

CS3004 Software Design and Analysis Solution

Wednesday, September 28, 2022

Course Instructors

Dr. M. Bilal, Ms. Pariwish Touseef

Serial No:

Mid-1 Exam

Total Time: 1Hour

Total Marks: 40

Signature of Invigilator

Roll No

Section

Signature

DO NOT OPEN THE QUESTION BOOK OR START UNTIL INSTRUCTED.

Instructions:

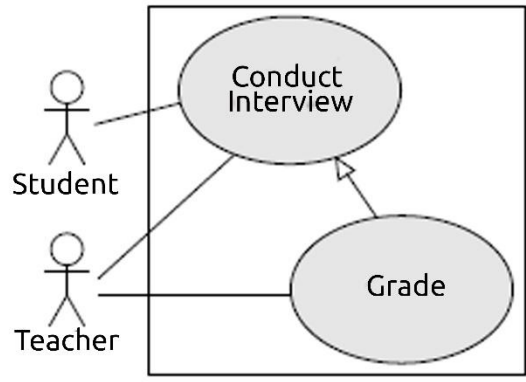
1. Verify at the start of the exam that you have a total of **seven (7)** questions printed on **eleven (11)** pages including this title page.
2. Attempt all questions on the question-book and in the given order.
3. The exam is closed books, closed notes. Please see that the area in your threshold is free of any material classified as 'useful in the paper' or else there may a charge of cheating.
4. Read the questions carefully for clarity of context and understanding of meaning and make assumptions wherever required, for neither the invigilator will address your queries, nor the teacher/examiner will come to the examination hall for any assistance.
5. Fit in all your answers in the provided space. You may use extra space on the last page if required. If you do so, clearly mark question/part number on that page to avoid confusion.
6. Use only your own stationery and calculator. If you do not have your own calculator, use manual calculations.
7. Use only permanent ink-pens. Only the questions attempted with permanent ink-pens will be considered. Any part of paper done in lead pencil cannot be claimed for checking/rechecking.

	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Total
Total Marks	3	3	3	5	5	4	17	40
Marks Obtained								

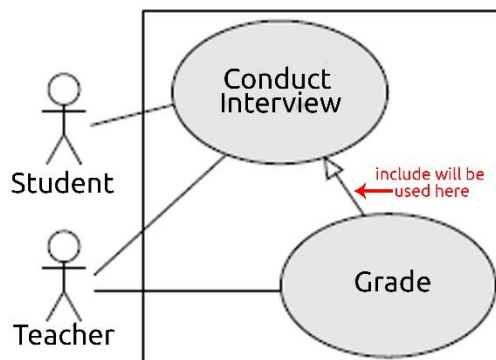
Vetted By: _____ Vetter Signature: _____

University Answer Sheet Required: No ☐ Yes ☐

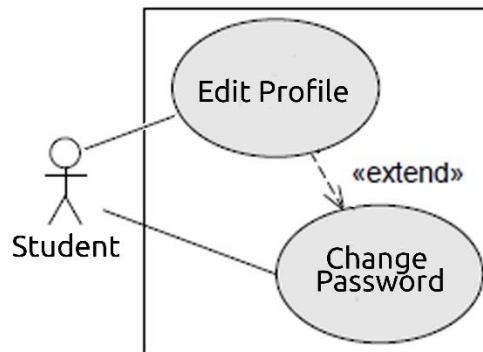
Question No.1	3 Marks
<p>Most appropriate choice Questions. Mark at the Solution Sheet Provided. Match each description below to the SINGLE MOST Process Model Category. (Note: types may apply to none or one description.)</p> <p>A. Plan-Driven Processes B. Agile C. Hybrid D. None of the above</p>	
<p>1. In (B) Agile methods are incremental development methods that focus on rapid development, frequent releases of the software, reducing process overheads, and producing high-quality code. They involve the customer directly in the development process.</p> <p>2. In (A) Plan-Driven Processes all of the process activities are planned in advance and progress is measured against this plan.</p> <p>3. (C) Hybrid is a balance between process models.</p>	

