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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : VI (Old)	Term : II	Academic Year : 2017-18
Course No. : AGRO 3610	Title : Farming Systems and Sustainable Agriculture	
Credits : 2 (1+1)		
Day & Date : Friday, 04.05.2018	Time : 09.00 to 11.00	Total Marks : 40

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define farming system. Explain the diversified farming with its advantages and disadvantages.
- Q.2 Define cropping system and enlist its classification.
- Q.3 What is organic farming? Enlist the principles of organic farming.
- Q.4 Define sustainable agriculture? Give the advantages and disadvantages of sustainable agriculture.
- Q.5 Which points are considered for choosing enterprises in IFS? Give one example of integrated farming system model for dry land including various components.
- Q.6 Enlist the problems created by using poor quality water in soil. Explain in brief remedies to overcome these problems.
- Q.7 Explain in detail the low cost technology and non monetary inputs for field crop production.
- Q.8 Write short notes.
- a) Amelioration of acid soils
 - b) Advantages of Integrated Farming System (IFS)
- Q.9 Define intercropping and give the indices for assessment of yield advantage and Economics.
- Q.10 Answer the following.
- a) Benefits of organic farming
 - b) Waterlogged soil and problems associated with water logging

SECTION "B"

- Q.11 Define the following terms.
- 1) Alley cropping
 - 2) Cropping scheme
 - 3) Lay farming
 - 4) Minimum tillage
- Q.12 State true or false and correct it if necessary.
- 1) Municipal refuse is sewage and sludge with small quantities of water.
 - 2) Zero tilled soils are heterogeneous in structure with more number of earthworms.
 - 3) IPM does not reduce the need for agrochemicals.
 - 4) Organic farming has no relation with sustainable agriculture.



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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: VI (Old)	Term	: II	Academic Year	: 2017-18
Course No.	: AGRO 3611	Title	: Organic and Rainfed Farming		
Credits	: 2 (1+1)	Time	: 09.00 to 11.00	Total Marks	: 40
Day & Date	: Thursday, 26.04.2018				

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1 Define dry land agriculture. Differentiate between dry land farming and rainfed farming.
- Q.2 What do you mean by biofertilizer? Give its classification and enlist the advantages of biofertilizer application.
- Q.3 Define Green manuring. Write down its advantages and disadvantages.
- Q.4 Define organic farming. State advantages and disadvantages of organic farming.
- Q.5 Define cropping system. Explain different types of cropping systems.
- Q.6 Define drought. Suggest measures for adoption to overcome the drought.
- Q.7 What are the basic standards for crop production in organic farming?
- Q.8 Write in detail agronomic measures for soil and water conservation in rainfed farming.
- Q.9 Define watershed. Enlist different principles of watershed management.
- Q.10 What is Integrated Weed Management (IWM) in organic farming? Enlist the different methods of IWM and state the different biocontrol agents used to control weeds in organic farming.

SECTION "B"

- Q.11 Define the following terms.
- | | |
|---------------------|--------------------|
| 1) Intercropping | 2) Antitranspirant |
| 3) Farm yard manure | 4) Soil amendments |
- Q.12 Do as directed.
- 1) Give name of two accredited certifying agencies of the organic farming.
 - 2) Write full form of IFOAM.
 - 3) Write any two names of the antitranspirant
 - 4) Write full form of NPOP.

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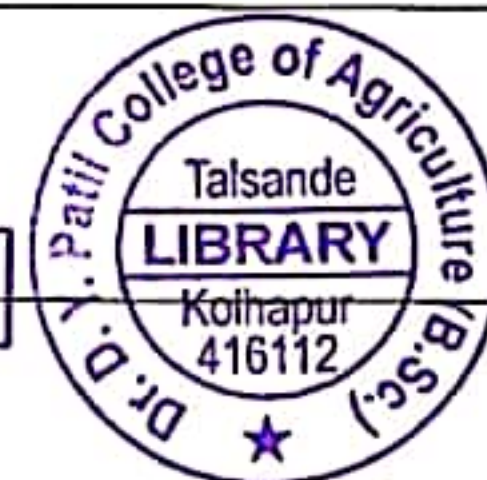
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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : V (Old)	Term : I	Academic Year : 2018-19
Course No. : ASDS 353	Title : Technology of Milk and Milk Products	
Credits : 2(1+1)		
Day & Date : Wednesday, 14.11.2018	Time : 14.00 to 16.00	Total Marks : 40

