International Islamic University Chittagong
Center for General Education (CGED)
Mid Term Exam- Spring 2023
Course Code: URED 3503 (URED 3101 for LLB)
Course Title: Political Thoughts & Social Behavior

Full Marks: 30 Time 1.5 Hours

[Answer all three of the following]
(All questions are of equal value)

#	Questions	Marks	CLOs	Bloom's taxonomy
01	Define Islamic Political system and discuss the main principles of it with proper evidences from the *Quran* and *Sunnah* Or Discuss three fundamental elements of Islamic Political System and then differentiate between Islamic and conventional system of politics	10	01	**Remember Understand Apply & Analyze**
02	Define *Shariah*, and then analyze the sources of *shariah* with some examples	10	02	**Remember & analyze**
03	What is the Quranic and sunnatic term for the chief executive? Describe his qualifications in an Islamic state. Or How many kinds of *majlish al-shura* in an Islamic state? Describe the functions of the members of *shura* in details.	10	02	**Remember & evaluate**

International Islamic University Chittagong (IIUC)

Morality Development Program (MDP)

5th Semester , Mid Term Examination: Spring 2023

Course Code: MDP-3505 Course Title: Concept of Moral Development-II

Time: 1.5 Hours Marks: 30

Answer any 3(three) of the following questions. All parts of a question must be answered sequentially. Figures in the right margin indicate full marks.

1. (a) It is said that the smart leaders are the greatest assets of the country coming from real student politics, do you think so? Why or why not? 5

   (b) Illustrate the significance of student politics in higher education in Bangladesh to build up a developed nation. 5

2. (a) Signify the recreation and entertainment in the light of Qur'an and Sunnah. 5

   (b) Evaluate the possible and permissible recreational activities in Islam. 5

3. (a) Environment plays an important role in everyone's life, do you agree? Explain how we can protect our environment to build a healthy and serene life. 5

   (b) Briefly mention the role of students in the formation of an ideal society. 5

4. (a) It is proven truth that dowry is a curse for any society. Write down the disadvantages of prevalent dowry system in your country. 5

   (b) Propose some recommendations to remove this heinous dowry system from your society highlighting marriage laws in Islam. 5

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Spring 2023

Course Code: CSE 3523 Course Title: Microprocessors, Microcontrollers and Embedded Systems

Total marks: ***30***

Time: ***1*** *hours* ***30*** *minutes*

[Answer all the questions; in some questions, there are options; solve the one which you have been instructed to solve;
Precisely follow the guideline for preparing and submitting the answer script;
Figures in the right hand margin indicate full marks.]

			CO	DL
1.				
a)	Differentiate between CPU and Microprocessor.	**2**	**CO1**	**C2**
b)	You are sitting at a specific place inside a bus. The ticket checker asks you to show your ticket. Do you see any similarity between address, control and data bus with the above mentioned scenario. If yes, explain with logic.	**3**	**CO1**	**C2**
c)	Distinguish between AX and DX register. Write down the functionality of pointer and index register with example.	**3**	**CO1**	**C1**
d)	Suppose, you connect a printer to a computer. What kind of interface do you use for printer? Why? Explain reason for your answer.	**2**	**CO1**	**C1**
2.				
a)	What are the addressing modes used in 8086 microprocessor. Name the addressing modes with example. Differentiate between op code and operands.	**3**	**CO3**	**C1**
b)	Consider the following instructions : 1. MOV AX, BL 2. MOV CL,004H 3. SUB AX,BX What are the addressing modes used in the above statements? Are the above instructions correct or incorrect? Explain if the instructions are right or wrong with logic.	**3**	**CO3**	**C2**

MOV CX, [AX+BX+3345H]

[AX= (last four digits of your Student Id)H

[BX]= (last four digits of your student id*2)H

Initial value of IP= 0002H

Value of CS= 0100H CS = 0100H

N.B: If there are any missing values in the above mentioned instruction, assume the value of the register with appropriate size. Calculate the Physical address both before and after instruction execution and show the internal operations using figure.

3.			
a)	What is the difference between instruction fetch, decode and execute? Explain with example.	3	CO1
b)	Write short notes on the following : 1. MAR 2. MBR 3. PC 4. IR 5. $\overline{CS}$ 6. $\overline{R}/W$	6+1=7	CO1

What is decoder? Why is it used during instruction fetching and executing?

