

Note: Attempt all the questions as per given instructions.

1. Multiple Choice Questions (MCQs)

Which element is required for photosynthetic oxygen evolution?

- (a) Copper (b) iron (c) manganese (d) zinc
- II** Photolysis of water takes place in:
- (a) Calvin cycle (b) glycolysis (c) light phase (d) dark phase
- III** First stable product of dark reaction in C₃ plant is:
- (a) PEP (b) RUBP (c) PGA (d) OAA
- V** In chlorophyll, which metal is present?
- (a) Mn (b) Mo (c) Mg (d) S
- V** Photorespiration occurs in:
- (a) C₃ plants (b) C₄ plants (c) Algae only (d) All plants
- VI** Photorespiration occurs in:
- (a) C₃ plants (b) C₄ plants (c) Algae only (d) All plants
- VII** The first photosynthetic organism were:
- (a) Algae (b) bryophytes (c) cyanobacteria (d) bacteria
- VIII** The process of photophosphorylation was discovered by:
- (a) Calvin (b) Priestley (c) Warburg (d) Arnon
- IX** Which hormone is used for artificial ripening of fruits?
- (a) Cytokinin (b) ethylene (c) auxin (d) none
- X** Germination of seed is promoted by:
- (a) Green light (b) red light (c) blue light (d) IR light
- XI** Two pigment system of photosynthesis was observed by:
- (a) Arnon (b) Hill (c) Calvin (d) Emerson

[Time : 03:00 Hours]

[Max. Marks : 70]

Note : Attempt all the questions as per given instructions.

1. Multiple Choice Questions (MCQs)

I is known as temperature tolerant white button mushroom.

- II *Agaricus bisporus* belongs to family _____.
 (a) *Agaricus* (b) *Pleurotus*
 (c) *Volveriella* (d) *Agaricus bitorquis*
- III Basidiospores are _____ spores.
 (a) Agaricaceae (b) Malvaceae
 (c) Rubiaceae (d) Solanaceae
- IV Which of the following toxins is present in *Amanita muscaria*:
 (a) Ibotenic acid (b) Lactic acid
 (c) Acidic acid (d) All of the above
- V _____ is known as 'king oyster mushroom'.
 (a) *Pleurotus eryngii* (b) *Volvariella*
 (c) *Agaricus* (d) None of the above
- VI Formaldehyde is used as _____ in mushroom cultivation.
 (a) Disinfectant (b) Fertilizer
 (c) Insect repellent (d) Food material
- VII Short method of button mushroom compost preparation requires _____ days.
 (a) 14-18 days (b) 10 days (c) 20 days (d) 25 days
- VIII What is the other name of Mushroom?
 (a) *Funaria* (b) *Dryopteris* (c) *Agaricus* (d) *Agar*
- IX Which of the following is not a step in mushroom cultivation?
 (a) Composting (b) Spawning
 (c) Landfilling (d) Casing

XII The hormone present in the liquid endosperm:

- (a) Ethylene (b) GA (c) auxin (d) cytokinin

XIII Which of the following is a gaseous plant growth regulator?

- (a) ABA (b) Ethylene (c) Kinetin (d) GA

XIV The first auxin was isolated from:

- (a) Human stool (b) human urine (c) cow urine (d) none

XV In photosynthesis, light reactions occur in:

- (a) Thylakoids (b) stomata (c) mitochondria (d) none

2. Answer in long (any three) [10×3=30]

- I** Explain about Ascent of sap with suitable diagrams.
II What do you mean by photoperiodism? Differentiate the long day and short day plants with suitable examples.
III Give a detailed account on the biosynthesis and physiological effects of Cytokinin hormone.
IV What do you mean by mineral nutrition? Give a detailed account on the role of macro and micro nutrients in plants.

3. Answer in short (any five) [5×5=25]

- I** Describe briefly the mechanism of water absorption.
II Explain the process of guttation with the help of suitable diagram.
III What do you mean by Plasmolysis?
IV Describe briefly the oxidative phosphorylation.
V Briefly describe the photorespiration.
VI Write a short note on Ethylene hormone.
VII Briefly explain the factors that affect respiration process.

X Mushroom is—

- (a) Saprophytic fungus (b) Autotrophic Algae
(c) Heterotrophic fungus (d) None of the above

XI Mycelium produces white or colored umbrella shaped fruiting bodies called:

- (a) Haphae (b) Basidiocarp (c) Annulus (d) Seta

XII Basidiocarp consist of a fleshy stalk called _____ and umbrella like head borne on its top called _____

- (a) Hyphae and Seta (b) Seta and Annulus
(c) Annulus and Antheridia (d) Stipe and Pileus

XIII When young fruiting body is completely enveloped by a thin membrane, it is called

- (a) Mycelium (b) Rhizoids (c) Velum(veil) (d) Septate

XIV With the growth of _____ velum gets ruptured, while a part of it remained attached to stipe in the form of ring or _____.

