Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2018

CS2CO06 Operating System

Programme: Diploma Branch/Specialisation: CSE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. With use of multiprogramming , work can be **1**
(a) Efficient (b) Rigid (c) Expensive (d) Flexible

ii. Time Sharing technique handles **1**
(a) Single interactive job (b) Multiple interactive job
(c) Recent interactive job (d) Old interactive job

iii. The system which allows only one process execution at a time is called **1**
(a) Uniprogramming System (b) Uniprocessing System
(c) Unitasking System (d) None of these

iv. A set of process is deadlock if **1**
(a) Each process is blocked and will remain so forever
(b) Each process is terminated
(c) All processes are trying to kill each other
(d) None of these

v. Which of the following is not a state of a process **1**
(a) New (b) Old (c) Waiting (d) Running

vi. A heavy weight process has which type of threads of execution **1**
(a) Multiple (b) Single
(c) Both single and multiple (d) None of these

vii. Which module gives control of the CPU to the process selected by short term scheduler **1**
(a) Dispatcher (b) Interrupt (c) Scheduler (d) None of these

viii. Round Robin Scheduling falls under which type of scheduling category **1**
(a) Preemptive (b) Non-Preemptive
(c) Both (a) and (b) (d) None of these

P.T.O.

ix. File type can be represented by **1**
(a) File name (b) File extension
(c) File identifier (d) File number

x. The address of a page table in memory is pointed by **1**
(a) Stack pointer (b) Page table base register
(c) Page register (d) Program Counter

Q.2 i. What is an operating system? **2**
ii. Differentiate between multitasking and time sharing operating system. **3**
iii. Explain the evolution of operating system. **5**
OR iv. Describe the different types of operating system. **5**

Q.3 i. What do you mean by a system call? **2**
ii. Define the role of operating system in device and file management. **8**
OR iii. Describe the process of booting? Also explain monolithic and microkernel. **8**

Q.4 i. What is the difference between process and program? **3**
ii. What is process control block? Also describe different schedulers. **7**
OR iii. What is Thread? Also define the types of Thread. **7**

Q.5 i. What is a Deadlock? Write its necessary conditions? **4**
ii. Consider the following set of processes arriving at time zero in CPU names of Processes are P1, P2, P3, P4, P5 whose Burst time are respectively 8, 6, 1, 9, 3 and Priorities are 4, 1, 2, 2, 3 (Consider 4 as the highest priority). Calculate the average waiting time and average turnaround time using Priority scheduling? **6**
OR iii. Describe deadlock avoidance and prevention techniques. **6**

Q.6 Attempt any two:
i. Explain the optimal page replacement algorithm with example. **5**
ii. What is dynamic memory allocation? **5**
iii. Explain the concept of virtual memory. **5**

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Marking Scheme
CS2CO06 Operating System

Q.1	i.	(a) Efficient		**1**
	ii.	(b) Multiple interactive job		**1**
	iii.	(b) Uniprocessing System		**1**
	iv.	(a) Each process is blocked and will remain so forever		**1**
	v.	(b) Old		**1**
	vi.	(b) Single		**1**
	vii.	(a) Dispatcher		**1**
	viii.	(a) Preemptive		**1**
	ix.	(b) File extension		**1**
	x.	(b) Page table base register		**1**
Q.2	i.	Definition	1 mark	**2**
		Diagram	1 mark	
	ii.	Minimum 4 points		**3**
	iii.	At least 5 generations.		**5**
OR	iv.	At least 4 types	4 marks	**5**
		Diagram	1 mark	
Q.3	i.	Definition	1 mark	**2**
		Diagram	1 mark	
	ii.	Device and file management- (8 points each)		**8**
OR	iii.	Booting Definition	1 mark	**8**
		Description (atleast 8 points)	6 marks	
		Diagram	1 mark	
Q.4	i.	At least three differences		**3**
	ii.	Description of process control block	3.5 marks	**7**
		Schedulers	3.5 marks	
OR	iii.	Threads	3.5 marks	**7**
		Types of Threads	3.5 marks	
Q.5	i.	Deadlock	1 mark	**4**
		Diagram	1 mark	
		Necessary conditions	2 marks	
	ii.	Prirority Schdeuling - Avg Waiting Time – 10.4 ms Avg Turn Around Time – 15.8 ms		**6**
OR	iii.	Deadlock avoidance	3 marks	**6**
		Deadlock prevention	3 marks	
Q.6		Attempt any two:		
	i.	Description of Algo	3 marks	**5**
		Example	2 marks	
	ii.	Dynamic memory allocation	2 marks	**5**
		Types	3 marks	
	iii.	Virtual memory (at least 7 points)		**5**

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