DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
FINAL EXAMINATION OF BS CYBER SECURITY & ARTIFICIAL INTELLIGENCE
2ND SEMESTER, 2ND YEAR, 2024/F BATCH OF 2025

PAKISTAN STUDIES (THEORY)

DATED 20-06-2025 **TIME ALLOWED 02 HOURS** **MAX. MARKS 25**

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

Instructions:

1. This paper contains **03** questions.
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9. The Answer Script must be returned back to invigilator before leaving exam hall.

NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS.

Q # 01: (a) In the history of establishment an Islamic society in the Sub-continent Mughal Rulers are recognized as the Architect of an Islamic culture". **Describe** the role of prominent Mughal rulers who did the historical efforts.

(CLO#01, LEVEL#C1, PLO#12) (MARKS: 05)

(b) "After advent of British Government in the sub-continent Muslims raised their voice to establish a separate state". **Indicate** the main reason related to this statement.

(CLO#01, Level C1, PLO#12)

(Marks: 04)

Q # 02(a) **Explain** the Foreign Policy.

(CLO#02, Level#2, PLO#12) (Marks: 02)

(b) Every state design its foreign policy on its National interests rejecting feelings and emotions, why did Pakistan prefer emotions, feelings and ideology in its foreign policy? **Discuss** the facts and impacts behind this.

(CLO#02, LEVEL#02, PLO#12)

(Marks: 06)

Q # 03 :(a) **Discuss** the main features of constitution of Pakistan 1973 after 18th amendment.

(CLO#02, LEVEL#02, PLO#12)

(Marks: 04)

(b) United Nation declared in its universal declaration that "Human Rights are the universal right of every Human." **Analyse** the current actions of the Israel in the light of above stated statement.

(CLO#02, LEVEL#04, PLO# 12)

(Marks: 04)

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

FINAL SEMESTER EXAMINATION 2024 OF 2nd SEMESTER 1st YEAR (2024F BATCH) OF B.S. (CYBER SECURITY)

COMMUNICATION SKILLS (THEORY)

DATED 28-06-2025 **TIME ALLOWED 2 HOURS** **MAX. MARKS 25**

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	PLO Assessed	Marks
01	Define the fundamentals of communication, also answering the following: a) Discuss why empathy is essential in interpersonal exchanges. b) Describe the key conversational skills—including clarity, engagement, and turn-taking—that contribute to effective dialogue. c) Explain the role of active listening in communication. Illustrate how techniques such as the power of pause and introspection enhance understanding. Provide relevant examples.	CLO-1	PLO-7	[09]
02	Detail and analyze the **Seven C's of Effective Communication**. For each principle—**Completeness, Clarity, Conciseness, Compactness, Consideration, Courtesy**, and **Concreteness**—provide: Your answer must have: i. A clear definition ii. A brief example illustrating its application in both verbal and written contexts iii. The potential impact on message effectiveness when the principle is ignored	CLO-2	PLO-10	[08]

03	**a)** Define a **letter** as a formal means of communication. Identify and explain its essential structural components (e.g., heading, salutation, body, complementary close, signature). **b)** Distinguish between the following types of letters. For each, define its purpose, structure, tone, and provide a short illustrative outline: i. **Sales Letter** ii. **Inquiry Letter** iii. **Complaint Letter** iv. **Recommendation Letter** v. **Cover Letter** vi. **Good News / Bad News Letter**	**CLO-1**	**PLO-7**	**[08]**

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
FINAL TERM EXAMINATION OF 2025 B.S CYBER SECURITY 1ST YEAR 2ND SEMESTER
2024/F

Linear Algebra (THEORY)

DATED: 18-06-2025 **TIME ALLOWED: 3 HOURS** **MAX. MARKS: 50**

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

Instructions:

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NOTE: ATTEMPT ALL THE FOLLOWING QUESTIONS