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 Explain in short about present status of dairy industry in India.
- Q.2 Enlist various platform tests during procurement of milk and describe in detail alcohol test of milk.
- Q.3 Classify the milk products according to manufacturing process with suitable examples and draw the flow chart for preparation of channa.
- Q.4 Enlist various physico-chemical properties of milk and describe in short about specific gravity and freezing point of milk.
- Q.5 Write down the important properties of packaging material and explain in detail vacuum packaging.
- Q.6 Write short notes (Any Two).
- a) Utilization of whey b) Pasteurization of milk c) AGMARK standards
- Q.7 Define homogenization. Write down the merits and demerits of homogenization.
- Q.8 Enlist factors affecting chemical composition and yield of milk and discuss any two.
- Q.9 Write down the various preservation methods of milk and milk products and explain in short biological method of preservation.
- Q.10 Define milk. Explain the nutritional importance of various constituents of milk.

SECTION "B"

- Q.11 Do as directed.
- 1) Write the boiling point of milk.
 - 2) Give the full form of FSSAI.
 - 3) Name the chemical which produces the typical flavour in butter.
 - 4) In cow milk, yellowish colour is due to presence of _____.
- Q.12 Fill in the blanks.
- 1) The pH of fresh buffalo milk ranges from _____ to _____.
 - 2) According to PFA, standardized milk contains a minimum _____% fat and _____%SNF.
 - 3) Emulsifiers are used in manufacturing of _____.
 - 4) Milk is heated at _____⁰C for fraction of a second in uperization method of pasteurization.



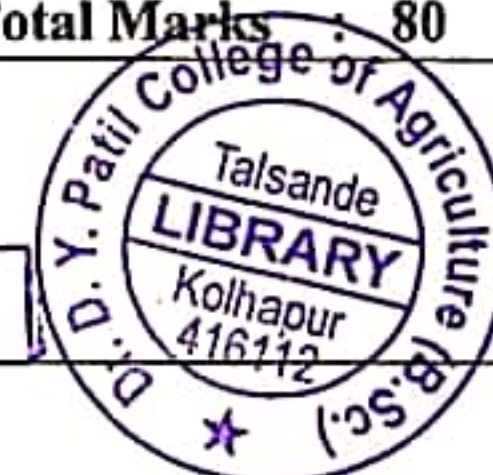
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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : V (Old)	Term : I	Academic Year : 2018-19
Course No. : BOT 356	Title : Principles of Plant Biotechnology	
Credits : 3(2+1)		
Day & Date : Thursday, 15.11.2018	Time : 14.00 to 17.00	Total Marks : 80

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 Define biotechnology. Describe in brief scope and importance of biotechnology.
- Q.2 Define nutrient media. List out different components of nutrient media and describe role of growth regulators in tissue culture.
- Q.3 Define androgenesis. Describe different factors affecting androgenesis and applications of haploids.
- Q.4 What do you mean by genetic engineering? Enlist different methods of gene transfer. Describe in brief the Agrobacterium mediated gene transfer.
- Q.5 Define somaclonal variation. Describe in brief advantages and limitations of somaclonal variation.
- Q.6 What is mapping population? Enlist different types of mapping populations. Describe in brief recombinant inbred lines.
- Q.7 Define molecular markers. Enlist different types of molecular markers. Describe in brief applications of molecular markers.
- Q.8 What is artificial seed? Describe steps for making artificial seeds and explain in brief applications of artificial seed.
- Q.9 What is embryo culture? Enlist its types. Explain in brief procedure for endosperm culture and practical applications of embryo culture.
- Q.10 Write short notes (Any Two).
 - a) DNA fingerprinting
 - b) Applications of blotting technique
 - c) Test tube fertilization

SECTION "B"

- Q.11 Define the following terms.
 - 1) Callus
 - 2) Dedifferentiation
 - 3) Cybrid
 - 4) Totipotency
 - 5) Organogenesis
 - 6) Explant
 - 7) Somatic hybridization
 - 8) Vitrification

(P.T.O.)