- (a) Basidiocarp and Slender (b) Pileus and Annulus
(c) Pyrenoid and Conjugation (d) Hyaline and Pyrenoid

XV On the lower side of Pileus number of vertical plates like structure are present called _____

- (a) Spores (b) Organelles (c) Mushroom Dryopteris (d) Gills

2. Answer in long (any three) [10×3=30]

- I** Write an illustrated account on Agaricaceae family of mushroom.
II Discuss the nutritional and medicinal value of mushroom.
III Write the ethenological approach of mushrooms.
IV Discuss about role of mushrooms in forest ecosystem.

3. Answer in short (any five) [5×5=25]

- I** How will you prepare bed for mushroom cultivation.
II What are poisonous mushroom? Give detailed account.
III What are toxic mushrooms? Explain their toxicity.
IV Explain the disease management of mushrooms.
V What do you mean by short term storage? Briefly discuss on it.
VI Examine the factors affecting the mushroom bed preparation.
VII Discuss about tissue culture in wild mushrooms.

- IX The famous Irish famine of 1845-46 was due largely to the failure of potato crop with disease:
 (a) potato scab (b) early blight
 (c) late blight (d) none of them
- X Hypersensitivity is an extreme degree of:
 (a) susceptibility (b) infection
 (c) inoculum (d) none of the them
- XI Ergot is a disease which effects only the:
 (a) Flowering part (b) Fruit (c) Stem (d) Root
- XII Mycoplasmas can be cultivated in vitro on nonliving media as:
 (a) facultative aerobes (b) obligate aerobes
 (c) facultative anaerobes (d) microaerophiles
- XIII The mycoplasmas require which of the following substance for growth?
 (a) Nitrogen (b) Carbon (c) Cholesterol (d) Glucose
- XIV A pathogen often develops resistant against?
 (a) Systemic fungicides (b) Dusts
 (c) Pastes (d) Fumigants
- XV Which is an antibiotic used for plant protection?
 (a) Streptomycin (b) Actidione
 (c) Griseofulvin (d) All of the above
2. Answer in long (any three) [10×3=30]
- I How pathogen infect the host? Discuss about chemical weapon of pathogen?
- II Detailed account of plant disease?
- III Describe the infection phenomena of plant pathogens. Also discuss the factors affecting the infections
- IV What are PR proteins? Give a detailed account on molecular aspect of host pathogen in direction?
3. Answer in short (any five) [5×5=25]
- I Write in different types of fungal diseases caused in plants. Mention any two fungal diseases caused in to plants.
- II Write in brief about various symptoms caused by mycoplasma?
- III Differentiate between intercellular and intracellular mycelium.
- IV Discuss about respiration under pathogenesis.
- V What are pathotoxins? Classify them.
- VI Write short note on biopesticides and epidemiology.
- VII What is hypersensitive reaction? Discuss?

Questions Question: Attempt all questions from this		[1×7=7]	
प्रश्न: इस खण्ड से सभी प्रश्नों के उत्तर दीजिए।			
Information is:	(B) Raw knowledge (C) Input data (D) Organized data		
कौन सा जानकारी का स्रोत है?	(a) ज्ञान (b) इनपुट डेटा (c) संगठित डेटा		
Internet-work & Networks work & System क्या है?	(a) Network & International News Library (b) All of these		
नेटवर्क और नेटवर्क (ब) नेटवर्क और अंतराष्ट्रीय समाचार लाइब्रेरी (क) और सिस्टम (द) उपरोक्त सभी			
Space on internet is usually called.	(a) Region (b) Web Pot (c) Web Site (d) Web Place		
इन्टरनेट पर हर जगह को आमतौर पर कहा जाता है।	(a) वेब पोत (b) वेब साइट (c) वेब प्लेस (d) वेब प्लेस		
Media is which type of source of Information.	(a) Non-Document (b) None of these		
माध्यम सूचना का किस प्रकार का स्रोत है?	(a) गैर-दस्तावेजी (b) सन्दर्भ स्रोत (c) इनमें से कोई नहीं		
Original information is called.	(a) Primary (b) Secondary (c) None of these		
मूल जानकारी को क्या कहते हैं?	(a) प्राथमिक (b) द्वितीयक (c) इनमें से कोई नहीं		
Data Base Are-	(a) Source Database (b) None of These		
सूचना आधार	(a) स्रोत डेटाबेस (b) इनमें से कोई नहीं		
प्रकार है-	(a) Window Web World (b) World Wild Work		
डेटाबेस (ब) स्रोत डेटाबेस (स) A और B दोनों (द) इनमें से कोई नहीं			
und for:	(a) Window Web World (b) World Wild Work		
विंडो वेब वर्ल्ड का मतलब है:	(a) विंडो वेब वर्ल्ड (b) वर्ल्ड वाइल्ड वर्क		
Category of sources of information are directories?	(a) Non-Documentary (b) Primary (c) Secondary (d) Secondary		
सूचना के किस श्रेणी के स्रोत हैं?	(a) गैर-दस्तावेजी (b) प्राथमिक (c) माध्यमिक (d) माध्यमिक		

