ROLL NO. _____

Code: DC61 Subject: OPERATING SYSTEMS & SYSTEMS [illegible]ARE

DipIETE – CS

Time: 3 Hours **JUNE 2013** **Max. Marks: 10**

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 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: **(2×10)**

a. Which is not a language processor?

(A) Compiler **(B)** Interpreter
(C) Operating System **(D)** Assembler

b. Parsing is a technique for

(A) Syntax analysis **(B)** Lexical analysis
(C) Semantic analysis **(D)** None of these

c. Virtual memory is

(A) Physical memory **(B)** Memory management scheme
(C) Cache memory **(D)** None of these

d. An address generated by CPU is known as

(A) Physical address **(B)** Logical address
(C) Indirect address **(D)** Logical address space

e. A binding performed after the execution of the program begins is

(A) Static binding **(B)** Dynamic binding
(C) Compile time binding **(D)** None of these

f. Semaphores _____

(A) synchronize critical resources to prevent contention
(B) implement mutual exclusion
(C) are used to I/O
(D) are used for memory management

g. Analysis which determines the meaning of a statement once its gramm structure becomes known is termed as

(A) Semantic analysis **(B)** Syntax analysis
(C) Regular analysis **(D)** General analysis

h. Which of the following is not a fundamental process state?

(A) ready **(B)** terminated
(C) running **(D)** PCB

i. In a two-pass assembler, the task of the Pass II is to

(A) separate the symbol, mnemonic opcode and operand fields
(B) build the symbol table
(C) construct intermediate code
(D) synthesize the target program

j. The memory allocation scheme which is a solution to "external" fragmentation is

(A) segmentation **(B)** swapping
(C) paging **(D)** multiple fixed contiguous partitions

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

Q.2 a. Compare and contrast Multiprogramming system with time sharing system. **(8)**

b. With the help of suitable diagram, list the various elements of a Process Control Block. **(8)**

Q.3 a. What is process scheduling? Explain the different sub-functions of process scheduling. **(8)**

b. Define deadlock. Explain the conditions that are required for a deadlock to occur. **(8)**

Q.4 a. Explain critical section problem in relation to process synchronization. List various requirements that critical section problem solution must satisfy. **(8)**

b. Explain with the help of examples, the two disk allocation methods: linked and indexed. **(8)**

Q.5 a. Using suitable example, explain any two page replacement algorithms. **(8)**

b. List various approaches used for realization of virtual memory. List advantages and disadvantages of virtual memory. **(8)**

PART B

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

Q.6 a. What do you mean by language processing? Describe language processing activities. **(8)**

b. How the data structures used for language processors are classified? Explain. **(8)**

Q.7 a. Define Parsing. What are the goals of parsing? Explain its various types. **(8)**

b. What is macro-expansion? List the key notions concerning macro expansion. Write an algorithm to outline the macro-expansion using macro-expansion counter. **(8)**

Q.8 a. What is assembly language? What kinds of statements are present in an assembly language program? Discuss. **(8)**

b. Explain the stepwise approach to arrive at a design specification for an assembler. **(8)**

Q.9 a. Define and explain memory allocation. What are different approaches of memory allocation? **(8)**

b. Explain various parameter passing techniques. **(8)**