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Q.12 a) Answer in one word/sentence.

- 1) Give the name of molecular technique used in varietal identification.
- 2) Give the name of explant used for production of virus free plant.
- 3) Which enzyme is used for joining the DNA fragments?
- 4) Name the hormone which promotes caulogenesis.

b) Fill in the blanks.

- 1) _____ is called the Father of tissue culture.
- 2) Citric acid, ascorbic acid and thio urea are used as _____ in tissue culture media.
- 3) MAS stands for _____.
- 4) The term biotechnology was coined by _____.

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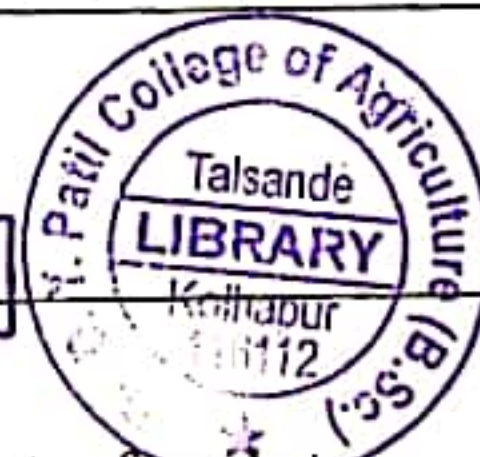
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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: V (Old)	Term	: I	Academic Year	: 2018-19
Course No.	: ECON 354	Title	: Agricultural Marketing, Trade and		
Credits	: 2(1+1)		Prices		
Day & Date	: Tuesday, 13.11.2018	Time	: 14.00 to 16.00	Total Marks	: 40

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
 2. All questions from **SECTION "B"** are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 Define agricultural marketing and market. Write in detail the components of market.
- Q.2 Enlist the dimensional classification of market. Explain the classification of market on the basis of accrual of marketing margin.
- Q.3 Define contract farming. Write its types and need of contract farming in India.
- Q.4 Explain advantages of transportation function. Enlist factors affecting transportation cost.
- Q.5 Define market integrations and explain different types of market integrations.
- Q.6 Explain concept of Rythu Bazar with respect to operational facilities required. Write objectives of Rythu Bazar.
- Q.7 Write the objectives and importance of regulated market.
- Q.8 Explain different types of State Trading Corporation and write their objectives.
- Q.9 Discuss in detail hedging, speculation and future trading.
- Q.10 Write short notes (Any Two).
 - a) AGMARK labeling
 - b) ISI labeling
 - c) ISO and CAC labeling

SECTION "B"

- Q.11 State True or False.
 - 1) The MSP is announced by the government of India ahead of the agricultural season every year.
 - 2) When large number of sellers deal in heterogeneous and differential form a commodity is perfect competition.
 - 3) A Marketing Function is an act, operation or service by which the original producer and the final consumer are linked together.
 - 4) Packing is a part of packaging.
- Q.12 Fill in the blanks.
 - 1) The continuous flow of goods of seasonally producing agricultural products is possible due to _____ function.
 - 2) Market information includes _____ and market news.
 - 3) Value addition of the agricultural products can be obtained by changing its form through _____ function.
 - 4) Marketed surplus may be greater, smaller or equal to _____.

