## 2012

Time: 3 hours --

Full Marks: 80

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

The questions are of equal value.

Answer **five** questions, selecting **two** questions from each Group and Q. No. 1 is compulsory.

- 1. Choose the correct alternatives for the following:
  - (a) If p = It is raining

q = She will go to college

"It is raining and she will not go to college" will be denoted by :

- (i) p ^ q
- (ii) p A q
- (iii)  $\neg$  (p  $\land$  q)
- (iv)  $\neg p \land q$
- (b) In a directed graph of a Irreflexive relation, there should be :
  - (i) Loop on a one point

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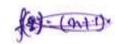
(Turn over)

- (ii) 8
- (iii) 12
- (d) If a set contains exactly m distinct elements where m denotes some non-negative integer then the set is:
  - (i) Finite
- (ii) Infinite
- (iii) None of these
- (e) Let f and g be the functions defined by f(x) = 2x + 3 and g(x) = 3x + 2 then composition of f and g is:
  - (i) 6x + 6
- (ii) 5x + 5
- (iii) 6x + 7
- (f) Let f is defined recursively by

$$F(0) = 3$$

$$F(n + 1) = 2f(n) + 2$$

then f(2) =



- (i) 8
- (ii) 10
- (iii) 18
- (iv) 21

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(2)

Contd.

/2.	Define the terms set, subset, cartesian product of sets. Define the following operations on sets using examples:							
	(a)	Union						
	(b)	) Intersection						
	(c)	Compleme	ntation					
	(d)	DeMorgan'	s Law					
3.		at is Karnaug						
		nplify the f naugh Maps F(A, B, C, E				0000000		
4.	Kar	naugh Maps F(A, B, C, E Define relat	s. D) = ∑(0, 1, 2 tion. Explain	2, 3, 4, reflexi	8, 9, 12) /e, symm			
4.	Kar (a)	naugh Maps F(A, B, C, E Define relat and transitiv Use the me	i. ion. Explain we relations we ethod of indi- or $n^2 + 5n + 1$	2, 3, 4, reflexivith ex-	8, 9, 12) ve, symmample. to prove	etric that		

(g) The greatest common divisor of 27 and 72

(h) If T is a full binary tree and has 5 internal vertices then the total vertices of T are:

(ii) 9 .

(ii) 12

(iv) None of these

is :

(i) 27 (iii) 1  Solve the recurrence relation, S(n) = S(n - 1) + 2(n - 1), with S(0) = 3, S(1) = 1, by finding its generating function. Prove that the following argument is valid.

$$p \rightarrow \neg q, r \rightarrow q, r \rightarrow \neg p.$$

## Group - B

- Explain the Features of Tally. What Hardware and Software required for Tally?
- 7. Why is Ledger needed in accounting? Compare the advantages and disadvantages of manual and computerized accounting. What is trial balance?
- 8. Write short notes on the following:
  - (a) Balance Sheet
  - (b) Profit and Loss Account
  - (c) Day Book

4.

- (d) Inventory Books
- What is E-mail? How is to useful to financial related activities? What is Web browser? Explain the main features of at least two popular web browsers.



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(4)

BCA(II) -- 205