoplasmic Reticulum
  - f) Telomere
- Q.3 Multiple Choice Question 10
- 1) The term chromosome was coined by
    - a) W – Flemming
    - b) W – Roux
    - c) Walldeyer
    - d) Sutton
  - 2) Chromatin is composed of
    - a) DNA
    - b) DNA and Proteins
    - c) DNA, RNA and Proteins
    - d) None of these
  - 3) Which of the following does not contain phosphate
    - a) A nucleotide
    - b) Nucleotide
    - c) DNA
    - d) RNA
  - 4) In Cycle, DNA replication occurs during
    - a) G<sub>1</sub> phase
    - b) G<sub>2</sub> phase
    - c) Metaphase
    - d) S-Phase

- 5) Polytene Chromosomes were first observed by
  - a) Batanetzky – 1980
  - b) Heitz and Baue – 1935
  - c) Balbiani – 1981
  - d) Steven Sand Wilson – 1905.
- 6) Centromere is a part of Chromosome which helps in the
  - a) Division of Centrosomes
  - b) Formation of Spindle fibres
  - c) Movement of Chromosomes
  - d) Formation of nuclear Spindle
- 7) The rough endoplasmic reticulum has -----Located on
  - a) Lysosome
  - b) Cytosol
  - c) Ribosome
  - d) Proteins
- 8) When DNA Polymerase is in contact with Guanine in the parental strand what does it add to the growing daughter strand
  - a) Phosphate
  - b) Cytosine
  - c) Uracil
  - d) Adenine
- 9) The 5' and 3' numbers are related to the
  - a) Length of DNA strand
  - b) Carbon number in Sugar
  - c) The number of prophase
  - d) The base pair rule
- 10) DNA Replication takes place in which direction?
  - a) 3' to 5'
  - b) 5' to 3'
  - c) Randomly
  - d) Vary from organism to organism

Total No. of Printed Pages:2

**SUBJECT CODE NO:- B-2024**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2019**  
**Elective Paper**  
**Botany Paper- XVI / (A) Diversity of Angiosperms – I**

**[Time: 1:30 Hours]****[Max.Marks:50]**

N.B

Please check whether you have got the right question paper.

- 1) Attempt all questions
- 2) Draw neat and well labeled diagrams wherever necessary.

- Q.1 What is Biodiversity? Write an essay on Biodiversity. 20
- OR
- Define Hot spot comment on hot spot in India. Add a note on Endemism. 20
- Q.2 Describe family papaveraceae up to floral formula and floral diagram. Add a note on its Economic importance. 20
- OR
- Write short note on any four 20
- a) Species diversity
  - b) Threatened categories
  - c) Floral characters of capparidaceae
  - d) Morphological characters of apiaceae
  - e) Economic importance of Rhamnaceae
  - f) Merits and Demerits of Bentham and Hooker's system
- Q.3 Multiple choice questions 10
- 1) Leading mega diversity centre of world is -----  
a) Mexico      b) south Africa      c) Brazil      d) India
  - 2) Botanic Garden is example of ----- types of conservation.  
a) In – situ      b) Ex- situ      c) Both of above      d) none of above
  - 3) Apocarpous condition is commonly seen in -----family.  
a) Rhamnaceae      b) Rutaceae      c) Brassicaceae      d) Magnoliaceae
  - 4) Hesperidium type of fruit is found in ----- family.  
a) Nymphaeaceae      b) Rutaceae      c) capparidaceae      d) cucurbitaceae

- 5) Ex –situ conservation includes -----  
a) National park    b) Botanical garden    c) sanctuary    d) none of these
- 6) Jim corbett national park is located in ----- state.  
a) Madhya Pradesh    b) Assam    c) Uttarakhand    d) Bihar
- 7) Sanjay Gandhi national park is located in -----state  
a) Gujrat    b) Maharashtra    c) Kerala    d) Madhya Pradesh
- 8) Parietal placentation is common in the ----- family.  
a) Rutaceae    b) Nymphaeaceae    c) Papavaraceae    d) None of the these
- 9) Cruciform corolla is present in the ----- family.  
a) Lythraceae    b) Apiaceae    c) Brassicaceae    d) combretaceae
- 10) A . P. De Candolle system is based upon -----system.  
a) De jussiea    b) caspard Baulin    c) Bentham and Hooker    d) Hutchinson

OR

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**SUBJECT CODE NO:- B-2024**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2019**  
**Botany Paper- XVI / (B) Plant Breeding and Seed Technology**

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B
- 1) Attempt all questions
  - 2) Illustrate your answer with suitable labeled diagrams whenever is necessary.