18/12/24

Printing Pages :3

Paper Code: MSC BOT-302

A (SVSU:2024-2

Enrollment No.

Program Name: M.Sc. Botany

III Semester / II Year Examination

Subject Code: MSC BOT 302

Subject Name: Plant Biochemistry and Biochemical Techniques

[Time : 03:00 Hours]

[Max. Mar

Note: Attempt all the questions as per given instructions.

I. Multiple Choice Questions (MCQs)

[01×15=

I A well stoppered thermos flask contains some ice cubes. The example of:

- (a) Closed system
- (b) Open system
- (c) Isolated system
- (d) Non thermodynamic system

II The least random state of the water system is:

- (a) Ice
- (b) Liquid water
- (c) Steam
- (d) Randomness is same

III

When water is added to quick lime the reaction is—

- (a) Explosive
- (b) Endothermic
- (c) Exothermic
- (d) Photochemical

IV

What macronutrients are insoluble in water?

- (a) Carbohydrates
- (b) Fats
- (c) Minerals
- (d) Vitamins

V

Dipole moment present in:

- (a) Polar molecules
- (b) Non polar molecules
- (c) In both types of molecules
- (d) Only in water

VI

The centrifugation is based on the principle of when a force than the gravity desired.

- (a) True
- (b) False

VII This force can stabilize a DNA double-helix:

- (a) Hydrophilic sugar-phosphate groups are found on the exterior of the helix where interaction with water occurs
- (b) Hydrophobic bases are present in the interior of the helix, each base-pair is stabilized by the same number of hydrogen bonds
- (c) covalent base stacking interactions may take place between neighbouring bases within the same strand in the helix
- (d) non-covalent N-glycosidic bonds may form between nitrogenous bases in opposite strands in the helix

VIII Proteins are polymers of:

- (a) Amino acids
- (b) Glucose
- (c) Nucleic acids
- (d) Sucrose

IX Which of the following cannot be used for the separation of nucleic acids?

- (a) SDS – PAGE
- (b) PAGE
- (c) Northern blotting
- (d) PAGE

X Which of the following is not a type of centrifugation?

- (a) Hydro cyclone
- (b) Tubular centrifuge
- (c) Microfiltration
- (d) Disk stack separator

XI Which technique separates charged particles using electric field?

- (a) Hydrolysis
- (b) Electrophoresis
- (c) Protein synthesis
- (d) Protein denaturing

XII Which force involved in chromatography:

- (a) Hydrogen binding
- (b) London Force
- (c) Electrostatic Force
- (d) All of the above

XIII The speed of migration of ions in electric field depends upon:

- (a) Shape and size of molecule
- (b) Magnitude of charge and shape of molecule
- (c) Magnitude of charge shape and mass of molecule
- (d) Magnitude of charge and mass of molecule

XIV If proteins are separated according to their electrophoretic mobility then the type of electrophoresis is:

- (a) SDS PAGE
- (b) Affinity Electrophoresis
- (c) Electro focusing
- (d) Free flow electrophoresis

XV What does the electrophoresis apparatus consist of?

- (a) Gel, buffer chamber and TBE pack
- (b) Buffer chamber and electrophoresis unit
- (c) Electrophoresis unit and gel separator
- (d) Power pack and electrophoresis unit

2. Answer in long (any three)

[10×3=30]

- I Explain the structural classification and properties of carbohydrates.

- II Write a detailed account on spectroscopy with principle.

- III Give detailed note on various types of protein structure.

- IV What are enzymes? Explain the theories regarding the mechanism of enzyme action.

3. Answer in short (any five)

[5×5=25]

- I Write the law of thermodynamics.

- II Write a short note on Enzyme kinetics.

- III Write a note on centrifugation.

- IV What is microscopy? Describe various types of microscopy.

- V How the double helical structure of DNA stabilized?

- VI Define Vander Val force with suitable example.

- VII Write the detailed pathway for Glycolysis.