A (Printed Pages 4)

(20622) Roll No.

BCA-II Sem.

18006

B.C.A. Examination, June-2022

C Programming

(BCA-202)

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

Section-A

Note : *Attempt all* **five** questions. Each *question carries* **3** marks. Very short answer is required not exceeding 75 words.

1. Explain the need for array variables .
2. Distinguish between automatic and static variables.
3. What is meant by array of structures.
4. What is a pointer? How is a pointer initialized?
5. Describe the use and limitations of the function getc.

P.T.O.

Section-B

Note : Attempt any **two** questions. out of the following **three** questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words.

6. What is a data structure? Why is an array called a data structure? Write a program to read a matrix of size mxn and print its transpose.
7. Describe the three logical bitwise operators what is the purpose of each? What types of operands are required by each of the logical bitwise operators?
8. What is the relationship between an array name and a pointer? How is an array name interpreted when it appears as an argument to a function? How can a function return a pointer to its calling routine?

Section-C

Note : Attempt any **three** questions. out of the following **five** questions. Each question carries **15** marks. Answer is required in detail.

9. (a) Character string in C are automatically terminated by the null character. Explain how this feature helps in string manipulations.

   (b) Main is a user defined function. How does is differ from other uses-defined functions?

10. (a) Compare the working of the function strcat and strncat. Write a program, which read your name from the key board and outputs a list of ASCII codes, which represent your name.

    (b) What are the rules that govern the passing of arrays to function? Use recursive function calls to evaluate

$$f(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + ...$$

11. (a) Explain the meaning and purpose of the following:

    (i) Struct keyword

    (ii) Tyedef keyword

    (iii) Size of operator

    (b) Write a function that receive a sorted array of integers and an integer value, and inserts the value in its correct place.

12. (a) Define auto and register variables in the content of 'C'. What is the basic difference between these two variables?

    (b) Give examples of using feof and ferror in a program.

13. (a) What do you know about bitwise operator? Explain about some bit wise operators by providing the examples for each?

    (b) Define a macro that receives an array and the number of elements in the array as arguments. Write a program using this macro to print out the elements of an array.

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(20622) Roll No.

BCA-II Sem.

18007

B.C.A. Examination, June-2022

DIGITAL ELECTRONICS AND COMPUTER ORGANISATION

(BCA-204)

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

Note : Attempt **all** the Sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt all **five** questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words.

1. Write Demorgan's Laws. 3
2. Differentiate between flip flop and latches. 3

3. Differentiate between combinational logic circuit and sequential circuits. 3
4. Construct half substractor using logic gates. 3
5. Draw the memory hierarchy structure and mark the arrow from low to high (Speed) & high to low (Cost). 3

Section-B

(Short Answer Questions)

Note : Attempt any **two** questions.

6. Minimize the following Boolean function using K-map-. 7½

   $F(A,B,C,D,) = \sum (3,4,5,7,9,13,14,15)$

7. (i) Convert the SR flip flop to JK flip flop draw the truth table of JK flip flop also. 5

   (ii) Implement 4:1 multiplexer using 2:1 multiplexer 2½

8. (i) simplify the expression: 4

$F(A,B,C,D)=ACD+\overline{A}B+\overline{D}$ by K-map.

(ii) How many flip flops are needed to implement a 32 bit register. 3½

Section-C

(Detailed Answer Questions)

Note : Attempt any **three** questions.

9. (i) Which gates are called universal gates and why? 5

(ii) Draw a full substractor circuit using NAND gate. 10

10. What do you mean by shift register? What is the need of shift register? Draw & explain bidirectional shift register. 15

11. Draw and explain 4-bit binary synchronous counter. 15

12. (i) Differentiate between EPROM & EEPROM. 5

(ii) Differentiate between SRAM & DRAM. 5

(iii) Differentiate between L_1 cache & L_2 cache. 5

13. (i) Differentiate between ROM & PROM. 3

(ii) Describe USB. 3

(iii) Differentiate between primary memory and secondary memory. Also list the examples of primary memory and secondary memory. 3

(iv) Explain the concept of Virtual memory. 3

(v) Draw basic cell of memory. 3

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(20622) Roll No.

BCA-II Sem.

18009

B.C.A. Examination, June-2022

FINANCIAL ACCOUNTING AND MANAGEMENT

(BCA-205)

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

Note : Attempt **all** the sections as per instructions. Use of calculator is not prohibited.

Section-A

(Very Short Answer Type Questions)

Note : Attempt all **five** questions. Each questions carries 3 marks. Very short answer is required not exceeding 75 words. 3x5=15

P.T.O.

1. Describe the meaning of Financial Accounting.
2. What do you mean by Double Entry system of Accounting?
3. What is Funds flow statements?
4. Give a list of long term sources of finance.
5. What are the current assets?

Section-B

(Short Answer Questions)

Note : Attempt any **two** Questions out of the following **three** questions. Short answer is required not exceeding 200 words. 7½x2=15

6. Describe in shorts different accounting concept.
7. What is Break even point? Illustrate with an example.
8. Describe Explicit and Implicit costs.

