Q. No.		Question	CLO	Taxonomy Level	PLO	Marks
Q. 01	(a)	Write the name, truth table and expression of the following logic gates: 1 2 3 4 5 6 7	1	C1	2	05
	(b)	Convert the following: 1. $(1101010111100)_c$ to $(100110010 ..)_2$ 2. $(01110001)_2$ to $(010110)_c$ 3. $(68)_{10}$ to $(10011011)_{xs-3}$	1	C1	2	05
Q. 02	(a)	Simplify the following Boolean expressions using 2-variable Karnaugh Map. $\overline{A}B + A\overline{B} + \overline{A}\,\overline{B} = \overline{B} + \overline{A}$ $X + XY = X$	1	C1	2	05
	(b)	What is half adder? Draw a truth table then generate the logic expressions for SUM and CARRY. Draw a logic circuit for half adder from the expressions.	2	C2	4	05

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2ND) 2023, 22-BATCH,

B.E (EL / ACE) / B.S (PH / CS)

SUBJECT: ISLAMIC STUDIES / ETHICS

Dated: 07.09.2023   Maximum Marks: 10   Time Allowed: 45 Minutes,

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		Question	CLO	Taxonomy Level	PLO	Marks
		ISLAMIC STUDIES (FOR MUSLIMS)				
Q. 01	(a)	Write down about the bearing witness of oneness of Allah.	1	C1	6	03
	(b)	Write down the commandments of Surah-Al-Ana'am.	1	C1	6	02
Q. 02	(a)	Describe the all qualities of believers in the light of Surah Furqaan.	1	C2	6	02
	(b)	Write the Surah Hujaraat related to the manners in the respect of Holy Prophet (S.A.W).	1	C2	6	03
		ETHICS (FOR NON-MUSLIMS)				
Q. 01		Write down the brief history of religion Hinduism.	1	C1	6	05
Q. 02	(a)	Mention religious festivals of Hinduism.	1	C2	6	02
	(b)	Write down about the caste system in Hinduism.	1	C2	6	03

Best Wishes

Q. No.	QUESTION	CLOs	Taxonomy Level	PLOs	Marks
Q.01	What is the process of communication. Describe, how some factors affect the process of communication?	1	C2	3	10
Q.02	a) Define the communication and its importance in our daily life.	1	C1	3	05
	b) Define the types of communication and their need at different places.	1	C2	3	05

Good Luck

Dated: 08.09.2023   Maximum Marks: 20   Time Allowed: 01 Hour.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.	Question	CLO	Taxonomy Level	PLO	Marks
Q. 01	Describe the difference between the object-oriented programming paradigm and the procedural programming paradigm. How does the use of classes and objects relate to the principles of OOP, and how does it differ from traditional procedural programming? Summarize your explanation with examples.	1	C1	1	10
Q. 02	Write short answers of the following questions. Use suitable C++ code examples as well. 1. What is a class and an object? How are classes and objects related? 2. What are the access specifiers (public, private, protected), and how do they affect class members? 3. How do you declare a member function in a C++ class, within and outside the class body? 4. What is constructor of a class? And why is it used? Differentiate between default and parametrized constructor. 5. How can you access the member variables and member functions of a class?	1	C1	1	10

The End

SUBJECT: CALCULUS & ANALYTICAL GEOMETRY

Dated: 06.09.2023   Maximum Marks: 20   Time Allowed: 01 Hour.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		Question الالا bla،a،b	CLOs	Taxonomy Level	PLOs	Marks
Q. 01	(a)	Define interval and types of intervals? Solve the following inequalities and show their solution on the real line and intervals. i. $\quad 2x - 1 < x + 3$ ii. $\quad \lvert 2x - 3 \rvert > 5$	1	C1	2	05
	(b)	Define composite function and inverse of function? And given that $f(x) = 3x - 1$ and $g(x) = \dfrac{5x-1}{2}$ are two functions then show that $(f \circ g)^{-1} = g^{-1} \circ f^{-1}$.	1	C1	2	05
Q. 02		Discuss limit of function at finite point and Continuity of function at point "a"? And Find the values of "m" and "n" if $f(x)$ is continuous for all real numbers, $$f(x) = \begin{cases} 2x - 1, & x < -3 \\ 4mx - 3n, & -3 \le x \le 2 \\ 3x, & x > 2 \end{cases}$$ And draw the graph of function.	1	C6	2	10

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2ᴿᴰ SEMESTER), 20-BATCH

B.E (ESE) / B.S (CS)

SUBJECT: COMMUNICATION & PRESENTATION SKILLS

Dated: 12.10.2021   Maximum Marks: 20   Time Allowed: 1 Hour.

