# FIRST SEMESTER M.Sc. DEGREE EXAMINATION, JANUARY 2005

#### Microbiology

# Paper III - MICROBIAL METABOLISM

Time: Three Hours

Maximum: 80 Marks

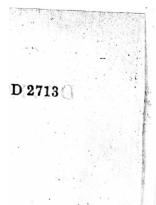
#### Part A

Answer any fifteen questions from Part A. Each question carries 2 marks.

- 1. What are high energy compounds? Name any two.
- 2. Explain the role of thiamine pyrophosphate in alcoholic fermentation.
- 3. Define isoenzymes with suitable examples.
- 4. What is meant by isoelectric focusing? Mention its significance.
- 5. How pyruvate dehydrogenase complex is regulated?
- 6. What are antioxidants? Name any two natural antioxidants.
- 7. Why gel filtration is called molecular exclusion chromatography? Write any one of its application.
- 8. What is meant by lactic acidosis? How it can be treated?
- 9. Define anaplerotic reactions. Write any two examples.
- 10. What is the chemical nature of lignin and hemi-cellulose? Write any one ligninase enzyme.
- 11. What is meant by transamination reaction? Explain the role of pyridoxal phosphate in this reaction.
- 12. Define a-oxidation of fatty acids.
- 13. What is the primary purpose of glyoxylate cycle? Write the two characteristic reactions of glyoxylate cycle.
- 14. What is meant by bioluminescence? Mention its significance.
- 15. What is the significance of microsomal electrons transport?
- 16. Write the reactions catalysed by super oxide dismutase and catalase.
- 17. Distinguish between ionophores and inhibitors.
- 18. What are the energy conserving reactions of glycolysis?
- 19. How threonine is converted into acetyl COA?
- 20. Write any two FAD linked biochemical reactions.

 $(15 \times 2 = 30 \text{ marks})$ 

Turn over



# .Part B

# Answer any four questions. Each question carries 5 marks.

- <sup>21</sup>. Non cyclic photosynthetic electron transport.
- 22. Salvage pathways of purine bases.
- 23. Microbial metabolism of xenobiotics.
- <sup>24.</sup> Nitrogen fixation in microbes.
- 25. PHB synthesis.
- 2G. Mechanism of humus formation.

 $(4 \times 5 = 20 \text{ marks})$ 

### Part C

Answer any three questions. Each question carries 10 marks.

- 27. Benson Calvin pathway.
- 28. Biosynthesis of AMP.
- 29. Oxidative phosphorylation.
- 30. Degradation of pyramidine nucleotides.
- 31. TCA cycle.

 $(3 \times 10 = 30 \text{ marks})$