DAWOOD UNIVERSITY
OF ENGINEERING & TECHNOLOGY

CS-1103-DIGITAL LOGIC DESIGN (THEORY)

DATED 10-04-2025   **TIME ALLOWED 45 MINUTES**   **MAX. MARKS 15**

Student Name: _____   **Student Id Number:** _____

Instructions:
1. This paper contains **02** questions.
2. Use of Calculator is _____ (allowed / not allowed)
3. Cheating of any type will disqualify the candidate.
4. Do not detach the sheets. (Paper will be cancelled, if the sheets are detached).
5. Write your answers in ink. For drawing pencils may be used.
6. The work must be neat & clean.
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**NOTE: - ATTEMPT ALL THE FOLLOWING QUESTIONS**

Q # 01 Given a three-input logic circuit with inputs **X, Y, Z**, determine the Boolean expression that ensures the output **F** is high when a majority of the inputs are high.   [CLO-1, C-2, 7.5]

I.   **Deconstruct** the truth table for the given inputs and output conditions.
II. **Categorize** the types of logic gates required to implement the circuit.
III. **Illustrate** the circuit diagram based on Boolean expression.
IV. **Justify** the design choices in terms of efficiency and practical implementation.

Q # 02(a) Analyze the given Karnaugh map and deconstruct the product term. Differentiate essential grouping and determine the minimized SOP expression. Justify how the selected grouping optimize the logic expression for efficiency.   [CLO-2, C-4, 02]

Q # 02(b) Examine the sequential behaviour of a 4-bit SIPO shift register and clock signal in Figure. Deconstruct the sequential changes in each flip-flop state. Differentiate the shifting behaviour at each clock pulse. Illustrate the corresponding Q waveform showing waveforms of Q_0, Q_1, Q_2, and Q_3 step by step and justify the impact of initial conditions (**all 1s**) and discuss potential practical applications of the SIPO shift register in digital systems.   [CLO-2, C-4, 5.5]
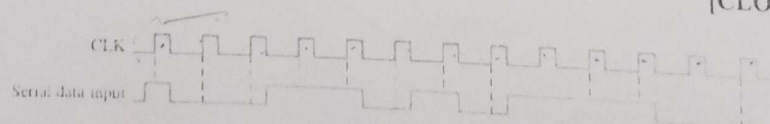
Stay confident, and best of luck!

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
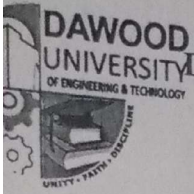
MIDTERM EXAMINATION OF B.S. CYBER SECURITY
2nd Semester 1st Year Batch 2024F, 2025

COMMUNICATION SKILLS (THEORY)

DATED: 12-04-2025
(12:00pm)
MAX. MARKS 15

TIME ALLOWED: 45 MINUTES

Student Name : _____   **Student Id Number :** _____

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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS.

Q # 01 **Describe** Communication Skills, also elaborate Verbal Communication and Non- Verbal Communication and their types, providing relevant examples.   Marks-08
(CLO-1, PLO-10, C-02)

Q # 02 **Compare** and Explain the Barriers in Communication, highlighting the distinctions among Linguistic, Cultural, Physical, Physiological, Psychological, and Technical Barriers in effective Communication.   Marks-07
(CLO-2, PLO-10, C-04)

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

IID SEMESTER EXAMINATION 2025 OF SECOND SEMESTER FIRST YEAR (2nd SEMESTER) (2024F BATCH) OF B.S. (CYBER SECURITY)

OBJECT ORIENTED PROGRAMMING (THEORY)

DATED 11-04-2025   TIME ALLOWED 90 MINUTES   MAX. MARKS 30

Student Name: _____   Student Id Number: _____
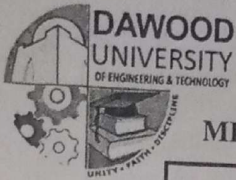
Instructions:
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		CLO Assessed	Taxonomy Level	Marks
01	a) **Discuss** the importance of method overloading in Java and provide an example. b) **Discuss** the difference between bitwise and logical operators in Java.	CLO-2	C3	[8]
02	a) **Explain** why Java uses float and double for decimal values instead of int. b) **Explain** the use of access modifiers (public, private, protected) in Java.	CLO-2	C3	[8]

