DHARMSINHDESAIUNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VI [INFORMATION TECHNOLOGY]
SUBJECT: (IT 607)APPLIED OPERATING SYSTEM

Examination	**: Block Sessional(Regular)**	**Seat No.**	**:**
Date	**: 06-04-2018**	**Day**	**: Friday**
Time	**: 11:00 to 12:15**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed.

(a) Interval between the time of submission and completion of the job is called **[2]**
(A) Waiting time (B) Turnaround time
(C)Throughput (D)Response time

(b) Which of the following approaches do not require knowledge of the system state? **[2]**
(A) Deadlock detection. (B) Deadlock prevention.
(C) Deadlock avoidance. (D) None of the above.

(c) Page fault frequency in an operating system is reduced when the **[2]**
(A) processes tend to the I/O-bound(B) size of pages is reduced
(C) processes tend to be CPU-bound (D) locality of reference is applicable to the process

(d) Provide two real world applications where multithreading improves performance over single- threaded solution. Also state two examples where using multithreading do not improves performance over single threaded solution. **[2]**

(e) Write down three essential conditions for solving critical section problem. **[2]**

(f) Differentiate internal fragmentation and external fragmentation. **[2]**

Q.2 Attempt ***All*** of the following questions. **[12]**

(a) Draw 7 state and Unix 9 state process model. **[6]**

(b) Consider the following set of jobs with their arrival times, execution time (in minutes). **[6]**

Job Ids	Arrival Time	Execution time
1	0	5
2	1	15
3	3	12
4	7	25
5	10	5

Calculate the mean turn-around time and the throughput for FCFS, SJF non preemptive scheduling algorithms.

Q.3 (a) What is threading? Explain Different multithreading models possible with advantages and disadvantages. **[6]**

(b) Which are the advantages of segmentation over paging? Explain with example. How to implement segmentation in memory management? Give proper example. **[6]**