2023

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : CC-5P

(Computer Organization Lab)

Full Marks : 30

The figures in the margin indicate full marks.

Marks Distribution

Experiment total		**: 20**
Theory + Problem design	: 05	
Implementation	: 10	
Output	: 03	
Discussion/Conclusion	: 02	
Viva voce		**: 06**
Lab notebook		**: 04**

SET - 1

Answer ***any one*** question.

1. Design 4-bit ALU capable of performing Addition and ORing operation. Use necessary logic gates.

Control	Operation
0	Addition
1	ORing

20

2. Construct a 1-bit Carry Look Ahead (CLA) using logic gates. Take at least 4 sets of data. 20

3. Design a 1-digit BCD/Decimal adder using necessary logic gates. (Use IC7483/74283 if necessary). Take at least 4 sets of data. 20

4. Construct a 2-bit binary multiplier using basic logic gates. 20

5. Construct a 4-bit SISO (Serial In Serial Out) register using either J-K flip-flops (use IC 7473/7476/74112) or D flip-flops (use IC 7474) and use a de-bouncer circuit as manual clock. 20

6. Design a 4-bit ring counter using D flip-flops (IC 7474) and use a de-bouncer circuit as manual clock. 20

7. Construct a 4-bit Binary to Gray Code converter circuit using logic gates. Take at least five sets of data. 20

8. Design a 2-bit magnitude comparator using logic gates. Take at least 3 sets of data. 20
