National University of Computer and Emerging Sciences, Lahore Campus

Course Name:	Software Requirements Engineering	Course Code:	SE 2001
Degree Program:	BS (SE)	Semester:	Fall 2021
Exam Duration:	60 Minutes	Total Marks:	30
Paper Date:	2-Dec-2021	Weight	10%
Section:	ALL	Page(s):	4
Exam T...			

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Student : Name: [redacted]

Instruction/Notes: 1. Attempt all questions on the question paper. Do not submit any extra sheet, it will not be graded.
2. You are allowed to use a single-sided, hand-written, A-4 size help sheet.
3. State your assumptions clearly

Question 1 (Max. Marks = 5)

In each of the following MCQs, **circle** the most appropriate **single** option (unless otherwise specified). Unclear answers will not be given any credit.

1) Data flow diagram is used to model which aspect of a software system
   a. Control flow
   b. Data flow
   c. Scenario
   d. Behavioral

2) You have to develop a Level 1 Diagram of a payroll system that needs to interact with an HR subsystem that manages employee information, a Secretary who manages distribution of pay cheques generated by the payroll system, a Finance department that requires reports from the payroll system, and an Attendance subsystem that manages employee timecards. How many rectangles (or knowledge sources/sinks) will the level 1 diagram of this payroll system have?
   a. 0
   b. 1
   c. 4
   d. 3
   e. Depends on the number of verbs in the complete requirements description

3) Which of the following is a requirements elaboration technique? **Note:** You may select multiple options
   a. Repertory Grids
   b. Card Sorting
   c. CRC Cards
   d. JAD
   e. Laddering

4) If we have a user scenario description (provided by the user) with us (as a requirements engineer) we can complete the elaboration activity by developing: **Note:** You may select multiple options
   a. A data flow diagram
   b. A sequence diagram
   c. A use case description
   d. A decision table
   e. None of the mentioned

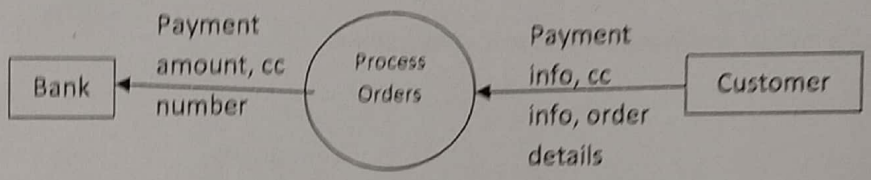
5) Primarily, requirements elaboration activity is about: **Note:** You may select multiple options

a. Ensuring that delivery of the system is not delayed
b. Understanding and analyzing what needs to be built
c. Asking questions to discover requirements from multiple stakeholders
d. Completing the activity of identifying all the stakeholders
e. All of the above
f. None of the mentioned

Question 2 (Marks = 2x5= 10)

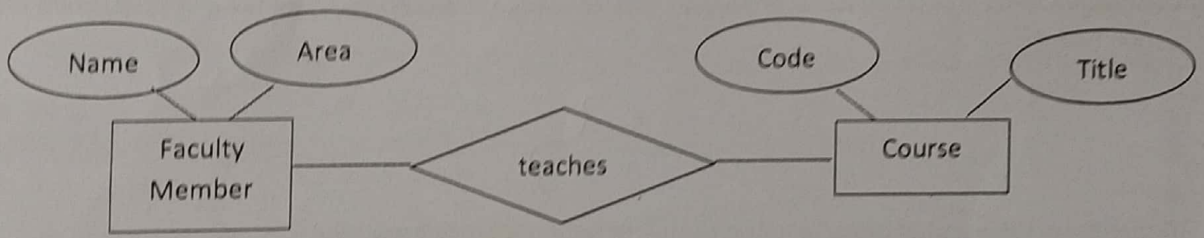
A few diagrams are shown below. Looking at the notations carefully, mention the name of the diagram

a.



Data Flow Diagram

b.



Entity Relationship Diagram

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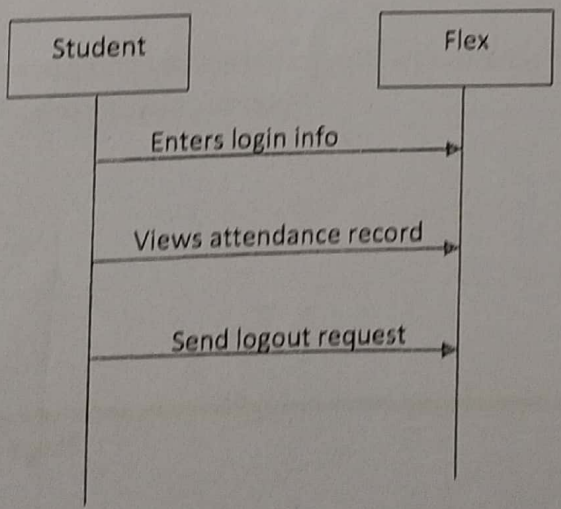
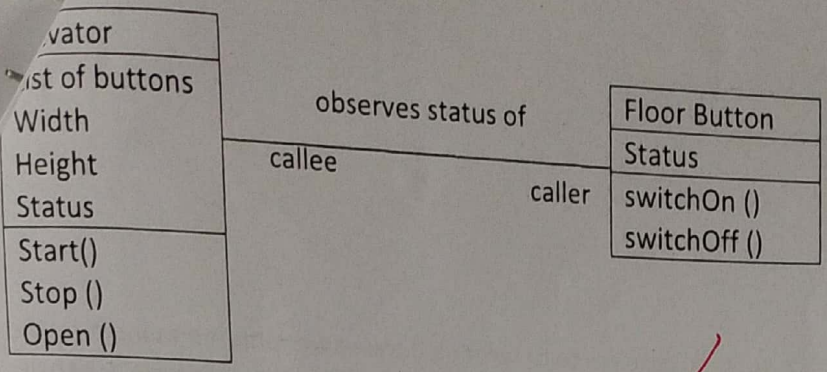
c.

