B-211

B.C.A. EXAMINATION, May 2015

(Second Semester)

(B. Scheme) (Main & Re-appear)

DIGITAL CIRCUITS & LOGIC DESIGN

BCA-102-B

Time : 3 Hours]   [*Maximum Marks :* 75

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

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. Each of the following arithmetic operations is correct in at least one number system. .

Determine the bases of the numbers in each operation : **15**

(a) 1234 + 5432 = 6666

(b) 41/3 = 13

(c) 33/3 = 11

(d) 23 + 44 + 14 + 32 = 223

(e) 302/20 = 12.1

2. What is advantage of coding ? How the Hamming distance is calculated ? Give the significance of Hamming distance. **15**

Unit II

3. Solve the following boolean expression with the help of KM method : **15**

$$f(A,B,C,D) = \Sigma(0,1,2,3,5,7,11,13) + d(6,9)$$

4. Convert the following in SoP form : **15**

(A'.B.C.)(A.B'.C')(A.B.C'.)(A.B.C.)

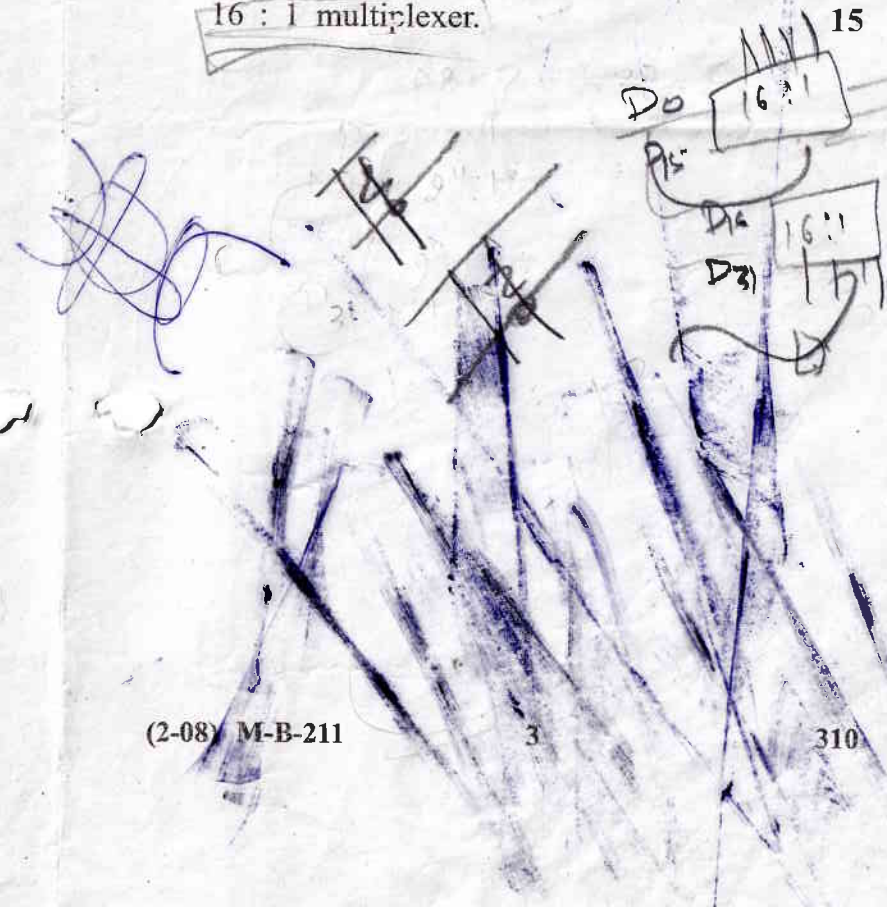## Unit III

5. Prove that NAND gate is a univeral gate. **15**

6. Draw a logic diagram using only two-input NOR gates to implement the following expressions :

(AB + A'B')(CD' + C'D') **15**

Unit IV

7. Design a 4-bit comparator. **15**

8. Design 32 : 1 multiplexer with a help of single 16 : 1 multiplexer. **15**

B-212

B.C.A. EXAMINATION, May 2015

(Second Semester)

(B. Scheme) (Main & Re-appear)

PROGRAMMING IN C

BCA-104-B

Time : 3 Hours]   [*Maximum Marks :* 75

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

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) What do you mean by Modular Programming ? How is it helpful for the programmers ?   **8**

