

4. (a) Explain the statements with CORRESPONDING option in COBOL. (12)  
(b) Explain ROUNDED and ONSIZE error options in COBOL. (8)
5. Explain the use of REDEFINES and RENAMES clause in COBOL by giving examples.
6. Explain SORT and MERGE verbs in COBOL by giving an example program.
7. (a) Explain the characteristics of files. (8)  
(b) Explain the statements for sequential files in COBOL. (12)
8. Explain the following :
  - (a) OCCURS clause
  - (b) Assigning values to table elements
  - (c) Multidimensional tables.

Reg. No. : .....

**D 2014**

**Q.P. Code : [07 DSCA 01]**

(For the candidates admitted from 2007 onwards)

**B.C.A. DEGREE EXAMINATION, DECEMBER 2013.**

First Year

Part III — Computer Application

**COBOL PROGRAMMING**

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

(5 × 20 = 100)

1. (a) Explain the COBOL coding form. (5)  
(b) Explain the various types of literals in COBOL. (8)  
(c) Explain the ENVIRONMENT DIVISION entries in COBOL. (7)
2. Explain the edit characters for numeric data in COBOL by giving examples.
3. Explain the arithmetic verbs in COBOL.

2. (a) Solve the system of equations by Gauss-Elimination method  $10x_1 - 2x_2 + 3x_3 = 23$ ;  
 $2x_1 + 10x_2 - 5x_3 = -33$ ;  $3x_1 - 4x_2 + 10x_3 = 41$ .

(b) Solve the following equations using Gauss-Seidal method.

$$4x_1 + 2x_2 + x_3 = 14; x_1 + 5x_2 - x_3 = 10;$$

$$x_1 + x_2 + 8x_3 = 20. \quad (8 + 12)$$

3. (a) Find the maximum and minimum value of  $y$  from the following :

$x:$	0	1	2	3	4	5
$y:$	0	$\frac{1}{4}$	0	$\frac{9}{4}$	16	$\frac{225}{4}$

(b) Evaluate  $\int_0^1 \frac{dx}{1+x}$  using trapezoidal rule with  $h = 0.25$ . (12 + 8)

4. (a) Evaluate  $\int_{-3}^3 x^4 dx$  using Simpson's one-third and three-eighth rule with  $h = 1$ .

(b) Find the interpolating polynomial passing through the points  $(0,1), (1,3)$  and  $(3,55)$  using Lagrange's interpolation and hence find the value of  $y$  when  $x = 2$ . (12 + 8)

Reg. No. : .....

D 2016

Q.P. Code : [07 DSCA 03]

(For the candidates admitted from 2007 onwards)

B.C.A. DEGREE EXAMINATION, DECEMBER 2013.

First Year

Part III - Computer Applications

Allied - I - COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

All questions carry equal marks.

(5 × 20 = 100)

1. (a) Using method of false-position find a root of the equation  $x^3 - 3x - 5 = 0$ .
- (b) Find the iterative formula for finding the value of  $\frac{1}{N}$  where  $N$  is  $\phi$  real number, using Newton-Raphson method. Hence evaluate  $\frac{1}{26}$  correct to 4 decimal places. (8 + 12)

- (b) Calculate the Rank correlation coefficient after assigning ranks. (12 + 8)

$x$ : 85 60 73 40 90

$y$ : 93 75 65 50 80

8. (a) Determine the two regression equations of  $x$  on  $y$  and  $y$  on  $x$  and determine the value of  $y$  when  $x = 20$ , from the following data.

$x$ : 10 12 13 12 16 15

$y$ : 40 38 43 45 37 43

- (b) Write the Properties of Regression coefficients. (14 + 6)
- 

5. (a) Compute  $y(0.3)$  given  $\frac{dy}{dx} + y + xy^2 = 0$ ,  $y(0) = 1$  by taking  $h = 0.1$  using Runge-Kutta method of fourth order.

- (b) Using Euler's method, solve numerically the equation  $\frac{dy}{dx} = x + y$ ,  $y(0) = 1$  for  $x = 0.2$  and  $x = 0.4$  with  $h = 0.2$ . (14 + 6)

6. (a) Calculate mean, median and mode from the following:

$x$ : 410-419 420-429 430-439 440-449

$f$ : 14 20 42 54

$x$ : 450-459 460-469 470-479

$f$ : 45 18 7

- (b) Calculate the standard deviation from the following data:

43, 48, 65, 57, 31, 60, 37, 48, 78 and 59.

(15 + 5)

7. (a) Calculate Karl-Pearson's coefficient of correlation from the following:

$x$ : 45 55 56 58 60 65 68 70 75 80 85

$y$ : 56 50 48 60 62 64 65 70 74 82 90

3. Simplify by using Karnaugh map and implement using AND-OR logic.

$$Q(A,B,C,D) = \sum m(0,2,3,5,8,11) + \sum d(4,6,13,15)$$

4. Discuss any ten instructions of 8085 with suitable examples.
5. (a) Explain the register structure of 8085. (10)  
(b) What is multiplexing with respect to 8085? Explain. (10)
6. How priority is assigned to interrupts using parallel priority interrupt method? Explain.
7. (a) Explain the virtual memory concept. (10)  
(b) What is a cache memory? Explain its use. (10)
8. Discuss:  
(a) Handshaking  
(b)  $4 \times 1$  multiplexer  
(c) Half adder  
(d) Interrupts.

Reg. No. : .....

D 2015

Q.P. Code : [07 DSC 01/  
07 DSCA 02/07 DIT 02]

(For the candidates admitted from 2007 onwards)

B.Sc./B.C.A. DEGREE EXAMINATION,  
DECEMBER 2013.

First Year

Part III — Computer Science / Computer Application /  
Information Technology

DIGITAL FUNDAMENTALS AND ARCHITECTURE

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

1. (a) Subtract 22 from 55 by using 2's complement method. (8)  
(b) Draw the circuit of a BCD adder and explain its working. (12)
2. (a) Draw the current of a  $2 \times 4$  decoder and give the truth table.  
(b) Implement using fundamental gates.

$$Q = A\bar{B}\bar{C} + A\bar{B}C + \bar{A}BC.$$