

AMIETE – CS/IT (OLD SCHEME)

Time: 3 Hours

OCTOBER 2012

Max. Marks: 100

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. 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. In which addressing mode, the effective address of the operand is generated by adding a constant value to the contents of register?
- (A) Absolute mode (B) indirect mode
(C) immediate mode (D) index mode
- b. A loader is
- (A) A program that places programs in to memory and prepares them for execution.
(B) A program that automate the translation of assembly language in to machine language.
(C) Program that accepts a program written in a high level languages and produce an object program.
(D) Is a program that appears to execute a source program as if it were machine language.
- c. A compiler for a high level language that runs on one machine and produces code for a different machine is called
- (A) optimizing compiler (B) one pass compiler
(C) cross compiler (D) multipass compiler
- d. 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

- e. A multiprogramming system permits
- (A) Single job to be loaded into memory
 - (B) Permits several user jobs to be executed concurrently
 - (C) More complex type of network organization.
 - (D) None of the above
- f. 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
- g. The advantage(s) of incorporating the macro processor in to pass 1 is(are):
- (A) Many functions do not have to be implemented twice.
 - (B) Functions are combined and it is not necessary to create intermediate files as output from the macros processor and input to the assembler.
 - (C) More flexibility is available to the programmer in that he may use all the features of the assembler in conjunction with macros.
 - (D) All of the above.
- h. The function (s) of the syntax phase is (are)
- (A) To recognize the major constructs of the language and to call the appropriate action routines that will generate the intermediate form or matrix for these constructs.
 - (B) To build a literal table and an identifier table.
 - (C) To build a uniform symbol table.
 - (D) To parse the source program in to the basic elements or tokens of the language.
- i. A system program that sets up an executable program in main memory ready for execution is:
- | | |
|---------------|--------------|
| (A) Assembler | (B) linker |
| (C) loader | (D) compiler |
- j. Terminal Table _____
- (A) Contains all constants in the program
 - (B) A permanent table of decision rules in the form of patterns for matching with the uniform symbol table to discover syntactic structure.
 - (C) Consists of a full or partial list of the token's as they appear in the program. Created by Lexical Analysis and used for syntax analysis and interpretation.
 - (D) A permanent table which lists all key words and special symbols of the language in symbolic form.

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

- Q.2** a. Describe the architecture of SIC machine. (8)
- b. Give a general description of the functions of the two passes of simple assembler and major internal data structure used. (8)
- Q.3** a. In machine independent assembler, how the program can have multiple program blocks. (8)
- b. Which feature of machine independent loader allows the programmer to use subroutines from many libraries almost as if they are part of programming languages? (8)
- Q.4** a. How linking of control sections can be useful in program handling in machine independent assembler? (8)
- b. What are the advantages of object-oriented approach to operating system? (8)
- Q.5** a. Explain syntactic analysis and operator-precedence parsing (8)
- b. Explain the machine-independent macro processor features. (8)
- Q.6** a. Make the parse tree for the following two statements: (8)
- (i) read(value);
- (ii) variance=sumsq div 100 – mean * mean ;
- b. What do you understand by Macro processing within language translators? Explain. (8)
- Q.7** a. What are quadruples? How do they give intermediate form of the program? (8)
- b. Discuss the design of a P-Code compiler. (8)
- Q.8** a. Explain about the code generation phase of the compiler. (8)
- b. Define user interface. Explain various components of user interface. (8)
- Q.9** a. Explain hierarchical structure of an operating system. (8)
- b. Explain typical structure of an Editor. (8)