



UNIVERSITY COLLEGE TATI (UCTATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: BCS2413
COURSE	: SYSTEM ANALYSIS AND DESIGN
SEMESTER/SESSION	: 1 2022/2023
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **5** questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise up your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO
THIS BOOKLET CONTAINS 6 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a) Describe the phases of the systems development life cycle. (10 marks)
- b) Provide **TWO (2)** examples of System Requirements Checklist. (4 marks)
- c) Given the DFD (Data Flow Diagram) symbols in Figure 1. State the correct and incorrect of the relationship. (6 marks)



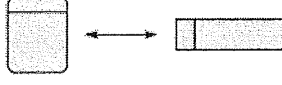



a)		Process to Process
b)		Process to External Entity
c)		Process to Data Store
d)		External Entity to External Entity
e)		External Entity to Data Store
f)		Data Store to Data Store

Figure 1

QUESTION 2

- a) List **SIX (6)** advantages of web-based System Development. (6 marks)
- b) State **THREE (3)** reason of In-House development. (3 marks)
- c) You have been appointed by Head of System Analyst to propose a new Information System in your company. Briefly explain the acquisition process of new Information System. (11 marks)

QUESTION 3

- a) List **SEVEN (7)** principles of user-centered interface design. (7 marks)
- b) List **THREE (3)** types of output. (3 marks)

QUESTION 4

- a) Explain **THREE (3)** advantages of Database Management System (DBMS). (6 marks)
- b) Describe the First Normal Form (1NF), Second Normal Form (2NF) and Third Normal Form (3NF). (6 marks)

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- c) Faculty of Computer Science wants to develop an Advisor System. An initial ERD for STUDENT, ADVISOR and COURSE is shown in the following Figure 2.

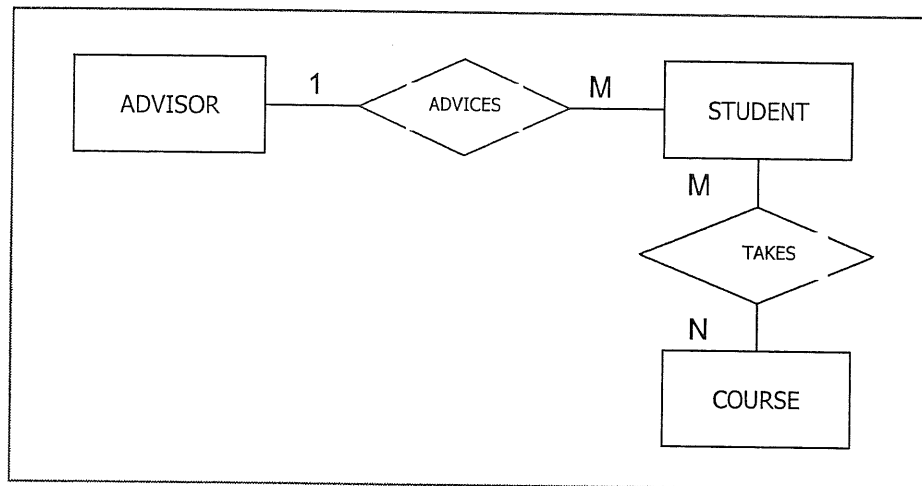


Figure 2

The initial design of the data store for STUDENT entity includes the student number, student name, total credits taken, grade point average (GPA), advisor number and advisor name. For every course the student has taken, the course code, course description and grade received.

Given:

- STUDENT record design
STUDENT (STUDENT NUMBER, STUDENT_NAME,
TOTAL_CREDIT,GPA,ADVISOR_NUMBER,ADVISOR_NAME,(COUR
SE NUMBER,COURSE_DESC,GRADE))
- ADVISOR record design
ADVISOR (ADVISOR NUMBER,ADVISOR_NAME)

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- COURSE record design
COURSE(COURSE_NUMBER, COURSE_DESC,
NUM_CREDITS)

Sample of student records are given in figure 3 below:-

STUDENT

STUDENT- NUMBER	STUDENT- NAME	TOTAL- CREDITS	GPA	ADVISOR- NUMBER	ADVISOR- NAME	COURSE- NUMBER	COURSE-DESC	GRADE
1035	Linda	17	3.647	49	Smith	CSC151	Computer Science I	B
						MKT212	Marketing Management	A
						ENG101	English Composition	B
						CHM112	General Chemistry I	A
						BUS105	Introduction to Business	A
3397	Sam	9	3.000	49	Smith	ENG101	English Composition	A
						MKT212	Marketing Management	C
						CSC151	Computer Science I	B
4070	Kelly	14	2.214	23	Jones	CSC151	Computer Science I	B
						CHM112	General Chemistry I	C
						ENG101	English Composition	C
						BUS105	Introduction to Business	C

Figure 3

The ADVISOR and COURSE records already in 3NF, your tasks are:

- Convert the unnormalized for student record into 3NF. (4 marks)
- Redesign the ERD after normalization process. (4 marks)

QUESTION 5

- Define unit testing, integration testing, and system testing. (6 marks)

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- b) Explain **THREE (3)** types of documentation required in Information System Development. (6 marks)
- c) Describe the **FOUR (4)** system changeover methods. (8 marks)
- d) List **TWO (2)** functions of help desk in handling Information System. (2 marks)
- e) Describe **FOUR (4)** classifications of maintenance. (8 marks)

-----End of question-----