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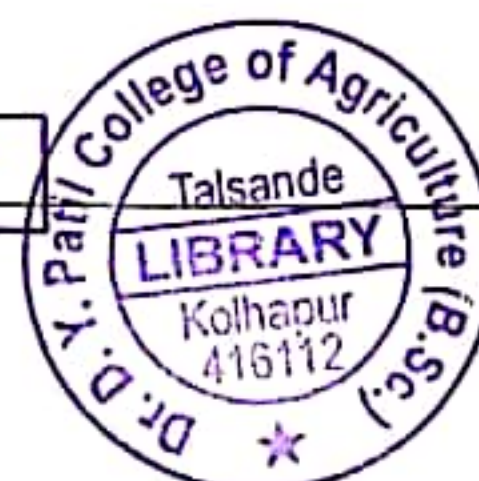
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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester : V (Old)	Term : I	Academic Year : 2018-19
Course No. : ENGG 353	Title : Farm Power and Machinery	
Credits : 2(1+1)	Time : 14.00 to 16.00	Total Marks : 40
Day & Date : Friday, 16.11.2018		

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
 2. All questions from **SECTION "B"** are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 Define tillage. Enlist the objectives of tillage.
- Q.2 What are the steps followed for calibration of seed drill?
- Q.3 A single cylinder gas engine works on a four stroke cycle and has the following dimensions: Cylinder diameter 25cm, stroke bore ratio 1.8, clearance volume 4400 cc, engine speed 240 rpm, mean effective pressure of indicator diagram 7 kg/cm², mechanical efficiency 75%. Calculate a) I.H.P. b) B.H.P. c) Compression ratio d) Swept volume.
- Q.4 Give classification of sprayers and dusters.
- Q.5 Total draft of four bottoms, 40 cm MB plough when ploughing 17.5 cm deep at 5.5 km/hr speed is 1700 kg. Field efficiency is 75 %. Calculate a) Unit draft b) Actual power requirement c) Area covered/hr.
- Q.6 Write short notes.
- a) Four stroke cycle diesel engine. b) Penetration of disc harrow.
- Q.7 Define tractor. Enlist different types of tractors and state the factors to be considered while selecting the tractor.
- Q.8 Define sowing. Enlist different methods of sowing.
- Q.9 Enlist different sources of farm power.
- Q.10 Differentiate between two stroke and four stroke cycle engines.

SECTION "B"

- Q.11 Fill in the blanks.
- 1) Disc angle used in good plough ranges between _____ to _____.
 - 2) Compression ratio of diesel engine is _____.
 - 3) A strong healthy man can develop about _____ HP.
 - 4) _____ converts reciprocating motion of piston into rotary motion of the flywheel.
- Q.12 Define the following terms.
- 1) Firing order
 - 2) Tilt angle
 - 3) Horse power
 - 4) Piston displacement

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SEMESTER END EXAMINATION

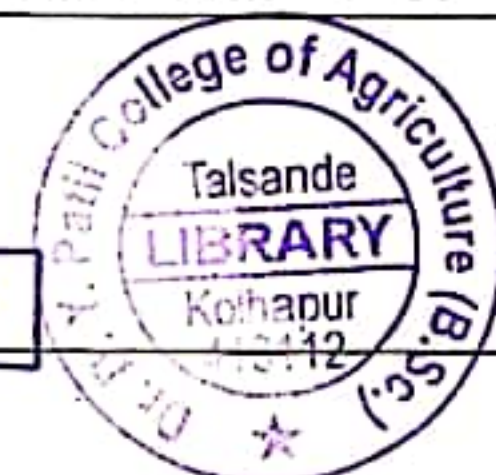
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B.Sc. (Agri.)

Semester	: V (Old)	Term	: I	Academic Year	: 2018-19
Course No.	: ENTO 353	Title	: Crop Pests and Stored Grain Pests and		
Credits	: 3(2+1)		their Management		
Day & Date	: Wednesday, 21.11.2018	Time	: 14.00 to 17.00	Total Marks	: 80

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 Describe with scientific name, nature of damage and control measures for rice stem borers.
- Q.2 Enlist the major pests of mango with scientific names and describe with nature of damage and management for mango hoppers and mango stem borer.
- Q.3 Describe bollworm complex of Cotton with scientific names, nature of damage and control measures.
- Q.4 Enlist the pests of stored grains with examples. Explain in brief preventive measures for their management.
- Q.5 Write down the scientific name, nature of damage and control measures for tomato leaf minor and root knot nematode.
- Q.6 Write the scientific name, nature of damage and management practices of stem borers of sugarcane.
- Q.7 Enlist the four major pests of citrus along with scientific name and describe nature of damage and management practices against fruit sucking moth and black fly.
- Q.8 Enlist the major pests of pomegranate with scientific name and describe anar caterpillar in detail.
- Q.9 Write short notes (Any Two).
- a) Diamond back moth
 - b) Tobacco leaf eating caterpillar
 - c) Rhinoceros beetle
 - d) Management of rat
- Q.10 Enlist the polyphagous pests and describe in detail white grub.

