StudentBoun Code: AC59/AT59 Subject: OPERATING SYSTEMS & SYSTEMS

AMIETE – CS/IT

Time: 3 Hours

JUNE 2013

14.com Max. Marks: 10

 (2×10)

RE

ROLL NO.

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

NOTE: There are 9 Ouestions 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 Q.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.

Q.1 Choose the correct or the best alternative in the following:

- is the activity of determining which service request should a. be handled next by a server.
 - (A) Scheduling
 - (B) Scanning
 - (C) Forwarding
 - (**D**) Requesting
- ______ feature is needed to ensure that the user job does b. A _____ not corrupt the batch monitor code.
 - (A) Memory security
 - (B) Memory protection
 - (C) Memory Synchronization
 - (D) Memory segmentation
- c. Full form of RRAG
 - (A) Resource Round and Allocated Graph
 - (B) Round Robin Allocated Graph
 - (C) Resource Request and Allocation Graph
 - (**D**) None of these
- _____ is used to speed up address translation. d. A _____
 - (A) Dynamic Address translation
 - (B) Translation look-aside buffer
 - (C) Paging
 - (**D**) Demand-Paging

AC59/AT59 / JUNE - 2013

e. The "blocking factor" of a file	is
(A) the number of blocks acce(B) the number of blocks alloc(C) the number of logical reco(D) none of these	ated to a file
f. A of which precedes its definition in	of a program entity is a reference to the entity n the program.
(A) Generation(C) Phase	(B) Forward reference(D) Analysis
g is the with a value.	association of an attribute of a program entity
(A) Identifier(C) Binding	(B) Associativity(D) Compilation
1	orms some preliminary processing of the source soverheads during interpretation.
(A) Pre-processor(C) Loader	(B) Linker(D) Impure interpreter
i. Address of the origin assigned is	by the linker while producing a binary program
(A) Translated origin(C) Relocated origin	(B) Linked origin(D) Self-relocated origin
j. The is exec	uted when the computer is turned on or restarted.
(A) Cross-Compiler loader	(B) Relating loader

- b. Explain the following facilities for implementing interacting processes in programming languages and Operating systems:
 (i) Fork-Join primitives
 (ii) Unix processes
 (4x2)
- Q.3 a. Explain Event Control Block (ECB)? With the help of suitable diagram discuss the organization of the different modules of event handler. (8)

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StudentBounty.com b. Write down Banker's algorithm for multiple resources? List different In and Data structures used in the algorithm.

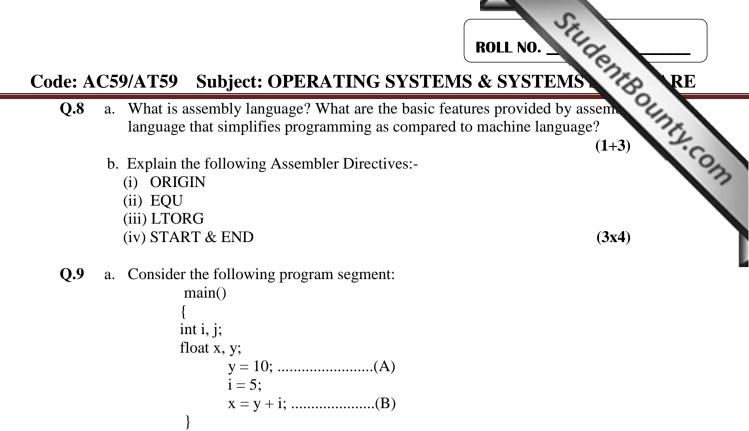
ROLL NO.

- a. What is a semaphore? Explain binary semaphore with the help of an example. 0.4
 - b. What is Critical-Section problem? What are the requirements that critical section problem must satisfy for its solution? (6)
 - c. Discuss the different techniques with which a file can be shared among different users? (6)
- Q.5 a. With the help of example, discuss overlay? (6)
 - b. Consider a paging system with the page table stored in memory
 - (i) If a memory reference takes 200 nanoseconds, how long does a paged reference take?
 - (ii) If we add associative registers, and 75 percent of all page-table references are found in the associative registers, what is the effective memory reference time? (Assume that finding a page-table entry in the associative registers takes zero time, if the entry is there.) (3+3)
 - What is the cause of thrashing? How does the system detect thrashing? (4) c.

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

- a. Define Intermediate Representation? What are the desirable properties of **Q.6** Intermediate Representation? (2+2)
 - b. Define Grammar of a language. Identify the different classes of grammar. Explain their characteristics and limitations. (6)
 - c. Discuss the different criteria used to classify the data structures used for Language processors? (6)
- **Q.7** a. What is parsing? Give difference between top down parsing and bottom up parsing. (5)
 - b. What are self-relocating programs? Why self-relocating programs are less efficient then relocatable programs? (7)
 - c. The translated origin of the assembly program P is 500. If the program is loaded for execution in the memory area starting with the address 900, calculate the relocation factor of P. (4)

3



Explain what action the compiler must take during the compilation of assignment statements marked as (A) and (B)? (6)

- b. What are the features used by compiler during implementing function calls?(5)
- c. Give an account of the issue pertaining to compilation of "if" statement in C language? (5)