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Autumn 2022

Course Code: CSE 3527 Course Title: Compiler

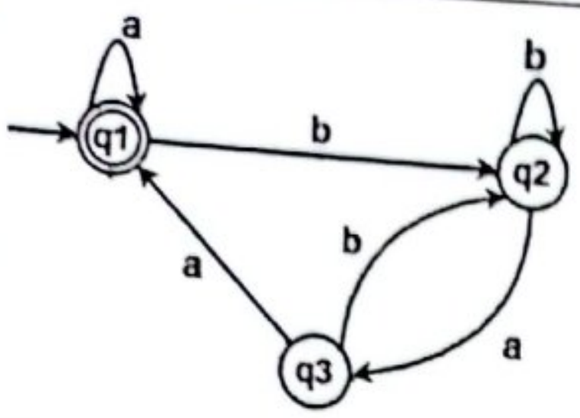
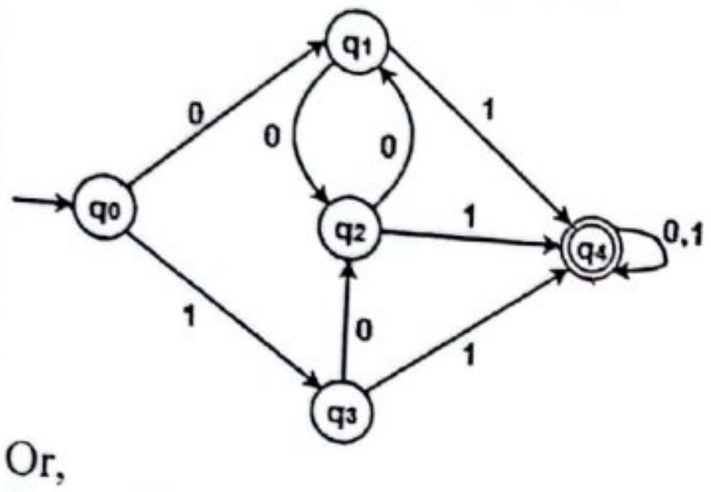
Total marks: 30

*Time: **1 Hour and 30 minutes***

			CO	DL
1.				
a)	Translate the following assignment statement step by step using compiler phases: z = c/d + a*b, here z, c, d are integer and a, b are floats.	**5**	**CO1**	**C3**

b)	Write the differences between lexical analyzer and parser. Identify the lexemes and their corresponding tokens and non-tokens from the following C code:
	#include<stdio.h>
	#define a 10
	int sum(float x, float y)
	{
	float m;
	// this will add 2 numbers
	sum= x+y;
	if(x>y)
	printf("%d", sum);
	else
	return sum;
	}
		5	**CO1**	**C2, C3**

2.				
a)	What is context sensitive grammar? Identify the useless non terminals, Left Linear Grammar, Right Linear Grammar from the following grammar? S -> ABd/a A -> eBC/b B -> aB/C C -> aC/B Or, When do we call a grammar ambiguous? Check whether the given grammar G is ambiguous or not for the string "a(a)aa". $A \rightarrow AA$ $A \rightarrow (A)$ $A \rightarrow a$	**4**	**CO3**	**C1, C2**
b)	Construct CFG for the language of all non-Palindromes. Or, Construct a CFG for the language $L = 0^n1^{4n}$ where n>=1.	**2**	**CO3**	**C3**
c)	Write the regular expressions for the following languages: i.All strings of a's and b's with an even number of a's and an odd number of b's. ii.All strings of a's and b's that do not contain the substring abb.	**4**	**CO2**	**C3**
3.				
a)	Find the regular expression for the following FA:	**4**	**CO2**	**C3**

a)	 Minimize the following DFA:  Or, Convert the regular expression R= abb(a|b)*(a|b) directly to its equivalent NFA	4	CO2	C3
b)	Describe the languages denoted by the following regular expressions: i. a(a|b)*a ii. a*ba*ba*ba*	2	CO2	C3

Bismillahir Rahmanir Rahim

International Islamic University Chittagong

Department of Computer Science and Engineering

Mid-Term Examination, Spring-2023

Course: **CSE-3521 (Computer Architecture)**

Time: **1hour and 30 Minutes** Marks: **30**

[Answer all ***three*** questions; Figures in the right hand margin indicate Marks]

Q1. a) Define the following: 2 **CO1**

(i) Computer Architecture (ii) CPU time

b)

