

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-III • EXAMINATION – WINTER - 2016

Subject Code: 3630003**Date:04/01/2017****Subject Name: Basic Computer Science - II (SS/OS)****Time:10.30 AM TO 01.00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Do as directed.
- i) What is Deadlock? Discuss the necessary and sufficient conditions for a Deadlock to occur. **03**
- ii) Explain General, Binary, Strong and Weak Semaphore. **04**
- (b) Draw and Discuss the seven state process model. **07**
- Q.2** (a) i) What is Process control Block (PCB)? List Elements of PCB. **03**
- ii) Explain in brief Buddy system. **04**
- (b) i) Please comment - Dynamic partitions are better than Fixed partitions. **04**
- ii) What is compaction? Discuss advantages and disadvantages of compaction. **03**

OR

- (b) Total No of pages for the process are 5 and total number of frames allocated to this process are 3 (using Fixed frame allocation). **07**
- The page address stream formed by executing the program is as follows:
(2 3 2 1 5 2 4 5 3 2 5 2)
- Apply any one from OPT, LRU and FIFO algorithm for above. Justify your selection.
- Q.3** (a) Define Paging. Explain the logical to physical address translation mechanism in paging with example. **07**
- (b) Given the following data, calculate Turnaround Time for each process and average Turnaround for all processes using FCFS and RR (q=4) algorithms **07**

Process	A	B	C	D	E
Arrival Time	0	2	4	6	8
Service Time	3	6	4	5	2

OR

- Q.3** (a) What is Translation Lookaside Buffer? Explain the working of TLB with flowchart. **07**
- (b) Given the following data, calculate Turnaround Time for each process and average Turnaround for all processes using SPN and HRRN algorithms **07**

Process	A	B	C	D	E
Arrival Time	0	2	4	6	8
Service Time	3	6	4	5	2

- Q.4** (a) What is scanning? Draw a DFA for Identifying integers in C Language. **07**
- (b) What is forward reference in Assembly language? Which assembler passes deals with forward reference? **07**

OR

- Q.4** (a) What is parsing without back tracking? List its requirement. **07**
- (b) Write algorithm steps of pass 1 for the statements of DS, DC, MOVER, PRINT. **07**

- Q.5** (a) Explain static pointer and dynamic pointer. **07**
(b) List and explain advanced assembler directives. **07**

OR

- Q.5** (a) Explain any two code optimization methods. **05**
(b) Explain terminal symbol, non terminal symbol and grammar. **05**
(c) Explain types of dynamic memory allocation. **04**
