

**SURAT MUNICIPAL INSTITUTE OF MEDICAL EDUCATION AND RESEARCH**  
**DEPARTMENT OF BIOCHEMISTRY**  
**I<sup>ST</sup> MBBS BATCH 19 PRELIMINARY EXAMINATIONS, JUNE 2016**  
**PAPER I**

**Time: 1 Hour 50 Minutes**

**Total Marks: 40**

Instructions: 1. Answer should be legible & to the point.

2. Write each answer from a separate new page.

3. Use diagrams & flow-charts as & when needed.

4. Figures to the extreme right indicate full marks.

**SECTION-I**

**1) Write short notes (2 out of 3)**

**(4x2= 08)**

- a) Describe the process of ATP synthesis in mitochondria. Add a note on Uncouplers of oxidative phosphorylation.
- b) Describe de novo synthesis of Stearic acid (Pathway, Energetics and Regulation).
- c) Describe metabolic derangements in Diabetes mellitus.

**2) Describe in brief (4 out of 6)**

**(3x4=12)**

- a) Glycogen storage disorders
- b) Fluid Mosaic model of plasma membrane
- c) Regulation of blood calcium levels ✓
- d) Metabolic acidosis
- e) Indices to assess the quality of proteins
- f) Renal function tests

**SECTION-II**

**3) Case with 5 questions**

**(2x5=10)**

A 25-year-old healthy pregnant lady was registered in the antenatal clinic. Following evidence of fetal distress at 32nd week of gestation, caesarean section was performed and a male baby was delivered. At birth, the baby presented with tachypnoea (respiratory rate > 70 per minute), expiratory grunting, flaring of alae-nasi, retraction of ribs and sternum, and cyanosis. Radiological examination showed prominence of bronchial air shadows and a generalized opacity (ground glass appearance). Biochemical analysis of blood sample did not show any abnormal results. The baby was shifted to the neonatology unit for further management.

- 1) What is the most probable diagnosis? State the underlying biochemical abnormality with this condition.
- 2) What is surfactant? Mention the composition & function of lung surfactant.
- 3) What is L/S ratio? Mention its significance in diagnosis of this condition.
- 4) Why this condition is observed in premature neonates?
- 5) Mention any two phospholipids and its specific function other than lecithin or its derivative.