Roll No.

97662

BCA 1st Semester Examination – December, 2022

PC SOFTWARE

Paper: BCA-102

Time : Three Hours][Maximum Marks : 80Before answering the questions, candidates should ensure that theyhave been supplied the correct and complete question paper. Nocomplaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting one question

from each Unit. Question No. 1 is *compulsory*.

1. Explain the following :

(a) Window Accessories

(b) Header and Footer

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16

(c) Pivot Table and Pivot Chart

- (d) Animations and Sounds
 - UNIT I
- 2. (a) What do you mean by Windows ? Explain the basic components of Windows in detail.8
 - (b) Explain how can you add and remove hardware and software in window environment. 8

16

3. Define Control Panel in detail.

UNIT – II

- **4.** Describe the following features of MS-Word : 16
 - (i) Linking and Embedding objects
 - (ii) Template
 - (iii) Mail-Merge

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(2)

- **5.** Explain the following :
 - (i) Format Painter
 - (ii) File Management
 - (iii) Page Formatting

UNIT - III

- What do you mean by chart ? Explain how many types of charts can be drawn in MS-Excel.
 16
- 7. What is Spreadsheet ? Explain the features of Spreadsheet in detail.
 16

UNIT – IV

- 8. (a) What are the different types of Slide Layout available in MS-PowerPoint ?
 - (b) What are the various formatting options available in MS-PowerPoint ? Explain in detail. 8

97662-9450-(P-4)(Q-9)(22) (3)

- **9.** Explain the following :
 - (i) Word Art
 - (ii) Inserting Recorded Sound Effect
 - (iii) Layering art object

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BCA 1st Semester

Examination – December, 2022

LOGICAL ORGANIZATION OF COMPUTER - I

Paper: BCA-104

Time : Three Hours][Maximum Marks : 80]Before answering the questions, candidates should ensure that theyhave been supplied the correct and complete question paper. Nocomplaint in this regard, will be entertained after examination.

Note: Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

3. (a) Perform the following convocations (3 < 27

1. (a) What is Unicode ?

(b) What is Number system?

(c) What is Multiplexer ?

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(d) Differentiate Encoder and Decoder.

- (e) How does a NAND gate works?
- (f) What is Digital signal?
- (g) What is Boolean Function?

-8.

(h) What is Venn diagram?

UNIT – I

- 2. (a) Construct an even parity seven bit hamming code to transmit the data (i) 0100 (ii) 1110.
 - (b) What is BCD code ? What are the rule for BCD addition ? Explain with suitable example.
 - 3. (a) Perform the following conversions $(37.125)_{10} = ()_2$ =()_8 =()_{16}.
 - (b) Add 10110111 and 01110101
 - (c) Subtract 10001 from 11001.

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UNIT - II

- **4.** Simplify the following Boolean function $F(A, B, C, D) = \Sigma(0, 1, 2, 5, 8, 9, 10)$ in SOP. Draw the logic circuit using gates.
- 5. (a) State and prove De Morgan law.
 - (b) Simplify the following Boolean expression :
 - (i) ABC'D' + ABC'D + ABCD' + ABCD
 - (ii) AB (A'BC' + AB'C' + A'BC)
- 6. (a) How to realize OR, NOT, AND using universal gates ?

UNIT - III

- (b) What is the design procedure for combinational logic circuit ?
- 7. (a) What is an exclusive OR and exclusive NOR gate ? Draw its symbol and prepare truth table.

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(b) Explain AND-OR-INVERT and OR-AND-INVERT gate.

UNIT – IV

- **8.** (a) What is full adder ? How a full adder is built using half adder ?
 - (b) What is BCD to seven segment Decoder ? Explain.
- **9.** (a) What are Encoders ? Draw and explain a Octal to binary encoder.
 - (b) What is full subtractors ? Prepare truth table circuit for full subtractor.

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BCA 1st Semester Examination – December, 2022

COMPUTER & PROGRAMMING FUNDAMENTALS

Paper: BCA-101

Time : Three Hours][Maximum Marks : 80Before answering the questions, candidates should ensure that they
have been supplied the correct and complete question paper. No
complaint in this regard, will be entertained after examination.

Note: Attempt *five* questions in all, selecting *one* question from each Unit. Q. No. 1 is *compulsory*.

