



Seat No. _____

HN-003-2014016
B. Sc. (Sem.-IV) (CBCS)
(W.E.F. 2019) Examination
April - 2023
MB-401 : Microbiology
(applied & Environmental Microbiology)
(New Course)

Time : Hours / Total Marks : **70**

- Instructions :** (1) All questions are compulsory.
(2) Figures on the right indicate total marks of the question.
(3) Draw neat diagrams whenever necessary.

- 1** (a) Answer the following objective type questions : **4**
(1) Define commensalism.
(2) What is ammonification?
(3) An example of a symbiotic nitrogen fixer is _____.
(4) What is O horizon ?
- (b) Answer in brief : (any 1 out of 2) **2**
(1) What is Humus ?
(2) Enlist types of interactions among soil micro-organism.
- (c) Answer in detail : (any 1 out of two) **3**
(1) Write a note on Winogradsky's column.
(2) Write a note on chemical properties of soil.
- (d) Write a note on : (any 1 out of 2) **5**
(1) Nitrogen fixation.
(2) Carbon cycle.
- 2** (a) Answer the following objective type questions : **4**
(1) Define putrefaction
(2) What is Sauerkraut ?
(3) Botulism caused by _____ bacteria.
(4) What is AGMARK ?

- (b) Answer in brief : (any 1 out of 2) 2
 (1) What is spoilage of food ?
 (2) What is functional food? Give examples.
- (c) Answer in detail : (any 1 out of 2) 3
 (1) Discuss single cell protein (SCP)
 (2) Explain in detail about Mushrooms.
- (d) Write a note on : (any 1 out of 2) 5
 (1) Write a role of *S. aureus* in food borne infection.
 (2) Write different methods for food preservations.
- 3** (a) Answer the following objective type questions: 4
 (1) What is RRT ?
 (2) Define starter culture.
 (3) What is acidophilus milk ?
 (4) Enlist any four organisms responsible for spoilage of milk.
- (b) Answer in brief : (any 1 out of 2) 2
 (1) What is kefir ? Write its use.
 (2) Discuss MBRT.
- (c) Answer in detail : (any 1 out of two) 3
 (1) Explain in detail Microbial analysis of milk.
 (2) Write a note on Yogurt and Butter milk.
- (d) Write a note on : (any 1 out of two) 5
 (1) Types of microorganisms in milk.
 (2) Write a note on milk preservation.
- 4** (a) Answer the following objective type questions. 4
 (1) The filtering medium of trickling filters is coated with microbial flora, known as _____.
 (2) Removal of solids in waste water treatment is generally considered as a _____ treatment.
 (3) What is MPN ? Give its use.
 (4) Define : Indicator organism.
- (b) Answer in brief : (any 1 out of two) 2
 (1) What is sanitary survey ?
 (2) What is solid waste processing?

- (c) Answer in detail : (any 1 out of 2) **3**
- (1) Bacteriological analysis and sampling techniques of water.
 - (2) Write a note on water purification.
- (d) Write a note on : (any 1 out of 2) **5**
- (1) Explain in detail secondary treatment process.
 - (2) B.O.D. & C.O.D. as indicator of quality of waste water.
- 5** (a) Answer the following objective type questions : **4**
- (1) Define : Mycoremediation.
 - (2) Define : Biomagnification.
 - (3) Enlist any two biofertilizer.
 - (4) Define : Biodegradation.
- (b) Answer in brief : (any 1 out of 2) **2**
- (1) Discuss biodeterioration of paper and wood.
 - (2) What is air sanitation ?
- (c) Answer in detail : (any 1 out of 2) **3**
- (1) Write a note on bioleaching of metal.
 - (2) Write a note on microbial enhanced oil recovery.
- (d) Write a note on (any 1 out of 2) : **5**
- (1) Write a note on Biofuel.
 - (2) Explain in detail Bioplastic.
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