Roll No. ..... **Total Pages : 02**

BT-4/M-20 **34001**

COMPUTER ARCHITECTURE AND ORGANIZATION

CSE-202-E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *four* more questions selecting *one* question from each Unit.

1. (a) Explain multilevel viewpoint of a computer system. **5**

(b) Explain the structure of hard disk with suitable diagram. Also, explain seek time, latency time, transfer time and access time. **10**

(c) Why is cache memory organized into hierarchy ? Explain the roles of each level. **5**

2. (a) What is GPR based CPU organization ? Draw the diagram of a GPR based CPU and explain its working. **10**

(b) What is instruction cycle ? Explain 5-stage instruction cycle with the help of flow chart. **10**

3. (a) Explain indirect, PC relative and register indirect addressing modes with suitable memory diagrams. Also, explain their suitability. **10**

(b) Explain different instruction formats of 8086 microprocessor. **10**

4. (a) What is memory hierarchy ? Explain various attributes of memory hierarchy. **10**

(b) What is Microsequencer ? Design a simple microsequencer. **10**

5. (a) What is associative mapping ? Explain it using an example. **10**

(b) What is Segmentation ? Explain conversion of logical address into physical address using segmentation. **10**

6. (a) Explain throughput, efficiency, speedup, MFLOPS and Amdahl's law. **10**

(b) What is ILP ? Distinguish between scalar and superscalar pipeline. **10**

7. (a) What is Microinstruction ? Distinguish between horizontal and vertical microinstruction formats. **10**

(b) What is Interrupt ? Explain different types of interrupt structures. **10**

8. (a) Explain optimal, LRU and LFU page replacement policies. Which one is best and why ? **10**

(b) Compare the architectures of 80836 and 80486 processors. **10**