Reg.No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATION – NOV. / DEC. - 2016

SUBJECT: INDUSTRIAL MICROBIOLOGY (BT 232)

(BRANCH: INDUSTRIAL BIOTECHNOLOGY)

Friday, 2 December 2016

Time: 3 Hours **Max. Marks: 100**

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

1 a. Distinguish between fimbriae and pili and give functions of each.

b. Define the terms Bio-insecticide and Bio-fertilizer and give an example.

c. Why the belief in spontaneous generation was an obstacle to development of the science of microbiology? Explain how it was disproved?

(6+6+8)

2 a. Write a short note on Lichens, *Mycorrhizae* and biofilms.

b. Explain the lytic and lysogenic cycle of the bacteriophage.

c. What is the basis of the five-kingdom classification scheme according to Whittaker? Give a reason why it is so widely accepted in the biological community.

(6+6+8)

3 a. Summarize the glycolytic pathway highlighting the critical enzymes of the pathway and the ATP yields.

b. Write about the two diseases caused by *Mycobacterium.*

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)

4 a. Describe the different types of asexual fungal spores.

b. What are single cell proteins? Justify its importance in Food industry.

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. What are ciliates? What is the function of the macronucleus and micronucleus?

b. Briefly describe alcohol, lactic acid and formic acid fermentations.

c. How does resolution depend upon the wavelength of light, refractive index and Numerical aperture? How immersion oil increases the resolution?

(6+6+8)

6 a. Write a note on Influenza and HIV

b. Discuss the economic importance of the strain *Penicillium.*

c. Describe the structure of *chlamydomonas* and its life cycle.

(6+6+8)

7 a. Explain any three types of microbial interactions with an example.

b. Write the general characteristics of helminthes.

c. Compare the structure and chemistry of the cell walls of Gram-positive and Gram-negative bacteria. Explain the microscopic method to differentiate it.

(6+6+8)

8 a. What are prebiotics and probiotics?

b. Discuss the different toxins produced by fungi.

c. Explain the sexual and asexual life cycle of *Rhizopus stolanifer* with an illustration.

(6+6+8)