03	a) **Create** a Java class `Student` with attributes `name`, `roll number`, and `marks`. Implement a constructor and a method to display the student details.
	
	 b) **Write** a Java program to print the following pattern using nested loops:
	 `1`
	 `1 2`
	 `1 2 3`
	 `1 2 3 4`
	 `1 2 3 4 5`
	
	 c) **Write** a Java program to find the sum of all even numbers from 1 to 100.
		CLO-2	C3	[7]

a) **What** will the output of the following program be?

```java
public class IfElseTest {
    public static void main(String[] args) {
        int num = 15;
        if (num % 2 == 0)
            System.out.println("Even");
        else if (num % 3 == 0)
            System.out.println("Divisible by 3");
        else
            System.out.println("Odd");
    }
}
```

b) **What** will be the output of the following Java program?

```java
public class NestedLoop {
    public static void main(String[] args) {
        for (int i = 1; i <= 3; i++) {
            for (int j = 1; j <= i; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }
}
```

04   CLO-2   C3   [7]

c) **What** will be the output of the following Java program?

```java
public class ArrayExample {
    public static void main(String[] args) {
        int arr[] = {10, 20, 30, 40, 50};
        System.out.println(arr[1] + arr[3] - arr[0]);
    }
}
```

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
MIDTERM EXAMINATION OF 2025 B.S CYBER SECURITY 2nd Semester 1st Year 2024/F

DAWOOD
UNIVERSITY
OF ENGINEERING & TECHNOLOGY

Linear Algebra (THEORY)

DATED: 08-04-2025   **TIME ALLOWED: 90 MINUTES**   **MAX. MARKS: 30**

Student Name: _____   Student Id Number: _____

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NOTE: ATTEMPT ALL THE FOLLOWING QUESTIONS.

1. **Identify** whether the given statements are valid or not. If not, restate the correct one.
   a. $\sin 2 + xy = 1$ defines a linear equation.
   b. Order of the matrix $[2 \quad -1 \quad 0]$ is 1x3
   c. A system of linear equation is called consistent if it has no solution.
   d. In matrices, if $A^3 = A$ the period of A is 2.

   (CLO-1, Level I, PLO-1, 8 Marks)

2. a) A cybersecurity company is designing a secure communication system. The stability of the encryption algorithm is determined by the determinant of the given encryption matrix, If, $\det(M) \neq 0$, the encryption system is stable. **Recognize** if the system is secured and stable.

   $$M = \begin{bmatrix} 1 & 4 & -1 \\ -1 & 1 & 5 \\ 0 & 0 & 3 \end{bmatrix}$$

   (CLO-1, Level I, PLO-1, 4 Marks)

   b) **Partition** matrix M to order 3x1.   (CLO-1, Level I, PLO-1, 3 Marks)

3. A cybersecurity analyst is investigating four user accounts on a system to detect potential brute-force attacks. The system logs the total number of failed log-in attempts across these four accounts in one hour, which amounts to 500 failed attempts.

   The analyst observes the patterns listed in the augmented matrix as:

   $$\begin{bmatrix} 1 & 1 & 1 & 1 \\ 1 & -1 & 0 & 0 \\ 0 & -2 & 1 & 0 \\ -1 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} w \\ x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 500 \\ 50 \\ 0 \\ -20 \end{bmatrix}$$

   a) **Measure** the number of failed log-in attempts for each account.

   (CLO-2, Level IV, PLO-2, 5 Marks)

   b) **Examine** whether the coefficient matrix is invertible or not.

   (CLO-2, Level IV, PLO-2, 3 Marks)

4. In a real-world cybersecurity scenario, monitoring firewall logs is crucial for detecting and mitigating cyber threats. Identifying which firewall is handling more intrusion attempts can help IT security teams optimize security resources, adjust firewall rules, and prevent security breaches effectively. A cybersecurity team is monitoring three firewalls to track potential intrusion attempts made by malicious actors. The total number of intrusion attempts recorded by all three firewalls in one hour is 300.

