

Gujarat University

B.Sc. (Sem. - III)

December - 2012

CC-202 : MICROBIOLOGY

(Soil and Water Microbiology)

Time : 3 Hours]

AO

[Max. Marks : 70]

Instructions :

- (1) All questions carry equal marks.
- (2) Draw figures wherever needed.

(a) Why soil is considered a living entity ?

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OR

Name at least three different microbial varieties found in soil. Discuss the methodology to study soil flora.

(b) Describe Winogradsky Column and its usefulness.

OR

What kind of microbial associations operate in soil? Describe the positive interaction with example.

(a) Discuss Nitrification and Denitrification.

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OR

Describe the carbon cycle in detail.

(b) Describe Sulphur cycle in detail.

(c) Standard Plate Count

OR

(d) Describe mineralization and solubilization of phosphorus.

(a) Explain why Escherichia Coli is used as indicator for faecal pollution

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OR

(b) Describe in detail, the nuisance microbes of water.

(b) Discuss IMViC test and its significance.

(c) Describe pathogenic fungi.

OR

(d) Discuss different types of water purification methods. Describe the methodology for purification of drinking water.

July-2013

4. (a) Describe the chemical and microbiological characteristics of waste water.
- OR
- Explain BOD as a measure of water pollution. How untreated waste water cause problems?
- (b) Enlist methods for waste water treatment. Describe Imhoff Tank in detail.

OR

Describe activated sludge process.

5. Answer in one or two lines only :

- (a) Why soil is considered a culture medium?
- (b) What is Mycorrhiza?
- (c) Give example of negative interaction among soil flora.
- (d) What is the infection thread?
- (e) What do you mean by mineralization?
- (f) Name one each - Iron oxidizing and sulphur oxidizing bacteria.
- (g) What is immobilization of Phosphorus?
- (h) Give example of two microbes acting as biofertilizers.
- (i) What are coliforms?
- (j) Name two microbes that are nuisance to water.
- (k) Which chemical is used in defined substrate test?
- (l) Name the medium used for confirmed test.
- (m) What is TOD?
- (n) Name types of waste waters.