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No		CLO	Taxonomy Level	Marks
01	What are the greatest challenges to good communication? Explain with examples.	1	C1	10
02	Describe the role of facial expressions, gestures and pause in communication?	2	C3	10
03	What is meant by communication? Describe the importance of communication in academic life.	1	C3	10

The End

.. .. 11,10,2021   SUBJECT: OBJECT ORIENTED PROGRAMMING

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.
Maximum Marks 20   Time Allowed 1.1 hour.

Q.01 (a) Procedural programming and OOP programming are two ways of thinking about software development and program design. Which approach you will prefer over other and why?

(b) Keeping "humans" in mind as a deity, briefly describe the characteristics of OOP.

Q.02 Do as directed.

A. One acre of land is equivalent to 43,560 square feet. Write a program that calculates and prints the number of acres in a tract of land with 391,876 square feet.

B. There are a number of syntax errors in the following program. Locate as many as you can.

```
#include iostream
using namespace std;
int main();
{
    int a, b, c;
    a = 3
    h = 4
    c = a * b
    Cout < "The value of c is "id" < C;
    return 0;
}
```

C. Assume the variables x = 5, y = 6, and z = 8. Indicate each of the following conditions is true or false:
i.   x == 5 || y > 3
ii. 7 <= x && z > 4
iii. 2 != y && z != 4
iv. x >= 0 | x <= y

D. Convert the following while loop to a do-while loop:
```
int x = 1;
while (x > 0)
{
    cout << "enter a number: ";
    cin >> x;
}
```

E. Write C++ expressions for the following algebraic expressions.
i. $p = \frac{a+b}{a}$
ii. $a = 12x$
iii. $y = 5x + 14y + 6z$
iv. $y = x^4$

Q.03 (a) Describe the difference between cin object, cin.get() and getline() functions.

(b) What is a flag and how does it work?

(c) Write a program that finds smallest and second smallest value from a given array.
int arr[] = {10, 3, 1, 3, 9, 8};

The End

SUBJECT: LINEAR ALGEBRA

Dated: 13.10.2021 _____ Maximum Marks: 20 _____ Time Allowed: 1 Hour.

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Explain determinant with its properties. Also prove that

$$A = \begin{vmatrix} 1 & 1 & 1 \\ \alpha & \beta & \gamma \\ \alpha' & \beta' & \gamma' \end{vmatrix} = (\beta - \gamma)(\gamma - \alpha)(\alpha - \beta)(\alpha + \beta + \gamma)$$

(b) Define inverse of matrix and find the inverse of the following matrices by using elementary row operations.

$$A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 4 & 1 \\ 1 & 3 & 0 \end{bmatrix}$$

Q. 02 (a) Explain each of the following with example (any three):

1. Orthogonal matrix
2. Proper & Improper matrices
3. Periodic matrix
4. Involutory matrix
5. Idempotent matrix

(b) Prove that if A be a Hermitian matrix, its diagonal elements are real and also prove that if A be a skew-Hermitian matrix, then its diagonal elements are either zero or purely imaginary.

Q. 03 (a) If

$$A = \begin{bmatrix} 1 & 1+i & 2+3i \\ 1-i & 2 & -i \\ 2-3i & i & 0 \end{bmatrix} \text{ and } B = \begin{bmatrix} i & 1+i & 2-3i \\ -1+i & 2i & 1 \\ -2-3i & -1 & 0 \end{bmatrix} \text{ then show that}$$

(i) iB is Hermitian,   (ii) $\bar{A}$ is Hermitian,   (iii) B is skew-Hermitian

(b) Show that the matrix

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 5 & 2 & 6 \\ -2 & -1 & -3 \end{bmatrix} \text{ is nilpotent of index 3.}$$

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2nd SEMESTER 2021) 01 BS (CS)

