

FACULTY OF SCIENCE
M. Sc. IV – Semester (Old) Examination, May / June 2017

Subject : Physics
(Specialization : Electronic Instrumentation)

Paper – IV : PC Architecture

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

PART – A (8 x 4 = 32 Marks)
(Short Answer Type)

- 1 Describe each of the 4 phases of the basic computer instruction cycle.
- 2 What is the role of the control unit and Timing unit?
- 3 Explain about micro instruction formats.
- 4 Write basic organization of control memory of a microprogrammed control unit.
- 5 What is priority interrupt? Explain.
- 6 What are the advantages using separate I/O and memory buses, and using common buses for memory and I/O?
- 7 How to implement the stack data structure in the computer? Write the uses of it.
- 8 Explain the following addressing modes with examples.
 (i) Implied (ii) Immediate (iii) Indirect (iv) Indexed

PART – B (4 x 12 = 48 Marks)
(Essay Answer Type)

- 9 (a) Overview the registers in the basic computer. How many register-reference instructions are possible with 12 bits to represent the opcode?
OR
 (b) Write about control units of the computer in detail. What are the advantages of each of control unit design?
- 10 (a) Explain the program loop with an example. Write a program to add 100 numbers using loop.
OR
 (b) Briefly write about the arithmetic and logical operations in the assembly language . Write a program two multiply two unsigned numbers.
- 11 (a) Describe in detail 3 ways a CPU can addresses I/O devices. Explain what kinds of instructions would be used in each case.
OR
 (b) Explain floating point and decimal arithmetic operations in detail with examples.
- 12 (a) Draw a neat diagram to explain the internal bus connections for a general register organized CPU. Explain about the stack organization of a basic computer.
OR
 (b) Define CISC and RISC. Explain in detail.