Question No.2	3 Marks
<p>Given are some diagrams. Identify if any the issues are there or not. (Note: Only mention anomaly/anomalies exists or not. If yes then highlight with marker or pen the anomalies in the diagram if any exists).</p> <p>1. Given is scenario a teacher is having an interview with a student. Moreover, the teacher always has to grade student.</p>	
	

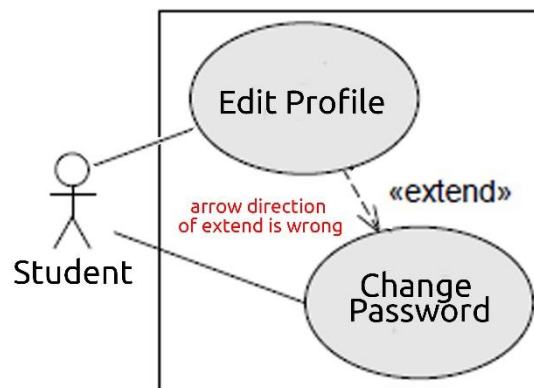
Answer : **Anomaly Exists**



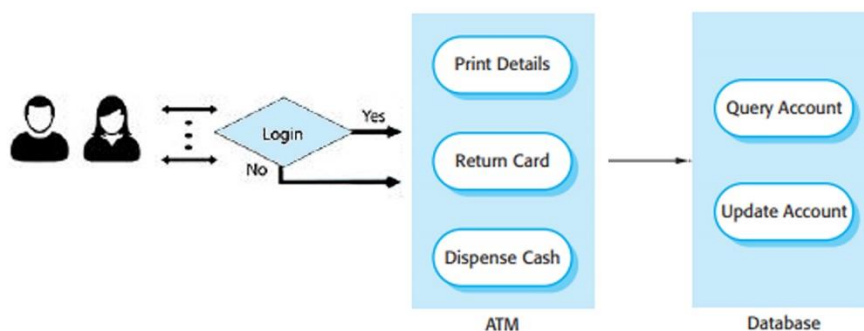
2. Given is scenario a student edits his profile. In the course of that he can also change his password if he wants to.



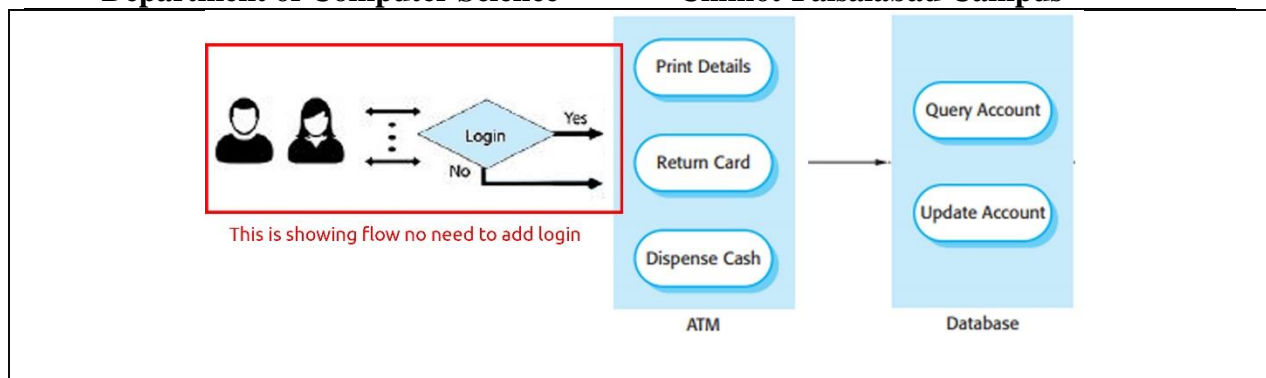
Answer : **Anomaly Exists**



3. The given is architecture diagram identify error from it and highlight using marker or pen.



Answer : **Anomaly Exists**



Question No.3

3 Marks

What two aspects of a system UML diagrams represents. Differentiate between both.