1. Write short notes on following : 16

(i) RAM

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(ii) Keyboard

(iii) Assembly language

(iv) LAN

97661-9800-(P-3)(Q-9)(22)

UNIT-I

- 2. Define computer. Describe the block diagram of computer along with its components. 16 9526
- 3. Explain the following : 16
 - (i) Cache memory 1
 - (ii) Flesh memory

UNIT - II

4. Define computer hardware and software. Explain types of software. Also explain the relationship between hardware and software. 16

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16

- 5. Explain the following :
 - (i) Antivirus software
 - (ii) Functions of operating system

UNIT - III

- 6. Describe the following :
 - (i) Forth generation languages
 - (ii) Characteristics of good programming language

97661-9800-(P-3)(Q-9)(22)

(2)

7. Give a complete description about structured 16 programming.

UNIT - IV

- 8. Define network topology. Explain its types in detail.16
- 9. Describe internet and its applications in detail. 16

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BCA 1st Semester Examination – December, 2022

MATHEMATICS

Paper : BCA-103

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

- *Note*: Attempt *five* questions in all, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.
 - **1.** (a) If $A = \{2, 4, 6, 8\}$ and $B = \{6, 8, 10, 12\}$, write A B and B A.

(b) Without expanding, prove that :

 $\begin{vmatrix} 1 & bc & a(b+c) \\ 1 & ca & b(c+a) \\ 1 & ab & c(a+b) \end{vmatrix} = 0$

(c) If $f: R \rightarrow R$ is defined by $f(x) = 3x^2 - 8x + 1$, find f(f(x)).

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(d)	Evaluate: $\lim_{x\to 0} \frac{\sin 5x}{\sin 15x}$.	2
(e)	Find: $\frac{dy}{dx}$, if $y = 5x^3 + 8x^2 - 7x + 10$.	2
(f)	Find: $\frac{dy}{dx}$, if $y = \cos x^4$.	2
(g)	Evaluate: $\int \frac{dx}{4+x^2}$.	2
(h)	Evaluate: $\int_{0}^{1} x^{99} dx$	2
	-1	

UNIT – I

- 2. (a) Prove that: (A ∩ B)' = A' ∪ B'.
 (b) There are 210 members in a Club, 100 of them drink Tea and 65 drink Tea but not Coffee. Find :
 - (i) How many drink Coffee ?
 - (ii) How many drink Coffee but not Tea? 8

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3. (a) Prove that :

 $\begin{vmatrix} x & y & z \\ x^2 & y^2 & z^2 \\ x^3 & y^3 & z^3 \end{vmatrix} = xyz(x-y)(y-z)(z-x)$

(b) Find the inverse of the matrix :

 $A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$

UNIT – II

4. (a) If R is a relation in $N \times N$, defined by (a, b) R (c, d) if and only if a + d = b + c, show that R is an equivalence relation. 8

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(b) Find the domain and range of the following functions: 8

(i)
$$y = \frac{x^2 - 1}{x - 1}, x \neq 1$$

(ii) $y = \sqrt{9 - x^2}$

5. (a) Evaluate :

(i)
$$\lim_{x \to 0} \frac{\tan 3x - 2x}{3x - \sin^2 x}$$

(ii)
$$\lim_{x \to 0} \frac{x^3 \cot x}{x}$$

(ii)
$$\lim_{x \to 0} \frac{1}{1 - \cos x}$$

(b) Discuss the continuity of the function :

$$f(x) = \begin{cases} \frac{3}{2} - x &, \ \frac{1}{2} \le x < 1 \\ \frac{3}{2} &, \ x = 1 \\ \frac{3}{2} + x &, \ 1 < x \le 2 \end{cases}$$

UNIT – III

6. Differentiate the following functions w.r.t. $x: 4 \times 4 = 16$

(i)
$$(x^4 + x)(5x^3 + 6x)$$

(ii) $\frac{x^4 + 1}{x^2 + 1}$
(iii) $\frac{\sin x + \cos x}{\sin x - \cos x}$
(iv) $(\sin^{-1} x)^2$

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P. T. O.

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UNIT – IV

8. Evaluate :

(i)
$$\int \frac{x^4}{x+1} dx$$

(ii)
$$\int \sqrt{1+\sin 2x} dx$$

(ii)
$$\int \sqrt{1+\sin 2x} \, dx$$

(iii)
$$\int \frac{1}{x(1+\log x)^2} dx$$

(iv)
$$\int \frac{dx}{1-6x-9x^2}$$

9. Evaluate :

i)
$$\int x^2 \cos x \, dx$$

(ii)
$$\int \sqrt{x^2 - 4x + 2} dx$$

(iii)
$$\int \frac{x}{(x+2)(3-2x)} dx$$

(iv)
$$\int_{0}^{\frac{\pi}{2}} \log(\tan x) dx$$

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(4)

 $4 \times 4 = 16$

 $4 \times 4 = 16$