

Seat No. : _____

AF-108
April-2018
B.Sc., Sem.-VI
SE-311 : Microbiology
(Geomicrobiology)

Time : 3 Hours]

[Max. Marks : 70

- Instructions :**
- (1) Draw figure wherever necessary.
 - (2) Mention correct question number against each answer.
 - (3) Figures to the right indicate marks.

1. Answer following : (any two) **14**
 - (A) Discuss in brief introduction to geomicrobiology.
 - (B) Write a brief note on biosphere.
 - (C) Describe types of microbes and their distribution in soil.
 - (D) Describe microbial populations found in lakes.

2. Answer following : (any two) **14**
 - (A) Describe in brief various methods for *in situ* observation of geomicrobially active microbes.
 - (B) Explain culture independent methods for identification of geomicrobially active microbes.
 - (C) Describe geomicrobially important physiological groups of prokaryotes.
 - (D) Describe microbes as catalysts of geochemical processes.

3. Answer following : (any two) **14**
 - (A) Explain biogenic origin of sedimentary metal sulphides.
 - (B) Describe indirect oxidation of metal sulphides.
 - (C) Describe bioleaching of copper ore.
 - (D) Write note on acid coal mine drainage.

4. Answer following : (any two) **14**
 - (A) Write a brief note on natural fossil fuels.
 - (B) Write a brief note on methanogenesis.
 - (C) Role of microbes in peat formation.
 - (D) Write note on microbial desulfurization of coal.

5. Answer following in **one** or **two** sentences :

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- (1) Define microbial ecology.
- (2) Define lithosphere.
- (3) What is humus ?
- (4) What are barophiles ?
- (5) What is microbial consortium ?
- (6) Give full name of SEM and TEM with reference to microscopy.
- (7) Give full name of CARD-FISH technique.
- (8) What are mixotrophs ?
- (9) Give chemical formula of iron pyrite.
- (10) What is lexiviant?
- (11) What is biobeneficiation ?
- (12) Define methanogenesis.
- (13) Name any two unusual coenzymes found in methanogens.
- (14) What is difference between coal and peat ?