1) In a system log, user behavior is recorded across three services: Web, Email, and File Storage. Each user's activity is represented as a vector, with entries indicating the number of actions taken in each service. $v_A = (3,0,1)$ and $v_B = (1,2,0)$

   a) **Indicate** the dot product of both vectors. (CLO-1, PLO-1, C1, 5 Marks)

   b) **Identify** the unit vector of v_B (CLO-1, PLO-1, C1, 5 Marks)

2) a) Security analysts track known threat signatures as feature vectors. Suppose a new threat vector A_3 is discovered. Can this threat vector A_3 be **breakdown** as a linear combination of two known signatures A_1 and A_2? (CLO-2, PLO-2, C4, 5 Marks)

$$A_1=\begin{bmatrix}1\\0\\2\end{bmatrix}\ A_2=\begin{bmatrix}0\\1\\1\end{bmatrix}\ A_3=\begin{bmatrix}2\\1\\5\end{bmatrix}$$

   b) In a cybersecurity threat simulation, a malware propagation graph is modeled using a transition matrix A. Each entry in matrix A represents the number of possible malware infection pathways between different systems or nodes in a network. **Detect** any one eigen value of given malware propagation matrix. (CLO-2, PLO-2, C4, 5 Marks)

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

3) In designing a machine learning model for anomaly detection in cybersecurity, each system log entry is encoded as a 2-degree polynomial, capturing features such as: number of failed login attempts, unusual file access events, network usage spikes. Over time, thousands of such log entries are collected. To improve the efficiency and accuracy of your model, you want to reduce redundancy in these feature vectors by identifying a minimal set of basis vectors that still span the entire space of observed behaviors. In S there are three typical log feature vectors collected from different time intervals: $S = \{(1 + 2x + 3x^2), (2 + 4x + 6x^2), (1 + x^2)\}$

a) **Transform** the system into matrix notation. (CLO-2, PLO-2, C4, 5 Marks)

b) **Analyze** whether these three log vectors form a basis for P (2).

(CLO-2, PLO-2, C4, 5 Marks)

4) In a user behavior analytics (UBA) system, each user's digital activity in a network is modeled as a 2D vector, where: V_1: number of authentication attempts and V_2: amount of data accessed. To assess risk, a transformation function $TT(V_1, V_2) = (V_1 - V_2\,,\ 2V_1 - V_2)$ is applied to these vectors to produce a behavioral risk vector, which highlights anomalous or risky combinations of behaviors.

a) **Detect** the image of $V = (-1,2)$ (CLO-3, PLO-2, C4,5 Marks)

b) **Examine** the pre image of $W = (-1,11)$ (CLO-3, PLO-2, C4,5 Marks)

5) In classical encryption techniques, a cryptogram (encoded message) is created by multiplying plaintext letter vectors by a key matrix. Each letter of the alphabet is assigned a number (space=0, A = 1, B = 2, C=3 ..., Z = 26), and groups of letters are represented as column vectors. **Analyze** the inverse of matrix A to decode the given cryptogram. (CLO-3, PLO-2, C4,10 Marks)

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

Cryptogram: 13 -26 21 33 -53 -12 18 -23 -42 5 -20 56 -24 23 77

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

FINAL SEMESTER EXAMINATION 2024 OF 2st SEMESTER 1st YEAR (2024F BATCH) OF B.S. (CYBER SECURITY) (A3)

OBJECT ORIENTED PROGRAMMING (THEORY)

DATED 26-06-2025 **TIME ALLOWED 3 HOURS** **MAX. MARKS 50**

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

Instructions:

1. This paper contains **05** questions.
2. Use of Calculator is _____ (allowed / not allowed)
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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS.