Q.1 What is plant breeding? Describe its aims and objectives. 20

OR

Write in brief

- a) Mass selection
- b) Latin square design

20

Q.2 What is hybridization? Describe the procedure & hybridization? 20

OR

Write short notes on ( any four )

- 1) Merits and demerits & plant Introduction
- 2) Applications of heterosis
- 3) Clonal selection
- 4) Dicot seed
- 5) Storage seed
- 6) Nucleus seed

20

Q.3 Multiple choice questions 10

- 1) The oldest method of crop improvement is -----  
a) Pure line selection    b) clonal selection    c) mass selection    d) Hybridization
- 2) Domestication of plant species -----  
a) Introduction    b) plant species under human management  
c) Heterogenous    d) none of above
- 3) Crossing between two different species is known as  
a) Intergeneric    b) inter specific    c) intra specific    d) none of above
- 4) The oldest method of plant breeding is -----  
a) Introduction    b) Hybridization    c) Selection    d) none of above



- OR**

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**SUBJECT CODE NO:- B-2024**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2019**  
**Botany Paper- XVI / (C) Plant Pathology**

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B 1) Attempt all questions  
2) Draw neat and well labeled diagram wherever necessary.
- Q.1 Describe in detail the concept of seed pathology. 20  
 OR  
 Describe in detail seed borne pathogen methods and application 20
- Q.2 Describe in detail symptoms, causal organism disease cycle and management of Tikka disease of groundnut. 20  
 OR  
 Write short notes on ( any four) 20  
 a) Late blight of potato  
 b) Downy Mildew of grapes  
 c) Powdery Mildew of rose  
 d) Animate plant pathogens  
 e) Ergot of Bajra  
 f) Little leaf of Brinjal
- Q.3 Multiple choice questions 10  
 1) ---- diseases are native to a particular place  
 a) Endemics b) cosmopolitan c) sporadic d) none of these  
 2) The sexual fruiting body of an Basidiomycetes fungus known as  
 a) Basidiospores b) Basidiocarp c) Basidium d) Ascocarp  
 3) The substance used to solidify liquid culture media is called  
 a) Agar b) yeast c) Dextrose d) Glucose  
 4) An international society of plant pathology was formed in  
 a) 1965 b) 1968 c) 1962 d) 1972  
 5) Tikka disease of groundnut caused by  
 A) Cercospora personata b) claviceps c) fusarium d) none of these  
 6) Control of pathogen after entry into the crop field is termed as  
 a) Eradication b) exclusion c) protection d) all of these

- 7) Aflatoxin is produced by the fungus  
a) Aspergillus b) Rhizopus c) Fusarium d) Alternaria
- 8) Who is known as father of Indian Mycology  
a) K .C .Mehta b) E.J. Butler c) Sadasivan d) none
- 9) Yellow vein Mosaic of bean is caused by  
a) Virus b) Fungi c) Bacteria d) Mycoplasma
- 10) IARI is located at  
a) Mumbai b) Jaipur c) Hyderabad d) New Delhi

OR

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**SUBJECT CODE NO:- B-2024**  
**FACULTY OF SCIENCE AND TECHNOLOGY**  
**B.Sc. T.Y. (Sem-V) Examination Oct/Nov 2019**  
**Botany Paper- XVI / (D) Bio-Technology**

[Time: 1.30 Hours]

[Max.Marks:50]

Please check whether you have got the right question paper.

- N.B 1) Attempt all questions  
2) Draw neat and well labeled diagrams.
- Q.1 What is genomic? Elaborate the concept and explain the scope of genomics. 20  
 OR  
 Describe in detail structure of DNA 20
- Q.2 What is DNA finger printing? Explain the procedure, advantages application and limitation of finger printing. 20  
 OR  
 Write short note ( any four ) 20  
 a) Application of tissue culture  
 b) Scope of biotechnology  
 c) Transgenic plants  
 d) Application of PCR technology  
 e) Vectors  
 f) Marker genes
- Q.3 Multiple choice questions 10  
 1) Out of the following enzymes which one is used to join segments of DNA during genetic engineering?  
 a) Lipase b) ligase c) gyrase d) helicase  
 2) DNA finger printing refers to  
 a) Techniques used for molecular analysis of different specimens of DNA  
 b) Techniques used for identification of fingerprints of individuals  
 c) Molecular analysis of profiles of DNA samples  
 d) Analysis of DNA sample  
 3) The genome map was produced under human genome project in  
 a) 1992 b) 1994 c) 1996 d) 2000  
 4) The replication of DNA is brought out by an enzyme known as  
 a) Oxidase b) reductase c) kinase d) polymerase  
 5) Restriction endonuclease is use in  
 a) Genetic engineering b) Tissue culture  
 c) cell fractionation d) Regeneration of tissue

- 6) The structure which are most common tools of genetic engineering
  - a) Virus
  - b) plasmids
  - c) Episome
  - d) None of these
- 7) A plant cell has potential to develop in to full plant. This property of the plant cell is called
  - a) Tissue culture
  - b) Totipotency
  - c) pluripotency
  - d) Gene cloning
- 8) The first step in genetic engineering is
  - a) Isolation of protein
  - b) purification of protein
  - c) Isolation of genetic material
  - d) Isolation of DNA
- 9) Vectors -----
  - a) Are artificial DNA
  - b) Are low molecular weight of DNA
  - c) Can multiply independently
  - d) All of these
- 10) Base pairs present in one turn of DNA are
  - a) 12
  - b) 11
  - c) 10
  - d) 9