

2018

M.Sc.

Part-II Examination

**APPLIED MATHEMATICS WITH OCEANOLOGY
AND
COMPUTER PROGRAMMING**

PAPER—VI

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Group—A

1. Answer any two questions : 2×5

- (a) What is the use of adder ? Design a 4-bit adder using full-adder. Construct a 16-bit adder using 4-bit adders as building blocks. 1+2+2

(Turn Over)

(b) What do you mean by flip-flop? Explain SR and JK flip-flops with block diagrams and characteristic table.
2+3

(c) Write a note about a general register machine. 5

2. Answer any *three* questions : 3×5

(a) Define stack and queue. Distinguish between them. Discuss about the implementation of queue as a circular array. 2+1+2

(b) Write an algorithm to add two polynomials without using a third list. 5

(c) (i) How can a binary expression (containing only binary operators) be represented by a binary tree? Write some important properties of this type.

(ii) What do you mean by tree traversal? Write a non-recursive algorithm for post order traversal.

2½+2½

(d) Write an algorithm to store a set of numbers into a stack and find the maximum among them. 5

(e) Define postfix and infix expressions. Convert the expression $A*(B+C)+G/(D+A)-G$ into postfix.

5

3. Answer any *two* questions : 2×5

(a) Write a short notes on e-mail, FTP, Telnet and WWW.

(b) How are two remote computer connected to the internet through communication system? Explain with a diagram.

(c) Explain with diagrams the point-to-point and multidrop circuits.

4. Answer any *three* questions : 3×5

(a) Explain client server model in operating system.

(b) Explain memory management technique with buddy system. What are the advantages and disadvantages of buddy system?

(c) Explain system calls and processes. What are the fundamental things which are used with a process?

(d) Explain operating system as an extended machine.

(e) What is multiprogramming? Give two reasons for having it.