(P.T.O.)

SECTION "B"

Q.11 Fill in the blanks.

- 1) Sugary disease in jowar is observed due to _____.
- 2) Biological control for wooly aphid is _____.
- 3) _____ is parasitoid for control of pyrilla.
- 4) Mango stone weevil completes _____ generation (s) per year.
- 5) Citrus canker is spread by _____.
- 6) _____ fungal bio pesticide is used to control mealy bugs.
- 7) 'Murda' in chilli is caused by _____.
- 8) Silver shoot of rice is caused by _____.

Q.12 Give site of pupation of the following pests.

- | | |
|-----------------------|--------------------|
| 1) Mustard saw fly | 2) Fruit fly |
| 3) Mango stone weevil | 4) Rice moth |
| 5) White grub | 6) Jowar midge fly |
| 7) Whitefly | 8) Army worm |

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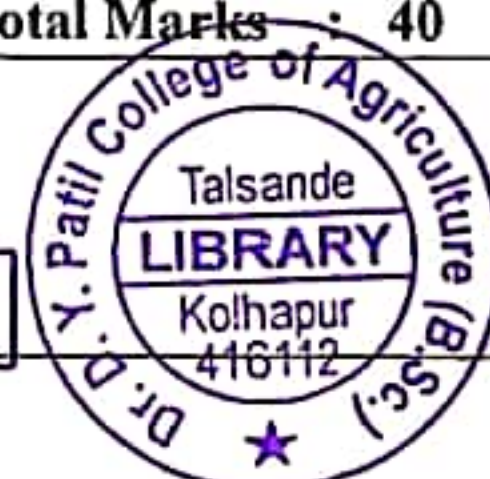
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SEMESTER END EXAMINATION

B.Sc. (Agri.)

Semester	: V (Old)	Term	: I	Academic Year	: 2018-19
Course No.	: EXTN 353	Title	: Extension Methodologies for Transfer of Agricultural Technology		
Credits	: 2(1+1)	Day & Date	: Saturday, 17.11.2018	Time	: 14.00 to 16.00
					Total Marks : 40

- Note :**
1. Solve **ANY EIGHT** questions from **SECTION "A"**.
 2. All questions from **SECTION "B"** are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 What is communication? Enlist various models of communication and explain S-M-C-R-E model of communication.
- Q.2 Define Extension Teaching Methods. Give its classification with suitable examples.
- Q.3 Define programme planning. Discuss the programme planning process in brief by giving a suitable diagram.
- Q.4 Define innovation decision process. Explain the different stages of innovation decision process.
- Q.5 Differentiate between monitoring and evaluation.
- Q.6 Define innovativeness. Explain in brief the adopter categories with their characteristics.
- Q.7 Define news. Write the merits and different sources of news.
- Q.8 Define training. Describe the training process.
- Q.9 Write short notes (Any Two).
- a) Group discussion b) Kisan Call Centre c) Result demonstration
- Q.10 What do you mean by agricultural journalism? Write its functions.

