



AAP-003-001418 Seat No.

B. Sc. (Biotechnology) (Sem. IV) (CBCS) Examination

April / May - 2016

BT-401 : Environmental Biotechnology

Faculty Code : 003
Subject Code : 001418

Time : $2\frac{1}{2}$ Hours] [Total Marks : 70

Instruction : Q. 1 MCQ Answers has to be written in the Answer sheets only.

1 MCQ type Questions : 20

(4) What makes a plastic highly recalcitrant compound?

- (A) Complex polymeric structure
- (B) Non solubility into water
- (C) High molecular weight
- (D) All of the above

(5) How fermentation is different from anaerobic respiration?

- (A) In fermentation both, the electron donor and acceptor are of organic type
- (B) Fermentation happens in presence of oxygen only
- (C) Fermentation and anaerobic respiration both are same
- (D) None of the above

(6) The process in sewage treatment in which air or oxygen is forced into sewage liquor to develop biological flocs which reduces the organic content of the sewage is known as -

- (A) Biostimulation
- (B) Sludge
- (C) Activated sludge
- (D) Bioaugmentation

(7) Color of sewage water usually black due to _____

- (A) Fermentation of metallic sulfides
- (B) Fermentation of nonmetallic oxides
- (C) Fermentation of metallic chlorides
- (D) Presence of suspended solids

(8) Which of the following is responsible for bleaching of plant leaves?

- (A) SO_2
- (B) Fly ash
- (C) CO_2
- (D) Ozone

(9) Which of the following is acid do not contribute in acid rain formation?

- (A) Sulphuric acid
- (B) Carboxylic acid
- (C) Fusidic acid
- (D) Nitric acid

(10) Which of the following bacteria play major role in chemical reactions of acid mine?

- (A) Ferroplasma ferrooxidants
- (B) Thiobacillus acidarmus
- (C) Thiobacillus ferrooxidants
- (D) Ferroplasma thiooxidants

(11) The magnitude of BOD of wastewater is related to

- (A) bacterial count
- (B) amount of inorganic material
- (C) amount of organic material
- (D) All of the above

(12) The filtering medium of trickling filters is coated with microbial flora, known as

- (A) Geological film
- (B) Zoological film
- (C) Zoogloea film
- (D) All of the above

(13) In a terrestrial ecosystem, the trophic level that contains largest biomass would be.....

- (A) Producers
- (B) Primary consumers
- (C) Secondary consumers
- (D) Decomposers

(14) Sloth, the slowest mammal in the world is having compartmentalized stomach, to facilitate _____.
(A) Water storage
(B) Cellulose digestion
(C) Degradation of waste
(D) Fasting ability

(15) Asiatic Lions found in Gir National forest are categorised under which category of RED DATA BOOK?
(A) Threatened Species
(B) Rare Species
(C) Endangered Species
(D) Extinct Species

(16) "Superbug" was a name coined for organisms engineered for
(A) Antibiotic production
(B) Probiotic production
(C) Hydrocarbon degradation
(D) Enzyme production

(17) Which of the following are the most distantly related to one another?
(A) Sunfish and dolphins.
(B) Tree frogs and snakes.
(C) Vampire bats and birds.
(D) Bears and whales.

(18) Darwin's primary contribution to biological theory was the idea that

- (A) an important mechanism of biological evolution is natural selection
- (B) new alleles arise through mutation
- (C) evolution is the change in gene frequencies over time
- (D) genes are the units of inheritance

(19) Which of the following does NOT tend to promote speciation?

- (A) founder effect
- (B) reproductive isolation
- (C) natural selection
- (D) gene flow

(20) How common is genetic polymorphism in natural populations?

- (A) essentially all loci are polymorphic
- (B) essentially no loci are polymorphic
- (C) depending on the species, all loci are polymorphic or none are
- (D) depending on the species, more or less than half the loci are polymorphic

2 (a) Answer any **three** : **3×2**

- (i) Explain : DDT.
- (ii) What is population Ecology ?
- (iii) Explain the chemical properties of water.
- (iv) What is composting ?
- (v) Define coacervates.
- (vi) Define biogeochemical cycle.

(b) Answer any **three** : **3×3**

- (i) What is the difference between sympatric and parapetric speciation.
- (ii) Explain about anaerobic digestion.
- (iii) What is acid rain ? Explain the cause and its effects.
- (iv) What is PCB ? Explain
- (v) Define Desert.
- (vi) Write short note theory of Darwin.

(c) Answer any **two** : **2×5**

- (i) Write a detail note on biofertilizers.
- (ii) Explain : Biodegradation of Halogenated hydrocarbon with example.
- (iii) Explain the primary and secondary treatment ?
- (iv) Give a detail account of Nitrogen cycle.
- (v) Explain how chemically life originated on earth.

3 (a) Answer any **three** : **3×2**

- (i) What is freshwater ecosystem ?
- (ii) Define xenobiotic compounds.
- (iii) What are pollutants ?
- (iv) Explain about natural selection.
- (v) Define bioplastics.
- (vi) Give the physical properties of water.

(b) Answer any **three** : **3×3**

- (i) Explain the carbon cycle.
- (ii) Write a short note : "Marine ecosystem".
- (iii) Explain the overview of metabolism of organic matter among bacteria.
- (iv) Explain differences between BOD and COD.
- (v) What is bioleaching ?
- (vi) Give the contribution of Lamarck in evolution.

(c) Answer any two : 2×5

- (i) Explain any two terrestrial biome in detail.
- (ii) What is biomagnification ? Explain with 3 examples.
- (iii) Explain the tertiary treatment process in detail.
- (iv) Explain the theories of origin of organic evolution.
- (v) Give a complete overview of phylogenetic studies.
