

Reg. No. :

D 1512

Q.P. Code : [07 DSCA 01]

(For the candidates admitted from 2007-08 onwards)

B.C.A. DEGREE EXAMINATION, MAY 2014.

First Year

Part III – Computer Application

COBOL PROGRAMMING

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

All questions carry equal marks.

1. (a) Explain the ENVIRONMENT DIVISION entries in COBOL. (10)
(b) Explain the use of PICTURE clause in COBOL. (10)
 2. Explain the edit characters for numeric data in COBOL.
 3. Explain the various arithmetic verbs in COBOL.
 4. Explain the REDEFINES and RENAMES clause in COBOL.
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5. (a) Explain the IF statement in COBOL. (10)
 - (b) Explain PERFORM with TIMES and until options in COBOL. (10)
 6. An employee file contains employee number, employee name, designation, sex-code ('M' for male, 'F' for Female), basic pay. Write a COBOL program to print a list of female employee drawing basic pay greater than Rs. 5000.
 7. Explain the PROCEDURE DIVISION statements for Indexed files in COBOL.
 8. Explain the PROCEDURE DIVISION statements for Relative files in COBOL.
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Reg. No. :

D 1513

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

(For the candidates admitted from 2007-2008 onwards)

B.C.A/B.Sc. DEGREE EXAMINATION, MAY 2014.

First Year

Part III – Computer Science/Computer
Applications/Information Technology

DIGITAL FUNDAMENTALS AND ARCHITECTURE

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

(5 × 20 = 100)

1. (a) Implement using fundamental gates

$$Q = AB + \overline{AB} + \overline{A}\overline{B}.$$

- (b) Prove by using Boolean theorems :

$$\overline{AB} + \overline{AB} = AB + \overline{A}\overline{B}$$

- (c) Draw the circuit of a Full subtractor and give its truth table.

2. (a) Convert the octal number into decimal and hexa decimal number systems 40.5.
- (b) How will you convert a binary number into Gray code?
3. (a) Simplify using Karnaugh map and implement by using NOR gates only.
- $$Q(A, B, C, D) = \sum m(1, 5, 6, 7, 11, 13, 14).$$
- (b) Draw the circuit of a JK flip flop and explain its working.
4. (a) Explain the 4×1 multiplexer with diagram. Using two such multiplexers, draw a 8×1 multiplexer.
- (b) Explain the rotate instructions with examples.
5. (a) Explain the instructions formats with respect to 8085.
- (b) Explain the addressing modes of 8085 with examples and specify the purpose of any two pins of 8085.
6. (a) Explain how priority is assigned to interrupts?
- (b) Differentiate synchronous from asynchronous counters.

7. Discuss the Associative memory, with a memory cell diagram and the match logic.
8. (a) Perform the following :
- 1110 * 101 (in binary)
 - 222 + 666 (in octal)
 - 110 + 111 (in Hexa Decimal)
- (b) Explain the use of XOR gate.
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Reg. No. :

D 1514

Q.P. Code : [07 DSCA 03]

(For the candidates admitted from 2007 onwards)

B.C.A. DEGREE EXAMINATION, MAY 2014.

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) Find all the roots of $x^3 - 4x + 1 = 0$ using Newton-Raphson method.
 - (b) Assuming that a root of $x^3 - 9x + 1 = 0$ lies in $(2, 4)$, find that root by Bisection method.
- (14 + 6)**

2. (a) Solve the system of equations by Gauss-Jordan method.

$$x + y + z + w = 2$$

$$2x - y + 2z - w = -5$$

$$3x - 2y + 3z + 4w = 7$$

$$x - 2y - 3z + 2w = 5$$

- (b) Solve the following using Gauss-Seidel iterative procedure. (10 + 10)

$$4x_1 + x_2 + 2x_3 = 16$$

$$x_1 + 3x_2 + x_3 = 10$$

$$x_1 + 2x_2 + 5x_3 = 12$$

3. (a) Find the first and second derivatives at $x = 1.5$ from the following :

X: 1.5 2.0 2.5 3.0 3.5 4.0

Y: 3.375 7.000 13.625 24.000 38.875 59.000

- (b) From the following table find the area bounded by the curve and the x-axis from $x = 2$ to $x = 7$ using trapezoidal rule. (12 + 8)

X: 2 3 4 5 6 7

f(x): 8 27 64 125 216 343

4. (a) The table below gives the velocity U of a moving particle at time t seconds. Find the distance covered by the particle in 12 seconds. Also the acceleration at $t=2$ seconds.

t : 0 2 4 6 8 10 12

v : 4 6 16 34 60 90 136

- (b) From the following data find θ at $x = 43$.

x : 40 50 60 70 80 90

θ : 184 204 226 250 276 304

Use Newton-Gregory forward difference formula. (12 + 8)

5. (a) Use Lagrange's formula to find the value of y when $x = 1$.

X : -1 0 2 3

Y : -8 3 1 12

- (b) Using Runge-Kutta fourth order method, find

$y(0.8)$, given that $\frac{dy}{dx} = y - x^2$,

$y(0.6) = 1.7379$ with $h = 0.1$. (8 + 12)

6. (a) Compute mean, median and mode from the following data

x : 0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80

f : 3 4 3 6 14 10 5 5

- (b) Calculate mean deviation from mean from the following data (15 + 5)

100, 150, 200, 250, 360, 490, 500, 600, and 671.

7. (a) Calculate the correlation coefficient for the following :

X: 15 18 20 24 30 35 40 50

Y: 85 93 95 105 120 130 150 160

- (b) From the following data calculate Rank correlation coefficient after making adjustment for tied ranks.

X: 48 33 40 9 16 16 65 24 16 57

Y: 13 13 24 6 15 4 20 9 6 19

8. (a) Calculate the correlation coefficient and obtain the lines of regression for the following :

X: 1 2 3 4 5 6 7 8 9

Y: 9 8 10 12 11 13 14 16 15

- (b) From the following regression equations find the mean values of x and y also find the correlation coefficient. (12 + 8)

$$8x - 10y = -66$$

$$40x - 18y = 214$$