SECTION "B"

- Q.11 Fill in the blanks.
- 1) Communication is derived from the Latin word _____.
 - 2) Farmer who accepts new practices at last in his social system is known as _____.
 - 3) FTC stands for _____.
 - 4) First KVK was established at _____.
- Q.12 Define the following terms.
- | | |
|---------------|---------------|
| 1) Objectives | 2) Diffusion |
| 3) Campaign | 4) Evaluation |

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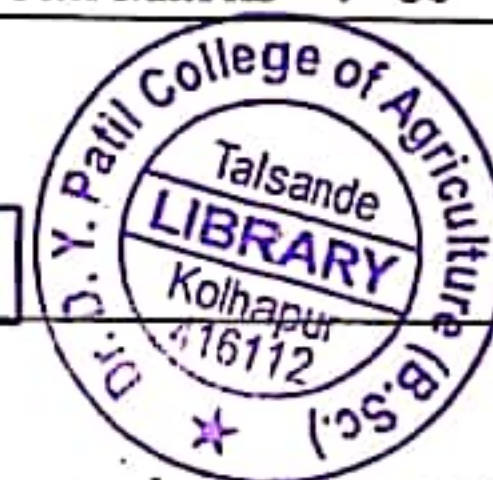
B.Sc. (Agri.)

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Note :

1. Solve **ANY EIGHT** questions from **SECTION "A"**.
2. All questions from **SECTION "B"** are compulsory.
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4. Draw neat diagrams wherever necessary.

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Q.1

- a) Enlist any five diseases of tomato. Describe in brief about symptoms and management of early blight of tomato.
- b) Give the symptoms, host range transmission and management practices of leaf curl of chilli.

Q.2

- a) Describe in brief about symptoms, causal organism, perpetuation and management of purple blotch of onion.
- b) Write in short symptoms, causal organism, transmission and management of yellow vein mosaic of okra.

Q.3

Write short notes (Any Two).

- a) Black spot disease of rose.
- b) Powdery mildew of ber.
- c) Koleroga disease of arecanut.

Q.4

- a) Enlist any five important diseases of grapes and describe in detail about symptoms, survival, perpetuation and management of bacterial blight of grapes.
- b) Write the symptoms and transmission of papaya mosaic and papaya leaf curl disease.

Q.5

- a) Write the characteristic symptoms and management of sigatoka disease of banana.
- b) Write in concise the strategies for management of bacterial blight of pomegranate.

Q.6

- a) Enlist the different types of malformation in mango and write the management of anthracnose disease of mango.
- b) State the causal organism and symptoms of phytophthora wilt disease of betelvine.

Q.7

Write the management practices of the following diseases.

- a) Citrus tristeza
- b) Fruit rot of sapota
- c) Black rot of crucifers
- d) Onion smudge

Q.8

Describe the characteristic symptoms of the following diseases.

- a) Anthracnose of guava
- b) Fire blight of apple
- c) Downy mildew of cucurbits
- d) Gummosis of citrus

(P.T.O.)

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- Q.9 Write mode of transmission and control measures of the following diseases.
- a) Bunchy top of banana
 - b) Tomato mosaic
 - c) Cucumber mosaic
 - d) Apple mosaic
- Q.10
- a) Describe the causes and management of black heart of potato.
 - b) Comment on symptoms, causal organism, survival, perpetuation and management of rust of beans.

SECTION "B"

- Q.11 Fill in the blanks.

- 1) _____ pathogen causes 'bird's eye disease' of grapes.
- 2) Coconut root wilt is caused by _____.
- 3) Little leaf disease of brinjal is transmitted by _____ insect vector.
- 4) Mottle leaf of citrus is caused due to _____ deficiency.
- 5) Rust of jasmine is caused by _____.
- 6) Cadang-cadang disease of coconut is caused by _____.
- 7) Banana bunchy top virus has a genome of _____.
- 8) Chrysanthemum stunt is caused by _____.

- Q.12 Match the following pairs.

'A'

- 1) *Erwinia amylovora*
- 2) *Ralstonia solanacearum*
- 3) *X. campestris* pv. *campestris*.
- 4) *Cerotelium fici*.
- 5) *Hemilia vastatrix*.
- 6) *X. axanopodis* pv. *punicae*
- 7) *Hishimonas phycitis*
- 8) *Pentalonia nigronervosa*

'B'

- a) Bunchy top of banana
- b) Coffee rust
- c) Oily leaf spot of pomegranate
- d) Fire blight of apple
- e) Little leaf of brinjal
- f) Bacterial wilt of tomato
- g) Fig rust
- h) Black rot of crucifers