The firewalls operate under the following conditions:
- Firewall 1 records 10 more intrusion attempts than Firewall 2.
- Firewall 3 records twice the number of intrusions attempts as Firewall 2.

If x = Number of intrusion attempts recorded by Firewall 1, y = Number of intrusion attempts recorded by Firewall 2, z = Number of intrusion attempts recorded by Firewall 3.

a) **Outline** a system of linear equations intrusion attempts recorded.

(CLO-2, Level IV, PLO-2, 5 Marks)

b) **Measure** the trace of the coefficient matrix.   (CLO-2, Level IV, PLO-2, 2 Marks)

THE END

ISLAMIC STUDIES (THEORY)

TIME ALLOWED   45 MINUTES   MAX. MARKS 15

DATED 07-04-2025

Student Id Number : _____

Student Name : _____

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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS.

Question # 1 (Level-I, CLO-1, PLO-8)

Question No. 1. Give a short answer to each of the following. (Marks:7)

سوال نمبر :1-مندرجہ ذیل مین سے ہرایک کے مختصر جواب دیجیے۔

i. Who is the guardian of the Holy Quran?

(1)قرآن مجید کامحافظ کون ہے؟

ii. What are the meanings of the Quran?

)قرآن مجیدکے کیا معنی ہیں ۔؟

iii. The Holy Quran was revealed in the language/dialect (Qeerat) of the people of which region?

)قرآن مجید کس علاقے کی قراء ت میں نازل ہوا؟

iv. In which month was the Holy Quran revealed?

)قرآن مجید کون سے مہینے میں نازل ہوا؟

v. On whose heart was the Holy Quran revealed?

)قرآن مجید کس کے قلب پرنازل ہوا؟

vi. What is the name of the angel who brought the Holy Quran?

)قرآن مجید نازل کرنے والے ملک(فرشتے) کا کیا نام ہے؟

vii. Surah Al-Fatihah is the Surah of which number in the Holy Quran?

)سورۃ الفاتحہ ،قرآن مجید کی کون سے نمبرکی سورہ ہے ؟

viii. Surah An-Nas is the Surah of which number in the Holy Quran?

)سورۃ الناس ،قرآن مجید کی کون سے نمبرکی سورہ ہے ؟

ix. How many Surahs are there in the Holy Quran?

)قرآن مجید میں کل کتنی سورتیں ہیں۔؟

x. By whose order was the Holy Quran first written?

) سب سے پہلے قرآن مجید کس نے لکھوایاتھا"

xi. How many scribes of revelation are generally mentioned?

عمومی طور پر کاتبانِ وحی اصحاب کی کل کتنی تعداد بیان کی جاتی ہے؟ (

xii. Who advised Syedna Siddique Akbar to make more copies of th Quran?

سیدنا صدیق اکبر کو قرآن مجید کی مزید کاپیاں بنانے کا مشورہ کس شخصیت نے دیا تھا؟)

xiii. Who unified everyone on one Quraishi recitation?

سب لوگوں کو ایک قریشی قراءت پر جمع کرنے والے شخص کا نام بتائیں۔؟)

xiv. According to the research of Dr. Hamidullah, during whose era did th regular use of dots in Arabic script begin?

ڈاکٹر حمید اللہ کی تحقیق مطابق عربی خط میں نقطے لگانے کا باقاعدہ آغاز کس کے عہد میں ہوا؟)

Question # 2 (Level-I, CLO-1, PLO-8)

2(a). Give a short answer to each of the following. (Marks:6)

سوال نمبر 2:(الف)۔مندرجہ ذیل میں سے ہر ایک کے مختصر جواب دیجیے۔

(i) What is the Surah number of Surah Al-Hujurat?

سورۃ الحجرات ، کا سورت نمبر کیا ہے۔؟

(ii) How many verses are there in Surah Al-Hujurat?

سورۃ الحجرات ،میں کل کتنی آیات ہیں۔ ؟

(iii) In which verse number of Surah Al-Hujurat does the word "Hujurat" appear?

لفظ "الحجرات"سورۃ الحجرات کی کون سے نمبر کی آیت میں آیا ہے۔؟

(iv) What are the commands mentioned in the first five verses of Surah Al-Hujurat?

