Subject: OPERATING SYSTEMS & SYSTEMS

Diplete – CS (NEW SCHEME)

Time: 3 Hours

Code: DC61

JUNE 2012

ROLL NO.

StudentBounty.com PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the 0.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions, selecting at least TWO questions from each Part. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

0.1 Choose the correct or the best alternative in the following:

 (2×10)

- a. Mutual exclusion problem occurs between
 - (A) Two disjoint process that do not interact
 - (B) processes that share resources
 - (C) Processes that do not use the same resources
 - (**D**) None of the above
- b. Suppose that a process is in 'BLOCKED' state waiting for some I/O service. When the service is completed, it goes to the

(A) RUNNING State	(B) READY state
(C) SUSPENDED state	(D) TERMINATED state

c. In which of the following scheduling policy does the context switching never take place

(A) Round Robin	(B) Pre-emptive
(C) Shortest Job First	(D) FCFS

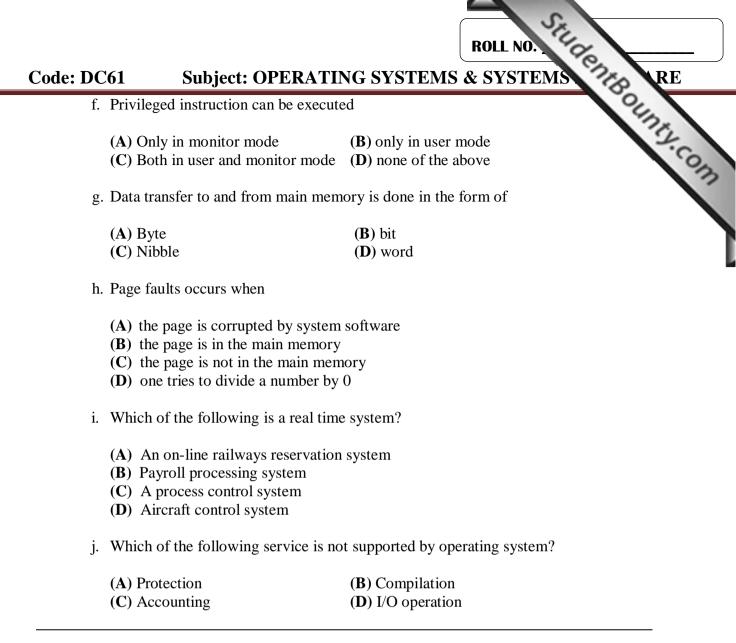
d. Which of the following system software resides in main memory always?

(A) Loader	(B) Text Editor
(C) Linker	(D) Assembler

e. When exceptional condition occurs outside the CPU the hardware signal given is

(A) Reset	(B) Interrupt
(C) Hold	(D) Wait

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PART A		
Answer at least TWO questions. Each question carries 16 marks.		

e real time operating system and its type. (5)
? What are the major activities of an operating system in regard gement? (5)
control block (PCB)? Discuss the different components of a block. (6)
iteria used in CPU scheduling? Discuss different types of CPU rithms. (4+6)
rithms.

b. Consider the following set of processes, assumed to have arrived at time 0, in the order P_1 , P_2 , ..., P_s , with the length of the execution requirement (Xi) given in milliseconds.

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		Using Shortest Job Next (SJN) scheduling:	ounty-c
		(i) Find the turnaround time and weighted turnaround time of each pr(ii) Find the throughput.	rocess. (3+3)
Q.4	a.	How monitor is useful in process synchronization?	(4)
	b.	Explain any two popular file sharing modes. What are the two impo- with mutable files?	rtant issues (4)
	c.	What are semaphores? Illustrate a critical section implementation usin semaphore.	ng a binary (8)
Q.5	a.	What is virtual memory? How paging is useful in virtual memory man	nagement? (8)
	b.	Discuss about the following page replacement policy: (i) FIFO (ii) Optimal (iii) LPU	
		(iii) LRU	(6)
	с.	What is the difference between physical and logical address?	(2)

PART B

Answer at least TWO questions. Each question carries 16 marks.

Q.6	a.		n detail - 3+3)
	b.	What is programming language grammar? Define the different type of la grammar.	inguage (2 + 5)
Q.7	a.	How flow control is implemented in a macro expansion? Define expansion algorithm.	macro (4)
	b.	Discuss top down parsing in detail.	(8)
	c.	What do you mean by program relocation?	(4)
Q.8	a.	Discuss the concept of Assembly language programming.	(8)
	b.	Explain the design of a two pass assembler.	(8)
Q.9	a.	Write a short note on compilation of control structures.	(3)
	b.	Define static and dynamic memory allocation. How compiler allocates n for a 2-dimentional array?	memory (4 + 3)
	c.	What are the issues involved in code generation of an expression?	(6)