BCA (Voc.) I Sem.
Math. Found. (BC-101)

# 2015

*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 any **five** questions.*

1. a) Find $A^{-1}$, if $A = \begin{matrix} 3 & 4 & 5 \\ 0 & -6 & -7 \end{matrix}$

   b) Find the Rank of matrix:

   $$A = \begin{matrix} 2 & 1 & 3 & 4 \\ 4 & 2 & 6 & 8 \\ -2 & -1 & -2 & -7 \end{matrix}$$

2. a) For what value of $x$, the matrix

   $$\begin{matrix} 3-x & 2 & 2 \\ 2 & 4-x & 1 \\ -2 & -4 & -1-x \end{matrix}$$ is singular

GD16–623  (Turn over)

b) For the matrices

$$A = \begin{matrix} 1 & 1 & 1 \\ 1 & 2 & 3 \\ 1 & 4 & 9 \end{matrix} \text{ and } B = \begin{matrix} 2 & 5 & 3 \\ 3 & 1 & 2 \\ 1 & 2 & 1 \end{matrix}$$

Show that $(AB)^{-1} = B^{-1} \cdot A^{-1}$

3. a) If $y = \sin(\sin x)$, prove that

$$d^2y/dx^2 + \tan x \cdot dy/dx + y \cos^2 x = 0$$

b) If $y = (ax + b)/(cx + d)$, show that $2y_1 \cdot y_3 = 3y_2^2$

4. a) Find the maximum and minimum of the function

$$x^3 + y^3 - 3x - 12y + 10.$$

b) Find $du/dt$, when $u = x^2y + xy^2$, $x = at^2$,

$y = 2at$.

5. a) Evaluate $\int dx/x^2(4 - x^2)$

b) Evaluate $\int_0^{\pi/2} x^2 \cdot \sin 2x \cdot dx$

GD16–623         (2)         BCA (Voc.) I Sem.

6. Evaluate the double integral of the following:

   a) $I = \int_{0}^{2} \int_{1}^{2} \left(x^2 + y^2\right) \cdot dx \cdot dy$

   b) $I = \int_{0}^{1} \int_{x^2}^{2-x} xy \cdot dx \cdot dy$

7. State and prove Taylor's theorem.

8. Solve the following differential equation:

   a) $x \cdot \sqrt{1-y^2} \cdot dx + y \cdot \sqrt{1-x^2} \cdot dy = 0$

   b) $y \cdot dx - x \cdot dy = xy \cdot dx$

9. Solve the following differential equation:

   a) $(x+y)^2 \cdot dy/dx - 2 \cdot (x+y)^2 + 3 = 0$

   b) $x^2 \cdot ydx - \left(x^3 + y^3\right) \cdot dy = 0$

GD16–623                          (3)                          (Turn over)

10 Solve the following:

a) $\left(D^2 - 2D + 1\right) \cdot y = x \cdot e^x \cdot \sin x$

b) $d^3y/dx^3 + d^2y/dx^2 - dy/dx - y = 0$

**BCA (Vcc.) I Sem.**
**Computer Fundamental (BC-102)**

# 2015

*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 any **five** questions.*

1. Define software. Discuss the different types of
software.

2. What is an operating system? Discuss the different
types of operating system.

3. Draw the Block Diagram of Digital Computer. Explain
its functions and components.

4. Distinguish between:
   a) Compiler and interpreter
   b) Input device and output device
   c) Impact and non-impact printer

5. What is switching circuits? Explain AND.OR and
NOT operation with circuit diagram.

GD16–624

6. What is language translator? Explain its different types.

7. Write an essay on memory of computer. Discuss the list of secondary memory used on digital computer.

8. What is logic gate? Discuss the different types of logic gates. Draw the truth table and circuit diagram of logic gate.

9. Convert the following:
   a) $(25.6875)_{10} = ( \quad )_2$
   b) $(125.563)_8 = ( \quad )_{10}$
   c) $(4B8)_{16} = ( \quad )_{10}$
   d) $(6D.3A)_{16} = ( \quad )_2$
   e) $(14.125)_{10} = ( \quad )_2$
   f) $(1101010 + 1110111) = ( \quad )_2$
   g) $(110011 - 100100) = ( \quad )_2$
   h) $(110101 \times 11110) = ( \quad )_2$
   i) $(11010 - 10101) = ( \quad )_2$
   j) $(111011 - 101010) = ( \quad )_2$

10. Write short notes on any two of the following:
    a) Types of printer
    b) Characteristics of computer
    c) Boolean functions
    d) Memory of computer

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BCA (Voc.) I Sem.

Business Comm. (BC-103)
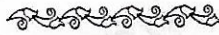
# 2015

*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 any **five** questions.*

1. Explain the various components of any business letter.

2. What do you mean by sales letter? Explain the AIDA approach of sales letter.

3. What do you mean by Receipt and Dispatch of mail? Explain in detail.

4. Discuss the different types of business communication.

5. Explain the various barriers to communication.

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(Turn over)

6. Write short notes on any two
    a) Social correspondence
    b) Importance of communication
    c) Process of communication
    d) Difference between oral and written communication

7. Explain the significance of MIS. Describe the various types of information used in MIS.

8. Explain the MIS implementation process. Discuss different steps to implement a newly developed MIS in an organisation.

9. What is software? Describe different types of software.

10. What is Computer Network? Focus on different types of Computer Network and various types of topologies.

BCA (Voc.) I Sem.

**Fundamental of Management (BC-104)**

# 2015

*Time : 3 hours*

*Full Marks : 80*

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*The questions are of equal value.*

*Answer any **five** questions.*

1. What is scientific management? How it is different from operational management?

2. Write the steps involved in planning. Explain each with suitable example.

3. Explain the system approach of management.

4. "Organization is creating intentional structure of Roles". Explain with example.

5. What do you mean by Recruitment? Mention different sources of staffing.

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6. How Authority and Responsibility go together? Explain Role Conflict.

7. What is leadership? Explain different types of leadership styles.

8. Discuss the nature and purpose of controlling techniques.

9. Define Behaviour. Discuss the factors affecting the behaviour of a person.

10. Write short notes on any two of the following:
    a) Motivation
    b) Group dynamics
    c) Perception
    d) Importance of plan