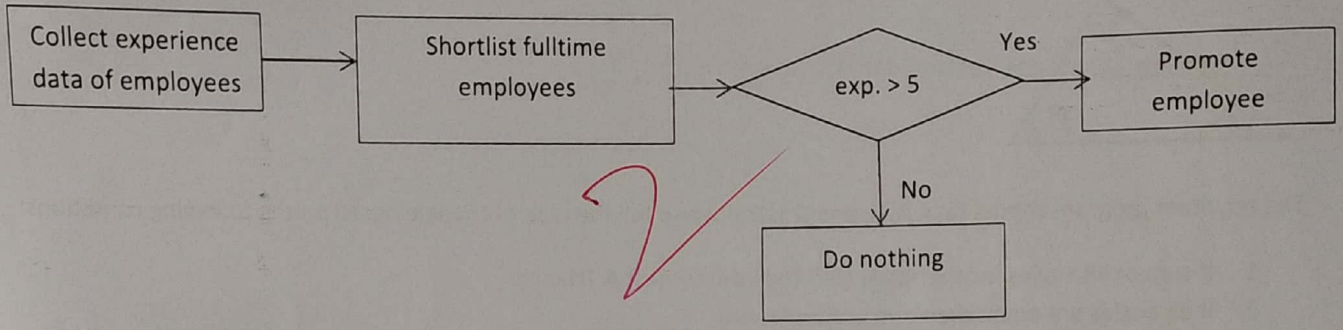


Event Trace/sequence Diagram



Class-Responsibility-Collaborator Diagram (CRC cards)

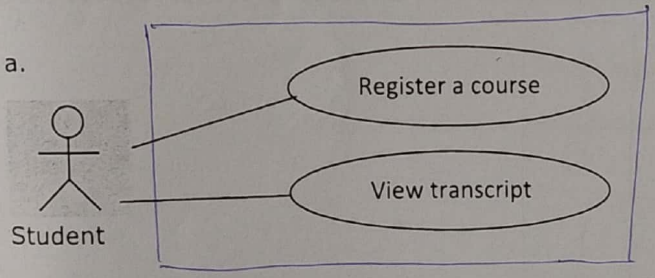
e.



Activity Diagram

Question 3 (Max. Marks = 2x2.5 = 5)
Correct the mistakes in the following diagrams

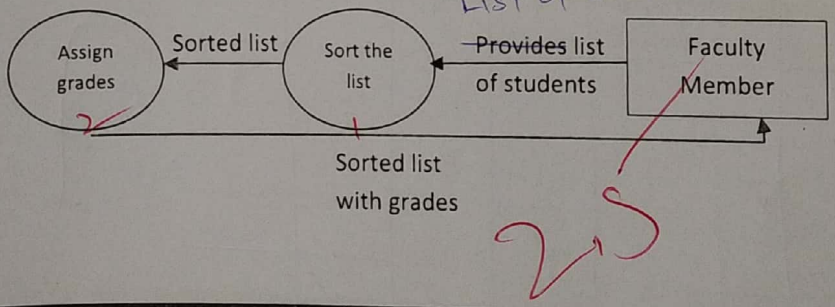
a.



b.

(no verb)

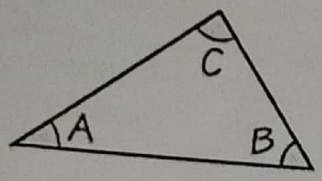
List of students



Question 4 (Max. Marks = 10)

We need to develop a software system that, as a subtask, requires to determine if the values entered as input by the user will form a triangle or not. The software also determines the type of the triangle if the input values form a triangle.

The three input values A, B, and C are integer values and each corresponds to one interior angle of a triangle. In a triangle sum of interior angles is 180°. If A, B, and C are three angles of a triangle as shown in the following figure then A+B+C = 180°.



The resultant program should take A, B, and C as input and tell the type of triangle based on the following conditions:

1. If sum of all angles is other than 180° then output **Not A Triangle**
2. If all angles are equal then output **Equilateral**
3. If 2 angles are equal then output **Isosceles**
4. If no angles are equal then output **Scalene**

$2^4 = 16$

Provide a complete decision table that models the information provided above. Each condition must be expressed in terms of one or more input values (i.e. A, B, C) only. [Hint: Most of these conditions shall be simple (not compound).]

Decision Table

Rules

True = 1

False = 0

Conditions					
A+B+C =180	0	1	1	1	1
A=B and B=C	-	0	1	0	0
A=B only	-	0	-	-	1
B=C only	-	0	-	1	-
~~A=C only~~					
Not Triangle	✓				
Equilateral			✓		
Isosceles				✓	✓
Scalene		✓			

A B C
80, 20, 80 ?