Code Form	**Instruction Counts for instruction class (in billions)**		
	A	B	C
Compiler 1	4	2	3
Compiler 2	10	5	**Last digit of your student ID**

3 **CO2**

Instruction Class	**CPI for this class**
A	1
B	2
C	3

Assume that the computer's clock rate is 5 GHz. Which code sequence Will execute faster according to MIPS according to execution time?

c) Suppose we have two implementations of the same instruction set architecture. Computer1 has a CPI of 3.0 and a clock cycle time of 300 ps for some programs, and computer2 has a CPI of 4.0 and a clock cycle time of 150 ps for same programs. Which computer is faster for this program and by how much? 3 **CO2**

d) What is CPU clock cycle and clock rate? UNIX time command is given 40.Xu 10.5s 2:50 calculate the percentage according to total elapsed time. **[N.B: X=last digit of your student ID]** 2 **CO2**

Q2. a) Explain different types of instruction format. 2 **CO1**

b) Translate the following MIPS Assembly Language instructions into Machine Language. You must specify the MIPS fields and Instruction Format used. 4 CO

(i) add $s5, $t5, 20
(ii) bne $s3, .$s1,100
(iii) sw $s7, 80($s2)
(iv) beq $s1, $s6, 24

c) What is the difference between CISC and RISC computers? 2 CO1

d) Describe the MIPS addressing mode with figure. 2 CO1

Q3. a) Describe the first version of division Algorithm using Flow Chart. 3 CO1

Or

Describe the Final version of Multiplication Algorithm using Flow Chart.

b) Show the IEEE 754 binary representation of the number $-0.375X_{ten}$ in single and double precision 3 CO2

c) Multiply $2_{ten} \times 5_{ten}$ using final version of multiplication algorithm 4 CO2

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE

Mid-term Exam, Spring 2023

Course Code: EEE-2421 Course Title: **Electrical Drives and Instrumentation**

Time: 1 hours 30 minutes Full Marks: 30

(i) The figures in the right-hand margin indicate full marks

(ii) Course Outcomes and Bloom's Levels are mentioned in additional Columns

1	a)	Analyze Linear DC Machine as a Motor.	CO1	E	4
1	b)	Explain hysteresis loss and eddy current loss in a ferromagnetic core ?	CO1	U	3
1	c)	List the reasons for which it is important to size a motor? Discuss How to choose the right motor briefly?	CO1	Ap	3
2	a)	Compare the characteristics of an Ideal and a practical transformer. Briefly Discuss the steps to eliminate the losses of a transformer?	CO2	U	3
2	b)	A 2200/200V transformer draws a no-load current of 0.6A and absorbs 400 watts. Find the magnetizing and iron loss currents.	CO2	An	3
2	c)	A 5 kVA 200/1000 V, 50 Hz, single-phase transformer gave the following test results : O.C. Test (L.V. Side) : 200 V, 1.2 A, 90 W S.C. Test (H.V. Side) : 50 V, 5A, 110 W Calculate the parameters of the equivalent circuit referred to the L.V. side.	CO2	An	4
		Or			
2	a)	Discuss the working principle of a transformer and draw a vector diagram of an ideal transformer?	CO1	U	3
2	b)	A 50-kVA, 4,400/220-V transformer has $R_1 = 3.45\ \Omega$, $R_2 = 0.009\ \Omega$. The values of reactances are X1 = 5.2 Ω and X2 = 0.015 Ω. Calculate for the transformer (i) equivalent resistance as referred to primary (ii) equivalent resistance as referred to secondary (iii) equivalent reactance as referred to both primary and secondary (iv) equivalent impedance as referred to both primary and secondary	CO2	An	4

2	c)	In no-load test of a transformer, the following test data were obtained: Primary Voltage: 220V; Secondary voltage: 110V Power input: 30W; Primary Current: 0.5A Find the following: i)The turns ratio ii) Magnetising component of no-load current iii)Its working component iv) iron loss.	**CO2**	**An**	**3**
3	a)	Write a short note on the basic principle of a single loop DC generator.	**CO1**	**U**	**2**
3	b)	Briefly Discuss on armature reaction which occurs in electrical machines with necessary diagrams.	**CO1**	**U**	**4**
3	c)	A 250-V shunt motor runs at 1000 r.p.m. at no-load and takes 8A. The total armature and shunt field resistances are respectively 0.2 Ω and 250 Ω. Calculate the speed when loaded and take 50 A. Assume the flux to be constant.	**CO2**	**An**	**4**

International Islamic University Chittagong

Department of Computer Science & Engineering

Program: B.Sc. in CSE; Semester: 3rd

Mid Term Examination, Spring-2023

Course Code: CSE-2323 **Course Title: Digital Logic Design**

Time: 1 Hour 30 minutes **Total Marks:** 30

Answer the following Three (3) questions. Each question carries 10 marks.

