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INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATION – OCT. / NOV. 2017

SUBJECT: INDUSTRIAL MICROBIOLOGY BT 232

(BRANCH: Biotechnology)

Friday, 10 November 2017

Time: 3 Hours

Max. Marks: 100

- ✓ Answer ANY FIVE full Questions.
- ✓ Missing data, if any, may be suitably assumed

- 1 a. What are the contributions of Koch? Describe the Koch's postulates on germ theory of disease.
b. Describe and contrast prokaryotic and eukaryotic cells.
c. Briefly describe the five-kingdom system and give the major characteristics of each kingdom (6+6+8)
- 2 a. Describe the Gram's staining procedure and how it works?
b. Describe the Principle behind Phase contrast microscopy and explain how it works.
c. Give an account of advantages and disadvantages of ultraviolet light and ionizing radiation as sterilizing agents. Explain few examples with use respectively. (6+6+8)
- 3 a. Define the terms Plasmid, Capsules and Chemotaxis
b. Name the different nutritional types of microorganisms
c. Briefly describe endospore formation and germination. What might account for its heat resistance? (6+6+8)
- 4 a. Describe the different types of asexual fungal spores.
b. Why ATP is called high-energy molecule? What is its role in the cell?
c. Why does the transmission electron microscope have much greater resolution than the light microscope? Describe how specimens are prepared for the TEM observation. (6+6+8)
- 5 a. Define Bio-insecticides and bio-fertilizers with an example.
b. What are fermentations? Briefly describe alcohol and lactic acid production.
c. Describe the structure of *chlamydomonas* and its life cycle. (6+6+8)

- 6 a. List some of the important characteristics used in virus classification.
b. Discuss the economic importance of the strain *Penicillium*.
c. What is unique about the nuclei of some protozoa? How do macronuclei and micronuclei differ in structure and function.
(6+6+8)
- 7 a. Define predation and parasitism? Discuss the similarities and differences.
b. Write the general characteristics of helminthes.
c. Define ID50, LD50, pathogen and endotoxin
(6+6+8)
- 8 a. What are intrinsic and Extrinsic factors that influence the food spoilage?
b. Write about any two water borne diseases prevalent in India.
c. Discuss the advantages and disadvantages of batch fermentation process and continuous fermentation process.
(6+6+8)

