Code: AC08 / AT08   Subject: SYSTEM SOFTWARE

AMIETE – CS/IT (OLD SCHEME)

Time: 3 Hours   **DECEMBER 2011**   Max. Marks: 100

NOTE: There are 9 Questions in all.
- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **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. 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. A computer cannot "boot" if it does not have the

(A) Compiler   (B) Loader
(C) Operating system (D) Assembler

b. If you want to execute more than one program at a time, the system software you are using must be capable of:

(A) Word Processing   (B) Virtual Memory
(C) Compiling   (D) Multitasking

c. Which of the following system software does the job of merging the records from two files into one?

(A) Security software   (B) Utility program
(C) Networking software (D) Documentation system

d. The part of the computer system which performs the housekeeping function is called

(A) Interpreter   (B) Compiler
(C) Operating system   (D) Assembler

e. A programmer, by mistake, writes an instruction to divide, instead of a multiply. Such error can be detected by a/an

(A) Compiler   (B) Interpreter
(C) Compiler or Interpreter both (D) Neither Compiler nor Interpreter

f. Object Program is

(A) A program written in machine language
(B) A program to be translated into machine language
(C) The translation of high level language into machine language
(D) None of the above

g. What is true about assembly language?

(A) It uses symbol codes
(B) It does not vary from one computer to another
(C) It uses binary numbers
(D) None of the above

h. The table created by lexical analysis to describe all literals used in the source program

(A) Terminal Table   (B) Literal Table
(C) Identifier table   (D) Reductions

i. What is the name given to the organized collection of software that controls the overall operation of computer?

(A) Working System   (B) Peripheral System
(C) Operating System   (D) Controlling System

j. The Primary purpose of operating system is to

(A) Make computer easier to use
(B) Keep system programmer employed
(C) Make the most efficient use of hardware
(D) Allow people to sue the computer

Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.

Q.2 a. Explain input and output instructions in simplified instructional computer. **(8)**

b. Explain how intermediate code is generated by a compiler for an arithmetic expression. **(8)**

Q.3 a. Explain Process Scheduling in time sharing system. **(8)**

b. Explain following symbol defining statements: **(8)**

```
    LDS         #3
    LDT         #300
    LDX         #0
    ADDLP LDA   ALPHA, X
    ADD         BETA, X
    STA         GAMMA, X
    ADDR        S, X
```

```
COMPR        X, T
 JLT         ADDLP
 .
 .
 .
 ALPHA       RESW      100
 BETA        RESW      100
 GAMMA       RESW      100
```

Q.4 a. Discuss the problems associated with a single pass assembler. **(8)**

b. Write an algorithm that executes the first pass of a linker. **(8)**

Q.5 a. A self relocating program needs to find its load address before it can execute its relocating logic. Comment on how this information can be determined by the program. **(8)**

b. Write the difference between compiler and interpreter. Discuss the components of an Interpreter. **(8)**

Q.6 a. Explain the following terms:
(i) Program preemption and Memory fragmentation.
(ii) Forward reference and Intermediate representation. **(4×2)**

b. What do you mean by Interrupt Processing? Explain in detail. **(8)**

Q.7 a. What are the advanced macro facilities which are aimed at supporting semantic expansion? **(8)**

b. Explain the addressing modes of a single pass assembler. **(8)**

Q.8 a. Discuss the designing of a macro-assembler? **(8)**

b. Explain User interface as a software tool. **(8)**

Q.9 Write short notes on the following:

(i) Principles of object oriented Programming.
(ii) Local optimization.
(iii) Dynamic Linking.
(iv) Multipass Assembler. **(4×4)**