   (b) Differentiate between formatted and unformatted I/O ? Give *two* examples of each.   **7**
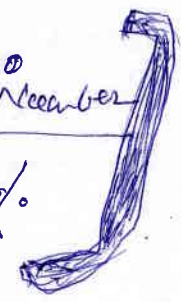
2. (a) What do you mean by Pre-processor directive ? Briefly explain three types of pre-processor directives ? **9**

(b) What is the use of Declarations ? How is declaration different from definition ? **6**

3. (a) Write a program in C to print the multiplication table of n ? Where n is entered by the user ? **8**

(b) With the help of suitable code explain the use of Switch statement ? **7**

4. (a) Write a program using do-while to display the square and cube of first n natural numbers. **8**

(b) What do you mean by Function Prototype ? Explain with suitable examples. **7**

5. (a) Write a program using array to find and print the average of n numbers entered by the user. **8**

(b) What are the storage classes of C variables ? Explain briefly. **5**

6. (a) Differentiate between structure and union with suitable examples. **5**

(b) Write a program in C language to sort the N elements entered by the user in ascending order ? The program should be self-explanatory ? **8**

7. (a) Write a program in C langauge that will read a string from keyboard and find whether the string is a palindrome or not ? **8**

(b) Write a program in C language to print the Fibonacci series upto n terms ? **7**

8. Explain the purpose of the following functions with suitable example and syntax : **5×3=15**

(a) ftell( )

(b) fclose( )

(c) fopen( )

B-213

B.C.A. EXAMINATION, May 2015

(Second Semester)

(B. Scheme) (Main & Re-appear)

MATHEMATICS-II

BCA-106-B

Time : 3 Hours]   [Maximum Marks : 75

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

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) Define the following along with *one* example for each :

Equal sets, Power set, Finite and Infinite sets.

(b) Write down all the subsets of the following sets :

{a}, {a, b}, {1, 2, 3}, {φ} and {1, 2, b, c}

(c) If A = {1, 2, 3, 4}, B = {3, 4, 5, 6}, C = {5, 6, 7, 8} and and D = {7, 8, 9, 10}; find A ∪ C, B ∪ D, A ∩ B, A ∩ (B ∪ C) and A ∪ B ∪ D.   **5+5+5**

2. (a) Let A = {1, 2, 3}, B = {3, 4} and C = {4, 5, 6}. Find A × (B ∩ C), (A × B) ∩ (A × C), A × (B ∪ C) and (A×B) ∪ (A × C).

(b) Define a relation. Let A = {1, 2, 3,....., 14}. Define a relation R from A to A by R = {(x, y) : 3x − y = 0, where x, y ∈ A}. Write down its domain, codomain and range.   **7+8**

3. (a) If x, y, z are different and :

$$\Delta = \begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$$

then show that $1 + xyz = 0$.

(b) Solve, using Cramer's rule :

$$3x - 2y + 3z = 8$$
$$2x + y - z = 1$$
$$4x - 3y + 2z = 4$$ **7+8**

4. (a) Find X and Y if X + Y = $\begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ and

X − Y = $\begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$.

(b) If A = $\begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$, evaluate $A^2 - 5A + I$,

where I is unit matrix.

(a) Find $\dfrac{dy}{dx}$ if $2x + 3y = \sin x$.

(b) Evaluate $\dfrac{dy}{dx}$ if $x = 2at^2; y = at$

(c) Differentiate $y = (x^2 + 1)^2 (1 - 2\tan x)$.   **5+5+5**

6. Evaluate the following : **7+8**

(a) $\int x^2 \log x \, dx$

(b) $\int \dfrac{x^2 + x + 1}{(x+2)(x^2+1)} \, dx$

7. (a) Express $\dfrac{5 + \sqrt{2}i}{1 - \sqrt{2}i}$ in the form $a + ib$.

(b) Convert the complex number $z = -1 + i$ in the polar form.

