Faculty of Engineering and Technology			
Ramaiah University of Applied Sciences			
Department	Computer Science and Engineering	Programme	B. Tech. in CSE
Semester/Batch	5th / 2018		
Course Code	19CSC304A	Course Title	Operating Systems
Course Leader(s)	Ms. Jishmi Jos Choondal/Ms. Naveeta		

Assignment			
Register No.		Name of Student	

Sections		**Marking Scheme**	**Max Marks**	**First Examiner Marks**	**Moderator Marks**
Question 1	Q1.1	Introduction to 16-bit, 32- bit or 64-bit operating systems	01		
	Q1.2	Reasons for the transition from 16-bit to 32- bit and 32-bit to 64-bit operating systems	01		
	Q1.3	Reasons for the transition from 64-bit to 128-bit operating systems	02		
	A1.4	Stance with justification	01		
		Part A	**05**		
estion 2	Q2.1	Introduction to NRU, FIFO, LRU and second chance algorithms	02		
	Q2.2	Compute the page replaced on a page fault	08		

estion3		**B2 Max Marks**	**10**		
	Q3.1	Problem solving approach for spooler	02		
	Q3.2	Design and implementation of spooler	06		
	Q3.3	Results and analysis of spooler	02		
		B2 Max Marks	**10**		
		Total Assignment Marks	**25**		

Course Marks Tabulation				
Component- 1(B) Assignment	**First Examiner**	**Remarks**	**Moderator**	**Remarks**
Q1				
Q2				
Q3				
Marks (out of 25)				

Signature of First Examiner Signature of Second Examiner

Instructions to students:

1. Maximum marks : **25**

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2. The assignment has to be neatly word processed as per the prescribed format.
3. The maximum number of pages should be restricted to **10**
4. The printed assignment must be submitted to the course leader.
5. **Submission Date: 16/01/2020**

Assignment

Question 1 **05 Marks**

We have seen the evolution of operating systems – from 16-bit to 32-bit operating systems and later from 32-bit to 64-bit operating systems. While in the past, there was a need to address more memory, the current 64-bit systems can address so much RAM that we can't even imagine. To be precise, the amount is 2^64 bytes or 18.44 EB. The 4GB RAM on a 32-bit or 8 GB on a 64-bit OS system would be sufficient for normal office work.

Develop a debate on "**Are we going to see 128-bit Operating Systems in the near future?**"

Your debate should address the following:

1.1. Introduction to 16-bit, 32- bit or 64-bit operating systems.

1.2. Reasons for the transition from 16-bit to 32- bit and 32-bit to 64-bit operating systems.

1.3. Possible reasons that may lead the transition from 64-bit to 128-bit operating systems.

1.4. Your stance with justification.

Question 2 **(10 Marks)**

An operating system's memory manager supports eight page frames. The time of loading, time of last access, and the R and M bits for each page are as shown in Table 1 (time is in clock tick units):

Table 1

Page	Loaded Time(in clock ticks)	Time of Last Reference(in clock ticks)	R	M
0	250	280	0	1
1	120	285	1	0
2	265	282	0	0
3	110	295	1	0
4	185	289	1	1

5	135	283	0	0
6	275	291	1	1
7	115	279	1	0

The report should contain the following:

2.1. Introduction to NRU, FIFO, LRU and second chance algorithms

2.2. Compute the page replaced on a page fault, if the following page replacement algorithms are used:

- NRU
- FIFO
- LRU
- Second Chance

Question 3 **(10 Marks)**

Develop a program to implement the functionality of printer spooling simulating a printer. Print operations/commands, from multiple processes/ threads, cause files to be written to the printer spool area associated with a printer.

The report should contain the following:

3.1. Problem solving approach for spooler.

3.2. Design and implementation of spooler.

3.3. Results and analysis of spooler.