Answer :

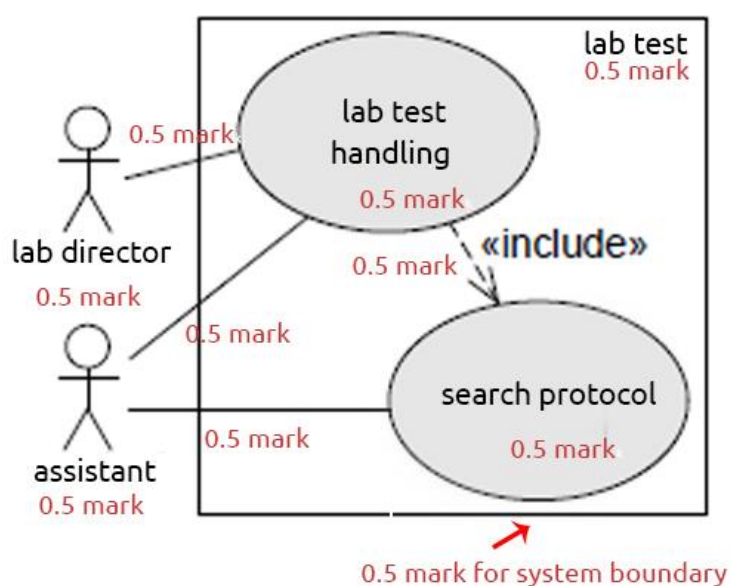
Structural (or Static) view (1 mark)	Behavioral (or Dynamic) view: (1 mark)
Emphasizes the static structure of the system using objects, attributes, operations and relationships. It includes class diagrams and composite structure diagrams. (0.5 mark)	Emphasizes the dynamic behavior of the system by showing collaborations among objects and changes to the internal states of objects. This view includes sequence diagrams, activity diagrams, and state machine diagrams. (0.5 mark)

Question No.4

5 Marks

Draw Use Case Diagram for the given lab test scenario. The lab director does a lab test handling together with his assistant. The assistant always has to search protocol during the lab test. (All the use case criteria's must be followed).

Answer :



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Question No.5

5 Marks

FASTECH software house is working on a health application. As you are part of FASTECH software house you are asked to write textual use case for “View Patient Details” so it can be used to provide additional information to support the use case definition. The View Patient Details can be done by Primary Actor which are Medical Professionals. Moreover, there is compulsion that Details can only be viewed if Medical Professionals have done registration. Mention for the View Patient Details you will write brief, fully dressed or both of them. And write it in the given space by using the given templates.

Brief Use Case:

Use case	
Actors	
Type	
Description	

Fully Dressed Use Case:

Use case Name	
Use Case ID	
Description	
Primary Actors	
Secondary Actors	
Preconditions	
Main Flow	
Post conditions	
Alternative Flows	

Solution:

Which textual use case you will write for View Patient Details : Brief Textual Use Case
(1 Mark)

Use Case:	View Patient Details
Actor :	Medical Professionals
Type:	Primary
Description:	Medical Professionals can view the Patient's detail after registration.

(4 Marks 1 for each block)

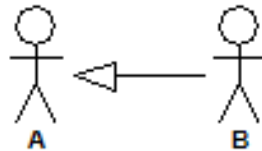
(If someone have mention brief usecase in answer and filled both then half marks i.e. 2 in brief usecase tabs)

(If both mentioned and made 0 mark)

Question No.6

4 Marks

Which of the following statements about the given diagram clipping are true and false? Mark at the Solution Sheet Provided.



Statements	True	False
1. A can execute the same use cases as B.		✓
2. B inherits all of A's associations.	✓	
3. B can execute the same use cases as A.	✓	
4. A inherits all of B's associations.		✓

Question No.7

17 Marks

Mark at the Solution Sheet Provided.

