

Total Pages : 4

**End Semester Examination of Semester-III, 2015**

**Subject : MICROBIOLOGY (HONS.) (UG)**

**Paper : VI (THEORY)**

**Full Marks : 40**

**Time : 2 Hrs**

*The figures in the margin indicate the marks corresponding to the question.*

*Candidates are requested to give their answers in their own word as far as practicable.*

*Illustrate the answers wherever necessary.*

**Group A**

Answer **any two** from the following questions : 10x2=20

1. a) What is a murein? How does it differ in *E. coli* and *S. aureus*? Discuss the detail structural feature of murein in relation to NAG and NAM.  
b) Mention few points of differences in transketolase and transaldolase functions in Pentose Phosphate Pathway.  
(1+3+3)+3
2. a) Mention the important steps of palmitate oxidation with a brief calculation of ATP production.  
b) What is the function of carbonyl phosphate synthase-I?  
c) Differentiate, transamination and oxidative deamination?  
6+2+2

( 2 )

3. a) Briefly describe with diagram the Adenine catabolism with special emphasis on its rate limiting steps.
- b) Describe the hazards of radioactivity in living system.  $6\frac{1}{2}+3\frac{1}{2}$
4. a) Define Gibb's free energy, entropy and the spontaneity of a reactions?
- b) How the  $\Delta G$  and  $\Delta E$  are related?
- c) What is the difference between the density and viscosity of a solution?  $(2+2+2)+2+2$

**Group B**

Answer **any two** from the following questions :  $5 \times 2 = 10$

5. a) What do you mean by substrate level phosphorylation and oxidative phosphorylation?
- b) Which enzyme system is common for the TCA cycle and Electron transport chain?  $(2+2)+1$
6. a) How pH and  $T_m$  change the surface tension property of a solution?
- b) What are the physiological function of dipalmitoylphosphatidyl choline (DPPC).  $(1\frac{1}{2}+1\frac{1}{2})+2$

( 3 )

7. a) What are Ketogenic amino acids?  
b) What are the difference between hexokinase and glucokinase with special reference to their localization?  
2+3
8. a) Discuss the function of 'carnitive' in lipid metabolism.  
b) Write about ketosis. 3+2

Group C

Answer **any five** from the following questions : 2x5=10

9. What information can we get from a positive or a negative catalase test in bacterial identification? 2
10. What is a lactic acid bacteria? State its role in food preservation. 2
11. What is the importance of methionine of growth of bacteria? 2
12. Write a short note on Keto-deoxy-phosphogluconate pathway in Pseudomonous. 2
13. In which type of bacteria nitrate ( $\text{NO}_3^-$ ) can be utilized as a terminal electron acceptor and mention their benefit? 2
14. What one the difference between an  $\alpha$  and a  $\gamma$ -rays? 2
15. Why bacteria are sensitive to reactive oxygen species? 2

( 4 )

16. Mention the second law of Thermodynamics. 2
  17. What are the differences between sol and gel? 2
  18. What one the differences between absorption and adsorption? 2
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