



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

FIRST SEMESTER – NOVEMBER 2016

BT 1827 - MICROBIOLOGY

Date: 02-11-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

PART- A

(20marks)

Answer all questions

I Choose the correct answer:

(5 x 1 = 5)

- Statement A: HEPA refers highly effective particle air filter.
Statement B: It is used in laminar air flow system.
a) Statement A is correct but Statement B is incorrect
b) Statement B is correct but Statement A is incorrect
c) Both A and B are correct
d) Both A and B are incorrect
- Protective structures that some bacteria may form under harsh conditions are
a) endospores
b) cilia
c) flagella
d) all the above
- The F factor is
a) chromosomal DNA
b) a plasmid
c) a virus
d) a bacteriophage
- Viruses sensitive to ammonium sulphate are purified by precipitating with
a) Polyvinyl propionate
b) Polyethylene chloride
c) Polyethylene glycol
d) Polyvinyl chloride
- Identify the DNA virus
a) Picornavirus
b) Rhabdovirus
c) Reovirus
d) Papovavirus

II State whether the following are True or False; if false, give reason:

(5 x 1 = 5)

- In *Bacillus megaterium* sporulation is completed in 1 hour.
- In alcoholic fermentation bacteria ferment sugars to ethanol and carbon dioxide.
- Sex Pili participate in the transfer of DNA from one bacterium to another.
- Influenza virus grows well in chorioallantoic membrane of the embryonated eggs.
- Animal virus has receptor sites that attach to the attachment sites on the host cell surface.

III Complete the following:

(5 x 1 = 5)

- Phenol is also known as _____ acid.
- Organisms that obtain energy by the oxidation of electron donors in the environment are called _____.
- _____ are chemical substances produced by microorganisms to kill other microorganisms.
- The RNA within the virion is called _____ strand because it acts as mRNA.
- _____ belongs to the subclass Lentivirus.

IV Answer the following each within 50 words only

(5 x 1 = 5)

- Differentiate between microbiocidal agent and microbiostatic agent.
- Define exponential phase.
- Write the properties of an industrial microbe.
- Define cell strain.
- What are the symptoms of cytopathic effect?

PART- B

Answer the following, each within 500 words;

Draw diagrams wherever necessary:

(5 x 8 = 40 marks)

21. (a) Give an account of moist heat sterilization. Compare it with dry heat sterilization.
OR
(b) Enumerate the major characteristics used in bacterial taxonomy. Explain any two of them.
22. (a) Discuss the nutritional types of bacteria with examples.
OR
(b) Explain the fermentation process in chemoorganotrophs.
23. (a) Give an account on generalized transduction.
OR
(b) Write about the process of transformation mentioning Griffith's experiment.
24. (a) What are prions? Explain the assumptions and diseases associated with them.
OR
(b) Write a short note on ELISA.
25. (a) Give a comparative account on the biosynthesis of DNA and RNA viruses.
OR
(b) Give a brief account on the replication of TMV.

PART - C

Answer any two of the following, each within 1500 words;

Draw diagrams wherever necessary:

(2 x 20 = 40 marks)

26. Give a comparative account of archaebacteria, bacteria and eukaryotes.
27. Explain photosynthesis in cyanobacteria.
28. Describe the steps involved in vitamin production.
29. Explain the pathways of multiplication used by various RNA viruses with examples.
