

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING IV SEMESTER B.TECH.

End semester examination

SUBJECT: Essentials of IT (CSE 4302 – OE 1)

Duration: 3 Hours Date: 20/06/2022 MAX.MARKS: 50

Note:

1. Missing data may be assumed suitably.

Q.No	Questions	Marks
1	Illustrate how address translation operation being used in page table?	2

- **2.** Differentiate between Uniprogramming, multiprogramming and multiprocessing systems with 3 schematic sketch.
- **3** Evaluate the difference in page fault and page hit ratio's considering Least Recently Used page 5 replacement algorithm for the page request sequence (7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 1, 2, 0) if 3 memory frames are available, and all are empty in the initial state.
- **4** Write down the significance of critical section in operating system and illustrate it by railway 2 reservation system as an example.
- 5 Justify how priority based pre-emptive, round robin and FCFS processes are categorized under high, 3 medium, and low priority queues respectively with neat feedback queue scheduling organization.
- 6 Compute the average turnaround time, average waiting time and average response time for the 5 following processes given in table Q.6 using pre-emptive shortest job first algorithm.

ProcessArrival timeBurst timeP105P213P324P441

7 Write two differences of MSDOS-FAT/UNIX/ NTFS file systems.

Table Q.6



3

8 With formal definition of dead lock process, state the necessary conditions for it to happen.

9	Evaluate which of the following disk scheduling algorithm is best in terms of minimal READ/WRITE head movements for the queue request {93, 176, 42, 148, 27, 14,180}.	5
	 i) C-SCAN scheduling ii) LOOK scheduling iii) C-LOOK scheduling 	
	Assuming the current position of READ/WRITE head is at 55 and disk contains total of 200 tracks {0-199}.	
10	Write down the merits and demerits of normalization technique.	2
11	Enumerate the types of functional dependencies. Illustrate with a database table <i>report</i> having fields {student#, course#, studentname, coursename, marks, grade} with student# and course# being primary keys.	3
12	Enumerate the necessary conditions for a relation R to be in 2NF and 3NF with suitable database table example.	5
13	Differentiate between "delete" and "truncate" SQL statements with an example.	2
14	With data definition language create a table <i>item</i> with fields {itemid, itemname, unitprice, class, discount} with following constraints	3
	 itemid as primary key ii) itemname being not null iii) unitprice greater than 0 	

iv) class being not null

Also, write SQL statement for projecting itemid and itemname for an item whose unitprice is >100.

- 15 Considering customer table with fields {customerid, customername, dateofreg, userid, password}, 5 write down SQL statement for the following requirement
 - 1. Add another field contactnum in the table with varchar(10)
 - 2. Modify the field contactnum with varchar(12)
 - 3. Remove the filed contactnum from the table customer
 - 4. Delete a specific row of data from customer where the customerid is c1.
 - 5. Update customer set data with dateofreg as NULL for customerid c1