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MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

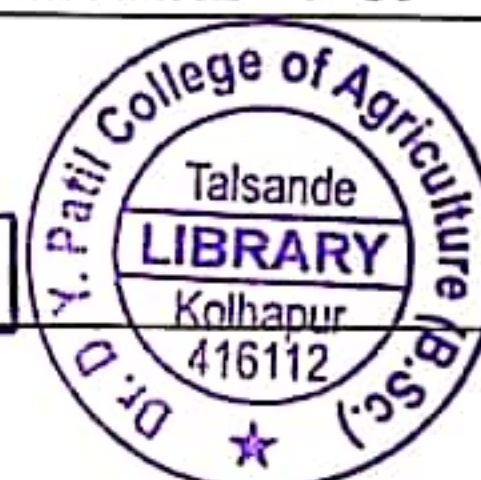
B.Sc. (Agri.)

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Semester : V (Old)	Term : I	Academic Year : 2018-19
Course No. : SSAC 354	Title : Bio-chemistry	
Credits : 3(2+1)		
Day & Date : Monday, 19.11.2018	Time : 14.00 to 17.00	Total Marks : 80

- Note :**
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

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SECTION "A"

- Q.1 a) Define the term 'Biochemistry'. Explain the scope and importance of biochemistry in the field of agriculture.
- b) Define 'Biomolecules'. Name the important biomolecules of life and mention their significance in one sentence each.
- Q.2 a) Define 'Proteins'. Classify simple proteins based on solubility with suitable examples under each class.
- b) Define Tannins. State the chemical properties of tannins.
- Q.3 a) What is an 'Enzyme'? Classify enzymes with suitable examples under each class.
- b) Define 'Gums'. Enlist typical gums. State the uses of gums.
- Q.4 a) Define 'Cell'. Draw a neat diagram of a typical plant cell. Mention the functions of important cell organelles.
- b) Define 'Nucleic acids'. Mention the types of nucleic acids and name their hydrolytic products.
- Q.5 a) Define 'Carbohydrates'. Explain in brief the three disaccharides of nutritional significance.
- b) Explain any four properties of Monosaccharides.
- Q.6 a) Define 'Fatty acids'. Classify them according to 'R' with suitable examples under each class.
- b) Describe in brief any four chemical properties of lipids.
- Q.7 a) Define 'Essential Oils' Mention their physiological role
- b) What is meant by 'Essential Amino acids'? Enlist them.
- Q.8 a) Define 'Phosphorylation'. Mention the types of phosphorylation and explain anyone in brief.
- b) Define 'Glycosides'. Classify them with examples under each class.

(P.T.O.)

- Q.9 a) State any six functions performed by carbohydrates
 b) State any six functions performed by proteins.
- Q.10 a) Define 'Lipids'. Classify lipids on the basis of chemical composition with suitable examples under each class.
 b) Define 'Vitamins'. Enlist water soluble vitamins with their co-enzyme derivatives.

SECTION "B"

Q.11 State True or False.

- 1) Antoine Lavoisier is popularly known as the Father of Modern Enzymology.
- 2) Scurvy is a deficiency disorder of vitamin C.
- 3) The term Biochemistry was first introduced by a French scientist Carl Neuberg in 1803.
- 4) The substance upon which an enzyme acts is known as 'Active Site'.
- 5) Sucrose is a non-reducing sugar.
- 6) Hexose Monophosphate pathway is the source of Hexose sugars.
- 7) Oligosaccharides are also called 'Glycans'.
- 8) Linoleic acid is an example of essential fatty acid.

Q.12 Match the following pairs.

'A'	'B'
1) Berzelius	a) Suggested the name 'Proteins'
2) Inulin	b) Trisaccharide
3) Palmitic Acid	c) Glucosan
4) Raffinose	d) Fructosan
5) Glycogen	e) Phospholipid
6) Palmitoleic acid	f) Suggested the name 'Lipids'
7) Lecithin	g) Unsaturated fatty acid
8) Bloor	h) Saturated fatty acid