Q. No.		CLO Assessed	PLO Assessed	Marks
01	**Write** a detailed paragraph explaining encapsulation, inheritance, polymorphism, and abstraction. Support your answer with real-world examples or Java classes to show their application.	CLO-1	PLO-1	[10]
02	**Describe** how Java supports single inheritance using the `extends` keyword. Discuss how child classes inherit methods and properties from parent classes, and how this leads to reusable and modular code.	CLO-2	PLO-2	[10]
03	**Discuss** method overloading (compile-time) and method overriding (runtime). Explain how Java resolves method calls at compile-time and runtime using these mechanisms.	CLO-2	PLO-2	[10]
04	**Explain** the idea of hiding internal object details using `private` access modifiers and exposing access through `public` getter and setter methods. Discuss its importance in large-scale applications.	CLO-2	PLO-2	[10]
05	You are required to **write** a Java program that generates the following output: === Animal Sounds === Dog: Woof! Cat: Meow! Cow: Moo! === Calculator Operations === Sum of 10 and 20 is: 30 Sum of 5.5 and 4.5 is: 10.0 Concatenation of Hello and World is: HelloWorld	CLO-3	PLO-3	[10]

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI

FINAL SEMESTER EXAMINATION 2025 OF 2nd SEMESTER 1st YEAR(2024F BATCH) OF B.S. CYBER SECURITY(A-3)

ISLAMIC STUDIES (THEORY)

DATED 16-06-2025 **TIME ALLOWED 2 HOURS** **MAX. MARKS 25**

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

Instructions:

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NOTE; - ATTEMPT ALL THE FOLLOWING QUESTIONS.

Q. No.		CLO Assessed	PLO Assessed	Marks
01	Translate and explain one of the following parts. مندرجہ ذیل میں سے کسی ایک جز کا ترجمہ و تشریح کیجیئے۔ (i)وَإِذَا خَاطَبَهُمُ الْجَاهِلُونَ قَالُوا سَلَامًا۔ (ii)وَالَّذِينَ لَا يَدْعُونَ مَعَ اللَّهِ إِلَٰهًا آخَرَ۔ (iii)وَلَا يَقْتُلُونَ النَّفْسَ الَّتِي حَرَّمَ اللَّهُ إِلَّا بِالْحَقِّ۔ (iv)وَالَّذِينَ لَا يَشْهَدُونَ الزُّورَ۔	CLO-1	PLO-8	[05]
02(A)	Explain the belief in monotheism and give its Quranic evidence.Or Explain the belief in Prophethood and prove that the Prophet Muhammad(peace be upon him) is the last Prophet of Allah. عقیدہ توحید کی وضاحت کیجیئے اور اس کے قرآنی دلائل دیجیئے۔ یا عقیدہ رسالت کی وضاحت کرتے ہوئے ثابت کیجیئے کہ جناب محمدرسول اللہ ﷺ کے آخری نبی ہیں۔	CLO-2	PLO-6	[05]
02(B)	Explain Salat(Prayer) in the light of the Holy Quran.Or define Jihad and write its types. صلوٰۃ(نماز)کو قرآن مجید کی روشنی میں بیان کیجیے۔ یا جہاد کی تعریف بیان کرتے ہوئے اس کی اقسام تحریر کیجیئے۔	CLO-2	PLO-6	[05]
03	Describe the life of the Prophet Muhammad (peace be upon him) in Mecca.And prove that he was endowed with a high level of honesty and integrity.Or The Prophet Muhammad (peace be upon him) gave equal rights to all human beings in the state of Medina. Explain. محمدرسول اللہ ﷺ مکی زندگی کواس طرح بیان کریں کہ آپ ﷺ کی صفت صادق وامین کی وضاحت ہوجائے یا۔ محمد رسول اللہ ﷺ نے ریاست مدینہ میں تمام انسانوں کومساوی حقوق عطا فرمائے۔ وضاحت کیجیے	CLO-2	PLO-6	[10]

THE END

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY

FINAL SEMESTER EXAMINATIONS-2025 OF 02nd SEMESTER, 1st YEAR, BATCH-2024F
B.S-CYBER SECURITY

CS-1103-DIGITAL LOGIC DESIGN (THEORY)

June 24 2025 **TIME ALLOWED** 120 MINUTES **MAX. MARKS** 25

Student Name: **Student Id Number:**

Instructions:

