Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Agriculture

End Sem (Even) Examination May-2019

AG3CO08 Agricultural Microbiology

Programme: B.Sc. (Ag.) Branch/Specialisation: Agriculture

Duration: 3 Hrs. **Maximum Marks: 50**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. The term "Microbiology" coined by- **1**
(a) A.V. Leeuwenhoek (b) Robert Koch
(c) Dmitri Ivanovsky (d) Louis Pasteur

ii. The term "Bacteriophage" was given by- **1**
(a) F.D. Herelle (b) Twort
(c) Both (a) and (b) (d) None of these

iii. The symbiont bacterial genus is- **1**
(a) Pseudomonas (b) Bacillus
(c) Erwinia (d) Rhizobium

iv. Alexander flaming was discovered by Penicillin due to obtain from which bacteria- **1**
(a) Agrobacterium (b) Erwinia
(c) Penicillium Notatum (d) All of these

v. Bacteria are multiply by- **1**
(a) Budding (b) Para sexuality
(c) Binary Fission (d) Fragmentation

vi. Phosphorus solubilizing microorganism- **1**
(a) VAM (b) Mucor (c) Rhizopus (d) E. Coli

vii. The usual mode of gene transfer ion bacteria is- **1**
(a) Transduction (b) Conjugation
(c) Transformation (d) All of these

viii. A nitrogen fixing blue green algae is- **1**
(a) Rhizobium (b) Spirogyra (c) Ulothrix (d) Anabaena

P.T.O.

ix. The process of denitrification involves conversation of nitrite to__. **1**
(a) Nitric Oxide (b) Nitrous Oxide
(c) Dinitrogen (d) All of these

x. Who is the father of Microbiology? **1**
(a) Mayer (b) K.C. Mehta
(c) A. V. Leeuwenhoek (d) Needham

Q.2 i. Write the definition of Agricultural Microbiology? **1**
ii. Define the prokaryotic and Eukaryotic micro-organism. **2**
iii. Describe the bacterial cell structure with diagram. **5**
OR iv. Difference between chemo autotrophy and photo autotrophy. **5**

Q.3 i. What is bacteria? **1**
ii. Describe the plasmids. **3**
iii. Describe the asexual reproduction in bacteria with diagram. **4**
OR iv. Describe the sexual reproduction in bacteria with diagram. **4**

Q.4 i. Explain the role of microbes in soil fertility. **2**
ii. Draw the nitrogen cycle and write about in brief. **6**
OR iii. Draw the carbon cycle and write about in brief. **6**

Q.5 Attempt any two:
i. Describe the process and activities of blue green algae and mycorrhiza for nutrients fixation. **4**
ii. What is nitrogen fixation? Describe in detail symbiotic and asymbiotic nitrogen fixation. **4**
iii. Describe the following- **4**
(a) Azolla (b) Rhizosphere
(c) Mycorrhiza (d) Phyllosphare

Q.6 Attempt any two:
i. What is biofertilizers? Discuss different types of biofertilizers and their uses in agriculture. **4**
ii. What is bio-Pesticides? Describe different bio-pesticides and their uses. **4**
iii. What is biofuel? Write the process of biofuel production. **4**

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Marking Scheme
AG3CO08 Agricultural Microbiology

Q.1	i.	The term “Microbiology” coined by- (d) Louis Pasteur		**1**
	ii.	The term “Bacteriophage” was given by- (c) Both (a) and (b)		**1**
	iii.	The symbiont bacterial genus is- (d) Rhizobium		**1**
	iv.	Alexander flaming was discovered by Penicillin due to obtain from which bacteria- (c) Penicillium Notatum		**1**
	v.	Bacteria are multiply by- (c) Binary Fission		**1**
	vi.	Phosphorus solubilizing microorganism- (a) VAM		**1**
	vii.	The usual mode of gene transfer ion bacteria is- (c) Transformation		**1**
	viii.	A nitrogen fixing blue green algae is- (d) Anabaena		**1**
	ix.	The process of denitrification involves conversation of nitrite to__. (d) All of these		**1**
	x.	Who is the father of Microbiology? (c) A. V. Leeuwenhoek		**1**
Q.2	i.	Definition of Agricultural Microbiology		**1**
	ii.	Prokaryotic micro-organism. Eukaryotic micro-organism.	1 mark 1 mark	**2**
	iii.	Bacterial cell structure Diagram.	3 marks 2 marks	**5**
OR	iv.	Chemo autotrophy Photo autotrophy	2.5 marks 2.5 marks	**5**
Q.3	i.	Bacteria		**1**
	ii.	Plasmids.		**3**
	iii.	Asexual reproduction in bacteria Diagram.	2.5 marks 1.5 marks	**4**
OR	iv.	Sexual reproduction in bacteria Diagram.	2.5 marks 1.5 marks	**4**
Q.4	i.	Role of microbes in soil fertility.		**2**
	ii.	Diagram of the nitrogen cycle Explanation	3.5 marks 2.5 marks	**6**
OR	iii.	Diagram of the carbon cycle Explanation	3.5 marks 2.5 marks	**6**
Q.5		Attempt any two:		
	i.	Process and activities of blue green algae Process and activities of mycorrhiza	2 marks 2 marks	**4**
	ii.	Nitrogen fixation Symbiotic and asymbiotic nitrogen fixation.	1 mark 3 marks	**4**
	iii.	Describe the following- 1 mark for each	(1 mark * 4)	**4**
Q.6		Attempt any two:		
	i.	Biofertilizers Types of biofertilizers and their uses	1 mark 3 marks	**4**
	ii.	Bio-Pesticides Different bio-pesticides and their uses.	1 mark 3 marks	**4**
	iii.	Biofuel Process of biofuel production.	1 mark 3 marks	**4**

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