Question : 1	a. Write down the advantages of digital systems over analog systems with proper example.	2
	b. Define redundancy theorem with proper example.	2
	c. Define Positive and negative logic with truth table. " Excess-3 code is self-complementary code " Is it true or false? Justify your comment.	2
	d. Compare between BCD Code and Binary numbers. Mentioned the rules applied for BCD Addition.	1+2=3
	e. Just one lines, write down the limitations of BCD Addition.	1
Question : 2	a. How can we identify whether a code is self-complementary or not? Explain with proper example. Write down major properties of Gray Code. Convert 10110110 Gray Code into Binary Code.	2+1+2=5
	Or	
	a. If we have 4 inputs NAND Gate then how many 2 input NAND Gates are required to implement it? Boolean expressions to NAND Gate implementation: Y=A˜+BC˜(˜ means Complement)	2+3=5
	b. What are the key features of Karnaugh map? Solve the following using Karnaugh Map: $F(A,B,C,D,E)=\sum_m(0,1,6,7,8,9,21,22,23,29,31)$	5
Question : 3	a. Mention the rules for designing combinational circuit with proper example.	4
	Or	
	a. What are the necessary conditions for check board configuration? Justify it with Full Adder Circuit.	3
	b. Construct a Half Adder using NAND gates.	2
	c. Explain 2 bit comparator with proper circuit diagram.	2

N.B: The meanings of symbol enclosed in bracket (`) is complement.

****The End****

International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE Midterm Examination, Spring 2023

Course Code: CSE 3529

Course Title: System Analysis and Design

Total marks: ***30***

Time: ***1*** *hour* ***30*** *minutes*

[Answer all the questions. Figures in the right-hand margin indicate full marks.]

Course Outcomes (COs) of the Questions	
CO1	**Understand** project management and system development life cycle.
CO2	**Analyze** the requirement and feasibility of software application
CO3	**Design** an information system.
CO4	**Compile** the system design document

Bloom's Levels of the Questions						
Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analysis	Evaluate	Create

			CO	DL
1.				
a)	Suppose, you are a project manager of the Nascenia software firm in Bangladesh that currently intend to hire a system analyst. Now, write a draft comprising the skills and experience that an ideal system analyst should have.	**3**	**CO2**	**U**
b)	Rokomari.com is one of the popular online book-selling sites in Bangladesh. They recently introduced an offer stating that "*Rokomari Online Book Fair offer a 25% discount on every book for 1 month, starting from 1st February to 28th February 2023.*" From the viewpoint of Strategic, Tactical, or Operational information types, analyze which kind of information this offer belongs to. Justify your answer.	**3**	**CO3**	**An**
c)	What are the types of information systems? Consider that Y wants to reach his/her university campus quickly from Chattogram City. He/She uses GPS route planning system that plans the fastest and best routes between two points analyzing available options. What kind of information system does it fall into? Justify your answer.	**4**	**CO3**	**An**

2.					
a)	Which SDLC model would you adopt for developing an e-commerce platform that requires constant adaptation to user feedback and market trends? Justify your answer with a comparative study with other models.	5	CO1	An
	Or				
	Suppose you want to manufacture and deliver a software program that determines which university will be best suited for a student opting for an Undergraduate Degree based on student scores and university rankings. State the SDLC model that you will choose for this above mentioned software program. Justify your answer reasoning with the advantages of your model over other existing models.				
b)	Discuss RAD and JAD methodologies with their advantages and disadvantages.	5	CO1	U
	Or				
	What is SDLC? Briefly describe the different phases of SDLC.				
3.					
a)	What is the significance of feasibility analysis in project management? Which phase of project management requires feasibility analysis? Briefly discuss about 3 major areas to conduct a feasibility study of an organization.	5	CO1	U
b)	What is Break-Even Point analysis? Explain with mathematical equations and a necessary figure.	5	CO2	U
	Or				
	Define the following: i) Tangible cost ii) Intangible cost ii) SWOT Analysis iv) Recurring cost v) Return on Investment				