(c) Find the modulus and argument of the complex number $z = \dfrac{1+i}{1-i}$. **5+5+5**

8. (a) Calculate the mean deviation about median for the following data :

Class	Frequency
0–10	6
10–20	7
20–30	15
30–40	16
40–50	4
50–60	2

(b) Calculate mean, variance and standard deviation for the following distribution :

Class	Frequency
30–40	3
40–50	7
50–60	12
60–70	15
70–80	8
80–90	3
90–100	2

7+8

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B.C.A. EXAMINATION, May 2015

(Second Semester)

(B. Scheme) (Main & Re-appear)

DESKTOP PUBLISHING

BCA-108-B

Time : 3 Hours]   [*Maximum Marks :* 75

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

Note : Attempt *Five* questions in all, selecting at least *one* question from each Section. All questions carry equal marks.

Section A

1. (a)   Discuss the history of early printing.   7

(b) Write a note on the different forms of print media. **8**

2. (a) Discuss the various printing processes. **7**

(b) Compare and contrast letterpress printing and offset printing. **8**

Section B

3. What are the various goals of Design and Visual Communication ? **15**

4. (a) Explain the elements of Design and Visual Communication. **8**

(b) Discuss the emergence of Graphic design as visual communication. **7**

Section C

5. (a) What is meant by Vector Graphics ? Compare it with Bitmap graphics. **8**

(b) What are the different file types in Photoshop ? Explain how are they imported ? **7**

6. (a) Discuss the menu and palettes in photoshop. **7**

(b) How to prepare a letter head ? **8**

Section D

7. (a) Discuss the printing and publishing tools in CorelDraw. **8**

(b) What are the various layout styles in Corel- Draw ? **7**

8. (a) Discuss the standard toolbar in Corel-Draw. **7**

(b) Explain the method of preparing om employee hand book. **8**

B-215

B.C.A. EXAMINATION, May 2015

(Second Semester)

(B. Scheme) (Main & Re-appear)

ENGLISH-II

HUM-502-B

Time : 3 Hours]   [*Maximum Marks :* 75

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

Note : All questions are compulsory.

Unit I

1. Do as directed (attempt any *ten*) :   **10×2=20**
   (a)   Correct/Complete the sentences :
      (i)   If I were a king, I shall ensure the happiness for all.

(ii) When you heat water to 100 degree celsius, it will boil.

(iii) What would you do, if you had missed the train ?

(iv) Do you know the boy.............. mother is a nurse ?

(v) I was invited by the professor ....I met at the conference.

(vi) We visited Paris last September ....we wanted to see the Mona Lisa at the Louvre museum.

(b) Change the voice :

(i) Rakhi has flown a kite.

(ii) When will they have received the letter ?

(iii) It is time to punish the guilty.

(iv) Deposit this draft in the bank.

(v) He has objected to where have left my proposal.

(vi) Where have you left the book ?

Unit II

2. (a) One word substitution : (attempt any four) : 4

(i) One who has special skill in judging art, music, etc.

(ii) One who runs away from the justice or the law.

(iii) One who his is indifferent to pain and pleasure

(iv) One who spends too much.

(v) One who looks on the dark side of the things.

(vi) A hater of marriage.

(b) Write the meaning of the given etymological roots/prefix/suffix, and write the meaning and make a word (attempt any four) : 4×2=8

contra, bio, ambi, mal, hypto, hetero, chron, micro.

(c) Distinguish between the following word by using them in sentences (attempt any *four*) : 4×2=8

complement and compliment, affect and effect, immigrant and emigrant, climactic and climatic, credible and creditable, stationary and stationery.

Unit III

3. **(a)** Transcribe the following into IPA : (any *five*) : 5

    (i) Church

    (ii) Garage

    (iii) Twice

    (iv) Nephew

    (v) Europe

    (vi) University

    (vii) Radio.

(b) Mark primary stress on the following words (any *five*) : 5

    (i) Advantage

    (ii) Symbol

    (iii) Democracy

    (iv) Photograph

    (v) Economics

    (vi) Accident.

(c) Write the weak form of the underlined words (any *five*) : 5

    (i) Why <u>are</u> you making a noise ?

    (ii) I <u>can't</u> do this.

    (iii) How <u>do</u> you do ?

    (iv) Where are you <u>from</u> ?

    (v) We <u>had</u> never seen this before.

    (vi) He <u>is</u> my friend.

(d) Write a dialogue between two friends on the merits and demerits of hostel life. 5

Unit IV

4. **(a)** "Listening is more important than speaking." Do you agree with the statement ? Corroborate answer with appropriate examples. 5

(b) Enumerate different modes of listening. Which one among them is the best mode and why ? 5

(c) Write a review of your favourite TV talk show. 5