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NOTE: - ATTEMPT ALL THE FOLLOWING QUESTIONS

Q # 01 (a)

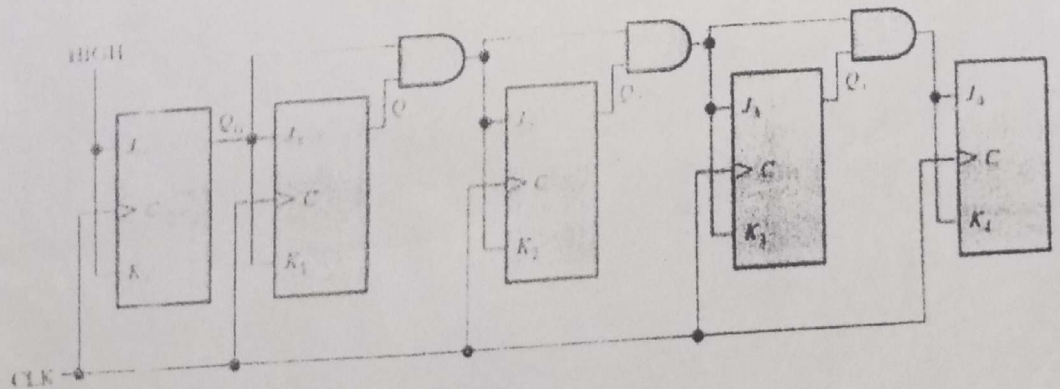
Analyze (a) Mealy state machine designed to identify the sequence "1101" on a serial input. Overlapping sequences are allowed, **draw** the state diagram and **illustrate** how output logic differs in a Mealy machine compared to a Moore machine. Also, suggest how Verilog code would look to implement this machine structurally. **[CLO-2, C-4, 05]**

(b) Positive-edge-triggered flip-flops are used in construction of a five-stage synchronous binary counter. Q_4 **(MSB)** to Q_0 **(LSB)** are the outputs.

(a) For the first 16 clock pulses, **deconstruct** entire timing diagram for Q_0 through Q_4.

(b) Confirm that the binary outputs accurately represent decimal numbers ranging from 0 to 15.

(c) Outline how the output waveforms' relate to the clock and why they are square waves. **[CLO-2, C-4, 05]**



Q # 02

Design a 4-bit asynchronous up-counter using JK flip-flops in Verilog. **Uses** your own choices for I/O, clocking, and internal structure.

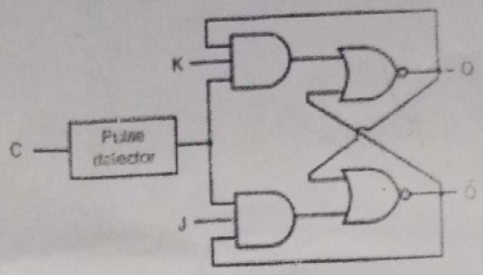
(a) **Manipulates** the Verilog module for a JK flip-flop.

(b) Use four such JK flip-flops to create the asynchronous up-counter.

(c) Draw the expected timing diagram for outputs Q3 to Q0 for the first 16 clock pulses.

(d) How would the design differ for a **synchronous counter** using JK flip-flops?

[CLO-3, C-3, 10]



Q # 03 A student has implemented the following Verilog module for a 1-bit full adder using structural modeling: [CLO-2, C-4, 05]

```
module full_adder (input a, b, cin, output sum, cout);
xor (xor1_out, a, b);
xor (sum, xor1_out, cin);
and (and1_out, a, b);
and (and2_out, b, cin);
and (and3_out, a, cin);
or (or1_out, and1_out, and2_out);
or (cout, or1_out, and3_out);
end module
```

Analyze the design and answer the following:

I. Is this design functionally correct? Explain your answer with **truth table** reference.

II. **Break down** the expression and show how they can be generalized across 4 bits. Using **dataflow** modeling.

Stay confident, and best of luck!