Section-C

(Long answer Type Questions)

Note : Attempt any **three** questions out of the following **five** question. Answer is required in detail. 15x3=45

9. What is a Trial balance ? What type of errors cannot be traced from a Trial Balance?

10. What do you mean by 'Financial' statement? Discuss the importance of financial statements.

11. What do you understand by Capital structure? What are the major determinants of it?

12. "Efficient" cash Management will aim at maximising the cash inflows and slowing cash outflows".Discuss this statement.

13. Describe the principlal ratios, which you consider significant to judge the (i)Profitability, and (ii) solvency of a concern.

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(20622) Roll No. .....

BCA - II Sem.

18010

B.C.A. Examination, June-2022

MATHEMATICS-II

[BCA-201]

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

Note : Attempt **all** the Sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt all the **five** questions. Each question carries 3 marks.

1. Define sets and Universal sets with example.
2. Define *equivalence* Relation and show that the relation $S=\{(a,b):a\geq B\}$ on the set R of real no is an equivalence relation.

P.T.O.

3. Show that the inclusion relation $\subseteq$ is a partial ordering on the power set of a set S.
4. If $Z=e^{xy}$, x=tcost, y=tsint compute $\frac{dz}{dt}$ at $t=\frac{\pi}{2}$.
5. If $\cos\alpha$, $\cos\beta$, and $\cos\gamma$ are the direction cosines of a straight line then prove that $\sin^2\alpha+\sin^2\beta+\sin^2\gamma=2$

Section-B

(Short Answer Type Questions)

Note : Attempt any **two** questions out of the following three questions. Each questions carries 7½ marks.

6. Show that Dual of a complemented lattice is complemented.
7. Find the equations of the straight line drawn through the origin which will intersect both the lines.
   $\frac{x-1}{1}=\frac{y+3}{4}=\frac{z-5}{3}$ and $\frac{x-4}{2}=\frac{y+3}{3}=\frac{z-14}{4}$
8. Show that $f(x,y,z)=(x+y+z)^3-3(x+y+z)-24xyz+a^3$ has maxima at (1,1,1)

Section-C

(Long Answer Type Questions)

Note : Attempt any **three** questions out of the following five questions. Each questions carries 15 marks:

9. Let the function $f: R \to R$ and $g: R \to R$ be defined by $f(x) = 2x$, $g(x) = x + 2 \forall x \in R$.

   (a) Check the function f and g for being.

   (i) One -to-One (ii) Onto

   (b) Find the formulac defining the function fog and gof and obtain the values of (fog) (2) and (gof) (1).

10. (a) If $(L, \leq)$ is a lattice and a,b,c and d $\in L$ then .

   (i) $a \leq b, c \leq d \Rightarrow a \wedge c \leq b \wedge d$

   (ii) $a \wedge (b \vee c) \geq (a \wedge b) \vee (a \wedge c)$

   (b) Show that dual of a lattice is a lattice.

11. (a) Show that $f(xy, z-2x)=0$, satisfies under suitable conditions, the equation $x\frac{\partial z}{\partial x} - y\frac{\partial z}{\partial y} = 2x$. What are these conditions.

   (b) If $z = f\left[\frac{ny-mz}{nx-lz}\right]$ Prove that $(nx-lz)\frac{\partial z}{\partial x} + (ny-mz)\frac{\partial z}{\partial y} = 0$

12. (a) Find the equations of the plane parallel to the plane 2x-3y-5z+1=0 and distant 5 units from the point (-1,3,1).

   (b) Find the equation of the sphere which touches the sphere $x^2+y^2+z^2+2x-6y+1=0$ at (1,2,-2) and passes through the point (1,-1,0).

13. (a) Evaluate the double integral $\int_0^a \int_0^{\sqrt{a^2-x^2}} x^2 y \, dx dy$. Also mention the region of integration involved in this double integral. 15

   (b) Evaluate the following integrals by first converting to Polar co-ordinates

$$\int_1^{-1} \int_{\sqrt{1-x^2}}^{0} \cos(x^2+y^2)\, dx dy$$

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(20622) Roll No

BCA-II Sem.

18008

B.C.A. Examination, June-2022

Organization Behaviour

(BCA-203)

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

Note : Attempt **all** the sections as per instructions.

Section-A

Note : Attempt all questions. 3x5=15

1. Define the term organisational behaviour with respect to cultural diversity?
2. Briefly define the term perception, attitude, values and motivation?
3. Briefly examine the determinants of personality?
4. Enumerate the term conflict resolution?
5. Explain the term Grievances?

P.T.O.

Section-B

Note : Attempt any **two** questions. 2x7.5=15

6. Enumerate traits of effective leaders?

OR

Define the term Grievances. Explain the process of grievances handling?

7. What is intrapersonal relationship?

OR

Define the term motivation. Explain the importance of motivation in employee satisfaction?

8. Explain the concept of Ouchi's theory Z.

OR

Explain the theory behind free-rein leadership style?

Section-C

Note : Attempt any **three** questions. 3x15=45

9. What is hygiene factor of herzberg's motivation theory?
10. How can analyse different reward system as a part of motivation of employees?

11. The human motivation factors of physiological needs are a concept that explains the human requirements of conscious mind. Comment
12. Discuss "conflict can be defined as a mental struggle".
13. Define the term personality and basic determinants of personality. Discuss any one theories of personality from the following.
    (i) Sigmund Freud's Psychoanalytic Theory
    (ii) Erikson's Theory