سورۃ الحجرات ،کی ابتدائی پانچ آیات میں کیا احکامات بیان کیے گئے ہیں۔؟

(v) What happens when one raises one's voice in the presence of the Messenger of Allah ?Explain in the light of Surah Al-Hujurat?

محمد رسول اللہ ﷺ کی بار گاہ میں آواز بلند کرنے سے کیا ہوتا ہے سورۃ الحجرات کی روشنی میں بیان کریں۔؟

(vi) How many rewards have been announced to those who honor and respect the Messenger of Allah (peace and blessings of Allah be upon him)?

جو محمد رسول اللہ ﷺ کا ادب کرنے والوں کے لیے کتنے انعامات کا مژدہ سنایا گیا ہے۔؟

(vii) If a sinner brings news against someone, what is the Shariah status of that news?

فاسق کی خبر شرعی حیثیت کیا ہے۔؟

(viii) What is meant by the word "Taiftan"?

طائفتن سے کیا مراد ہیں۔؟

(ix) What is the backbiter likened to?

are the believers to one another?

مؤمن ایک دوسرے کے لیے...؟

(xi) What is the standard of honor in the sight of Allah, the Lord of the Worlds?

اللہ رب العالمین کے نزدیک عزت کا کیا معیار ہے۔؟

(xii) Who is the true believer?

حقیقی مؤمن کون ہے۔؟

2(b) Answer in the light of Hadith Sharif. (Marks:2)

سوال نمبر :2(ب)حدیث شریف کی روشنی میں جوابات دیجیے۔

(i) Who is the real wrestler?

اصلی پہلوان کون ہے۔؟

(ii) How many signs of a hypocrite are mentioned in Hadith Sharif?

حدیث شریف میں منافق کی کتنی نشانیاں بیان کی گئی ہیں۔؟

(iii) Through which part of our body does Allah, the Lord of the Worlds, test the sincerity of our actions?

اللہ رب العالمین ہمارے جسم کے کس عضوء سے ہمارے اعمال کے اخلاص کو جانچتا ہے؟

(iv) What should one like for his believing brother?

اپنے مؤمن بھائی کے لیے کیا چیز پسند کرنی چاہیے؟

ETHICS

(Marks: 3)

Question # 1 (Level-I, CLO-1, PLO-8)

Q1. Introduction to the sacred books of Hinduism.

سوال نمبر-1: ہندومت کی کتب مقدسہ کا تعارف:

Question # 2 (Level-I, CLO-1, PLO-8)

Q.2: Give short answers to the following:

سوال نمبر-2:مندرجہ ذیل کے مختصر جوابات دیجیے: (Marks:3.)

i. Gita as a Holy Book.

(الف) گیتا بحیثیت کتاب مقدس: (Marks:3.)

ii. Authorship of the Gita and edit.

(ب) گیتا کی تصنیف و تدوین: (Marks:3.)

iii. Translations of the Gita.

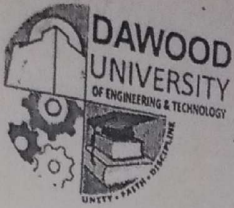(ج) گیتا کے تراجم: (Marks:3.)

iv.Moral teachings of the Gita.

(د) گیتا کی اخلاقی تعلیمات:

PAKISTAN STUDIES (THEORY)

DATED 09-04-25   **TIME ALLOWED   45 MINUTES**   **MAX. MARKS 15**

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Student Name: _____

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Q.01: (a) Ideology of Pakistan is Ideology of Islam. **Explain** your views with the reference of factors of Ideology of Pakistan.

(CLO # 01, LEVEL #C-2, PLO#06)   (Max. Marks: 04)

(b)"Pakistan is economically poor but geographically rich." **Interpret** your views in the light of mentioned statement.

(CLO# 01, LEVEL# C-2, PLO#06)   (Max. Marks: 04)

Q.02: (a) **Discuss** the formation and dissolution of first constituent assembly of Pakistan.

(CLO# 02, LEVEL# C-2, PLO#06)   (Max.Marks: 04)

(b) **Explain** the main reasons of downfall of Gen. Ayub khan's Govt.

(CLO# 02, LEVEL# C-2, PLO#06)   (Max. Mark 03)

THE END