(i) Printed Pages : 3 (14) Roll No. .....

(ii) Questions : 9 Sub. Code : 0 1 8 6

Exam. Code : 0 0 0 2

B.A./B.Sc. (General) 2nd Semester

(2054)

INFORMATION TECHNOLOGY

Paper : B Computer Programming using C

Time Allowed : Three Hours] [Maximum Marks : 65

Note :— Candidate is required to attempt *five* questions in all including Question No. 9 (which is compulsory) and attempt remaining *four* questions by selecting *one* question from each Section.

SECTION—A

1. (a) Discuss the importance of establishing initial conditions and terminating conditions in programming. How do these conditions affect the execution of a program ? 7

(b) How do you choose variable names in programming ? Discuss the importance of selecting meaningful variable names and provide guidelines for naming variables. 6

2. (a) Explain the significance of program documentation in programming. What should be included in program documentation to ensure clarity and maintainability ? 7

(b) Discuss the process of program testing. What are the different testing methods used in programming, and how do they help ensure the correctness of a program ? 6

SECTION—B

3. (a) Explain the concept of constants and variables in C. How are constants and variables declared and used in programming ? 6

(b) Discuss the different types of operators in C (arithmetic, relational, logical). Provide examples to illustrate the use of each type of operator. 7

4. (a) Describe advanced features of C, such as type modifiers, storage class specifiers, and bit operators. How are these features used in programming ? 7

(b) What is type casting in C ? How is type conversion performed in C ? 6

SECTION—C

5. (a) Discuss parameter passing in C. What is the difference between call by value and call by reference ? Provide examples to illustrate. 6

(b) What are argc and argv in C ? How are they used in programming ? 7

6. (a) Explain pointers to functions in C. How are functions returning pointers used in programming ? 6

(b) Explain dynamic data structures in C. What are pointers ? How are the & and * operators used with pointers ? Provide examples to illustrate pointer concepts. 7

SECTION—D

7. Describe the process of file handling in C, including the use of file pointers and file accessing functions such as fopen, fclose, putc, getc, and fprintf. Provide examples to demonstrate file handling in C. 13

8. Discuss the concept of arrays and structures within structures in C. Provide examples to illustrate how arrays and structures can be combined to create complex data structures. 13

Compulsory Question

9. (a) Discuss basic input/output operations in C. 3

(b) Describe the control constructs in C (if-else, for, while). 2

(c) What is pointer to pointer ? 2

(d) Explain the differences between unions and structures. 2

(e) Explain the concept of structure pointers in C. 2

(f) Describe recursion in C. 2