

4. (a) Explain the features of structures.
 - (b) Explain the various file operations. (10+10)
 5. (a) Write a program in print a single digit number into words.
 - (b) Write a note on 'preprocessor directives'. (10+10)
 6. What is queue? Explain various operations on queue. (20)
 7. Compare linear search and binary search. (20)
 8. Write the selection sort algorithm and explain it with an example. (20)
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Reg. No. :

D 2032 Q.P. Code : [07 DSC 02/07 DIT 03]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, DECEMBER 2013.

First Year

Part III — Computer Science/Information Technology

DATA STRUCTURES AND C PROGRAMMING -

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

(5 × 20 = 100)

1. (a) Explain problem solving techniques.
- (b) Explain the various I/O functions. (10+10)
2. (a) Discuss the different decision statements.
- (b) Write a program to check the given number is 'odd' or 'even'. (12+8)
3. (a) Explain various string functions.
- (b) Write a program to count number of characters, linear and words in a text. (10+10)

5. (a) Determine which of the following compound proposition are tautology and which of them one contradictions using truth talks.

(i) $\neg [q \wedge (p \rightarrow q)] \rightarrow \neg p$

(ii) $\neg [(q \rightarrow r) \wedge r \wedge (p \rightarrow q)]$.

- (b) Describe the concept of predicate calculus with an example. (7 + 7 + 6)
6. (a) Explain the types of functions.
- (b) If R is the relation on the set of positive integers such that $(a, b) \in R$ if and only if ab is a perfect square. Show that R is an equivalence relation. (10 + 10)
7. (a) What is a groups? Explain different types of groups.
- (b) Explain the various representation of groups. (10 + 10)
8. (a) Explain tree and binary tree along with its properties.
- (b) Discuss the binary tree traversal methods with examples. (10 + 10)

Reg. No. :

D 2161

Q.P. Code : [07 DSC 03/
07 DIT 01]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, DECEMBER 2013.

First Year

Part III — Computer Science/Information Technology

Allied — MATHEMATICAL FOUNDATIONS FOR
COMPUTER SCIENCE

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

(5 × 20 = 100)

1. (a) Find the rank of the following matrix.

$$\begin{pmatrix} 3 & 2 & 1 & 4 \\ 7 & 5 & 9 & 3 \\ 1 & 3 & -2 & 6 \\ 6 & -4 & -1 & 3 \end{pmatrix}$$

- (b) Find the inverse of the following matrix.

$$\begin{pmatrix} 1 & 2 & -1 \\ 3 & -4 & 2 \\ -1 & 3 & -1 \end{pmatrix}$$

(10 + 10)