SUBJECT: DIGITAL LOGIC DESIGN
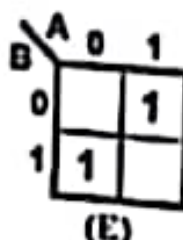
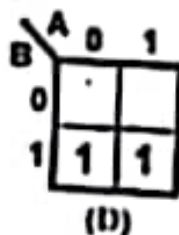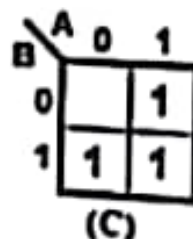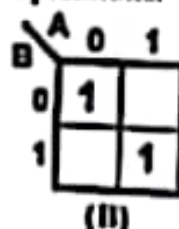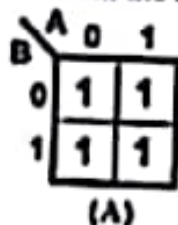Dated: 14.10.2021   Maximum Marks: 20   Time Allowed: 1 Hour

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01   (a)   Convert $(529)_{10}$ to BCD, $(274)_{10}$ to Excess-3 code and Gray Code $(10110010)_2$ to Decimal?

(b)   Define hamming code with the example of error detection and error correction?

Q. 02   Simplify the expressions using Boolean algebra then draw digital circuits for both expressions (original and simplified).

1. $(A+B)(A+C)$
2. $AB + A(B+C) + B(B+C)$
3. $\overline{AB}(\overline{A}+B)(\overline{B}+B)$

Q. 03   What is Karnaugh Map?

(b) Create simplified expressions from the given Karnaugh Maps then draw digital circuits from the Boolean expressions:

(A)   (B)   (C)

(D)   (E)

The End

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

MID-SEMESTER EXAMINATION OF SECOND SEMESTER – FIRST YEAR (2nd SEMESTER) 20 BATCH

B.E (EL / CS / SE) / B.S (IT / CS)

SUBJECT: ISLAMIC STUDIES / ETHICS

Dated: 15.10.2021   Maximum Marks: 10   Time Allowed: 45 Minutes,

NOTE: ATTEMPT ANY TWO (02) QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

ISLAMIC STUDIES

Q. 01   Write down the Surah Hujrat related to the manners in the respect of Prophet S.A.W and describe the actions which indicate the betterment for society.

Q. 02   Describe the qualities of believers in the light of Surah Furqan.

Q. 03   Write down the commandments of Surah Al-Ana'am and describe the qualities of believers in the light of Surah Al-Momnoon as well.

ETHICS (FOR NON-MUSLIMS)

Q. 01   Write down the life history of Gotham Buddha.

Q. 02   Describe the value of Ethics in all religions.

Q. 03   Write down about the religion Hinduism and describe its holy days and festivals.

SUBJECT: COMMUNICATION & PRESENTATION SKILLS

Dated: 03.12.2021   Maximum Marks: 60   Time Allowed: 3 Hours.

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		CLO	Taxonomy Level	Marks
01	Define non-verbal communication and discuss the various types of non-verbal communication.	1	C1	12
02	What is communication? Explain the barriers to communication with suitable examples.	3	C1	12
03	State in detail the significance of Presentation Skills in your academic as well as professional life. Give a detailed account of the components of Presentation with suitable examples.	3	C3	12
04	Explain the 7C's of effective communication in detail.?	2	C3	12
05	How can a good communicator improve his/her reading comprehension? Give a detailed description of the significance of reading comprehension.	3	C3	12

—The End—

Dated: 06.12.2021   Maximum Marks: 60   Time Allowed: 2 Hours

NOTE: ATTEMPT ALL QUESTIONS.

Q. 01   Do as directed: 20

1. Define following statement.
   void Circle : : getRadius ()
2. Differentiate between *instance* and *static* class members.
3. Write a short code that demonstrates single inheritance
4. What is the difference between the following *Person* structure and *Person* class?

   struct Person
   {
       string name;
       int age;
   };
   class Person
   {
       string name;
       int age;
   };

5. What is a *mutator* function? What is an *accessor* function?

Q. 02 (a) Justify the concept "overloading avoids redundant code". What are various advantages associated with function overloading.   04

(b) Write an overloaded *addition* function program in C++ for adding 2 integers and 2 doubles. The program must ask for input from user, when he/she inputs integer or double values, relevant function should be called to perform the addition.   06