Multiple Choice Questions:

- “Consider a system where, a heat sensor detects an intrusion and alerts the security company.” What kind of a requirement the system is providing?
 - Functional
 - Non-Functional
 - Known Requirement
 - None of the mentioned

Answer: A

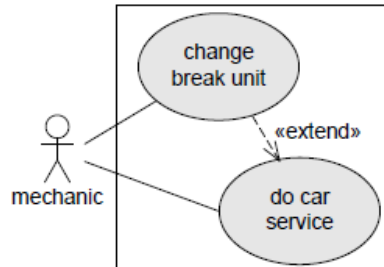
- Functional requirements capture the internal behavior of the system.
 - True
 - False

Answer: A

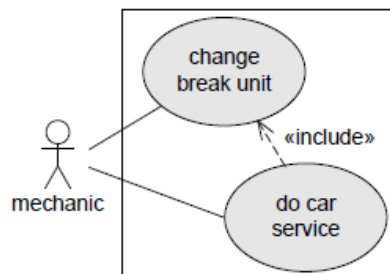
- A development view, which shows how the software is decomposed for development, that is, it shows the breakdown of the software into components that are implemented. This view is useful for _____.
 - Programmers.
 - The system integrator
 - System Engineer
 - System Analyst
- Answer: A

4. How do you model the following situation with a UML use case diagram: A mechanic does a car service. During that service, it might be necessary to change the break unit. (1 marks)

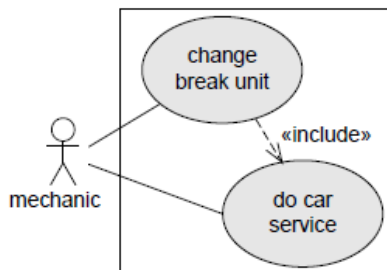
A.



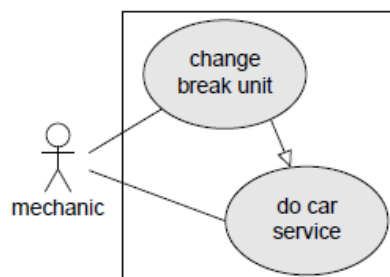
B.



C.

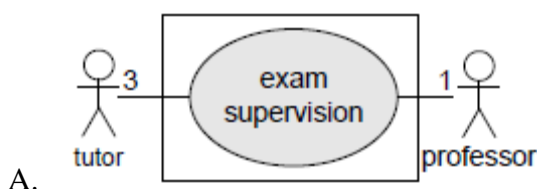


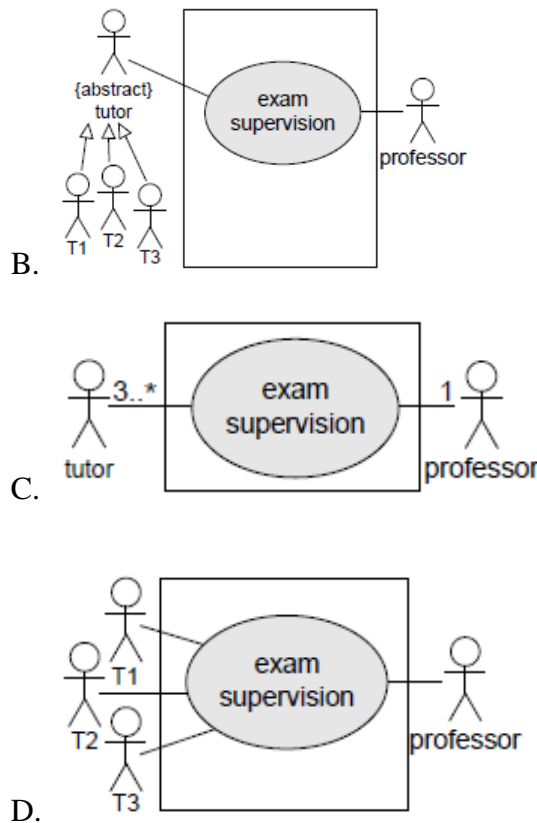
D.