Q. 03 (a) Explain 2D arrays. How are the elements of 2D array read and stored in memory?   04

(b) Consider following 2D array, write a C++ program that calculates average of marks secured by 5 students.   06

   int grades [5] [5] = { { 95, 85, 90, 89, 91 },
                          { 79, 89, 95, 80, 91 },
                          { 80, 64, 58, 89, 73 },
                          { 56, 77, 78, 81, 67 },
                          { 72, 86, 69, 78, 82 } };

Q. 04 (a) What is the use of constructor and destructor in C++?   04

(b) Write a class declaration named *Circle* with a private member variable named *radius*. Write *set* and *get* functions to access the *radius* variable, and a function named *getArea* that returns the area of the circle. The area is calculated as 3.14159 * radius * radius.   06

Q. 05   Write short notes on any three of the following.   10

1. Stub and Drivers   2. Nested structures   3. Friend function
4. Exit function   5. Multiple Inheritance with example

Good Luck

QUAID-E-AWAM UNIVERSITY OF ENGINEERING, SCIENCE & TECHNOLOGY, NAWABSHAH

FINAL SEMESTER REGULAR EXAMINATION OF SECOND SEMESTER – FIRST YEAR 2019 OF 20 BATCH B S (CS)

SUBJECT: DIGITAL LOGIC DESIGN

Maximum Marks: 60   Time Allowed: 3 Hours.

Dated: 13.12.2021

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01   Simplify the following Boolean expressions using 4-variable Karnaugh   **12**
Maps? Draw a logic circuit diagram for simplified Boolean expression?

1. $ABD + \bar{A}\bar{B}\bar{C}\bar{D} + A\bar{B} + \bar{C}\bar{D}$

2. $A\bar{B} + \bar{A}\bar{C} + A\bar{B}\bar{C} + A\bar{C}D$

3. $BCD + \bar{B}\bar{C} + A\bar{B}\bar{C}D + \bar{B}\bar{D}$

Q. 02   What do you mean by Full-Adder? Design its combinational logic   **12**
circuit by using truth table and its Boolean expressions?

Q. 03   Explain Encoder? Draw a logic diagram of Decimal to BCD Encoder   **12**
through its truth table and Boolean expression?

Q. 04✓   What is Multiplexer and De-multiplexer, define in detail?   **12**

Q. 05   Elucidate Flip Flop? Define SR-Flip Flop with its truth table, Boolean   **12**
expression, and logic diagram? What is the difference between SR and
RS-Flip Flop?

Good Luck

NOTE: ATTEMPT ALL QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. 01 (a) Discuss on homogeneous system of linear equation and solve the following system of homogeneous equations (m = n)

$$x + y + z = 0, \quad 4x + 5y + 2z = 0, \quad 2x + 3y + 3z = 0$$

(b) Explain linearly dependent and independent vectors and prove that the vectors

$$r_1 = (1, 2, -3), \quad r_2 = (1, -3, 2), \quad v_3 = (2, -1, 5) \text{ in } V_3(R) \text{ are linearly dependent.}$$

Q. 02 (a) A zoo charges $6 for adults, $3 for students, and $0.50 for children. One morning 79 people enter and pay a total of #207. Determine the possible numbers of adults, students and children.

(b) In a certain part of the city two sets of one way streets intersect as shown in the figure.

The average hourly volume of traffic entering and leaving this part during such hours is given in the figure. Determine the amount of traffic between each of the four junctions.
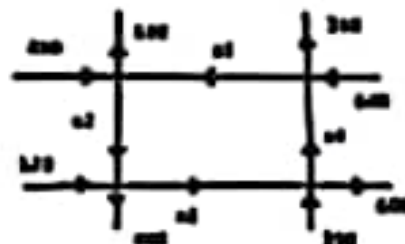
Q. 03 (a) Explain triple scalar product with its geometric property and find the volume of the parallelepiped having $u = 3i - 5j + k$, $v = 2j - 2k$ and $w = 3i + j + k$ as adjacent edges.

(b) A weight of 450 pounds is supported by three ropes. As shown in figure, the weight is located at $S(0, 2, -1)$. The ropes are tied to the points $P(2, 0, 0)$, $Q(0, 4, 0)$ and $R(-2, 0, 0)$. Find the force (or tension) on each rope.