Answer: A

5. How do you model the following situation with a UML use case diagram: An exam supervision is done by one professor and three tutors. (1 marks)





Answer: A

6. The _____ describes the application in general terms, including descriptions of the target market, the system users, and the application features. (1 mark)

- A. Vision Document
- B. Product Family Document
- C. Business Requirement Document
- D. Both A and B

Answer: A

7. RUP stands for _____ created by a division of _____. (1 mark)

- A. Rational Unified Process, IBM
- B. Rational Unified Program, IBM
- C. Rational Unified Process, Infosys
- D. Rational Unified Process, Microsoft

Answer: A

8. The problem statement can be specified in fields of? (1 mark)

- A. The problem of, affects, the result of which, benefits of
- B. The problem of and the result of which, benefits of
- C. The problem of, affects, for, who, our product
- D. The problem of, affects, the result of which, our product

Answer: A

9. In Scrum, when is a Sprint Over? (1 mark)

- A. When the time box expires
- B. When all the Sprint Backlog Items are completed
- C. When the Product Owner suggests

D. When all the Sprint Backlog tasks are completed

Answer: A

10. In _____, the related data and functions of an object are placed together within one unit. (1 mark)

- A. OO design
- B. Structured design
- C. Both
- D. None of above

Answer: A

11. _____ requirements are often called qualities of a system. (1 mark)

- A. Non-functional
- B. Functional
- C. Both
- D. None of above

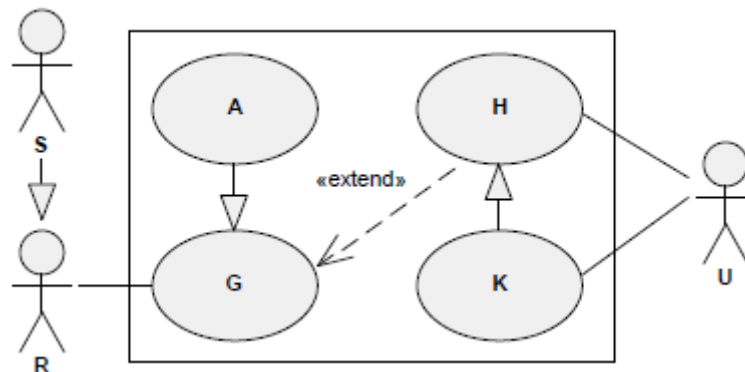
Answer: A

12. _____ are defined in problem domain. (1 mark)

- A. Needs
- B. Features
- C. Software Requirements
- D. All of above

Answer: A

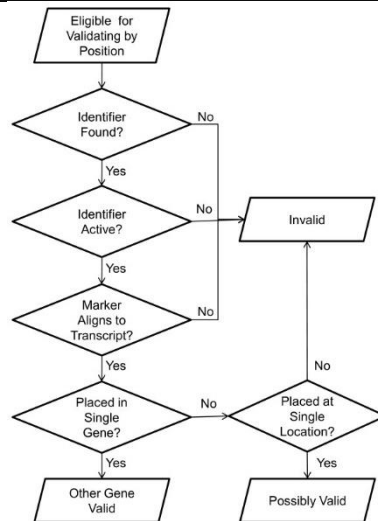
13. The following Use Case Diagram was modeled according to UML standard. Which combinations of actors communicate with Use Case G? (1 mark)



- A. R and S
- B. R,S and U
- C. R and U
- D. Only R

Answer: A

14. Architectural diagram is the process of defining a collection of hardware and software components and their interfaces to establish the framework for the development of a computer system. The given diagram is high level architecture / block diagram or not? (1 mark)



- A. No it is not a high level architecture / block diagram
- B. It is a high level architecture / block diagram

Answer: A

15. Which of the following are valid step in SDLC? (1 mark)

- A. Requirement Gathering
- B. System Analysis
- C. Software Design
- D. All of the above

Answer: A

16. In Krutchen's 4+1 View Model the physical view is helpful for. (1 mark)

- A. System Engineers
- B. Programmer
- C. System Integrators
- D. End Users

Answer: A

17. During any process of requirements elicitation, requirements will arise that are considered appropriate for the next release of the product. These are known as _____.

- A. Future Requirements
- B. Functional Requirements
- C. Non Functional Requirements
- D. None of above

Answer: A

Software Analysis and Design MCQs Sheet

Roll No:

Section:

Q 1:

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D

Q 6:

1	True	False
2	True	False
3	True	False
4	True	False

Q 7:

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D