DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
SECOND SESSIONAL
SUBJECT: (CE-421) SOFTWARE ENGINEERING PRINCIPLES AND PRACTICES

Examination	**: B.Tech Semester - IV**	**Seat No.**	**: 82**
Date	**: 09/02/2024**	**Day**	**: Friday**
Time	**: 1:00 p.m. to 02:15 p.m.**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used to carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 **Do as directed.** **[12]**

CO3 A (a) Identify types of cohesion in following statements: [2]
- i. A module contains functions which are executed one after the other, though these functions of the module may work towards entirely different purposes and operate on very different data.
- ii. A module contains all functions which refer to or update the same data structure.

CO3 N (b) Suppose you are required to review a Structured Analysis/Structured Design document, make a list of aspects that can be considered for carrying out the review. [2]

CO3 U (c) Illustrate the concept of balancing DFD with a suitable example. [2]

CO3 N (d) Draw component diagram for "Online Stationary Shop". [2]

CO3 A (e) "A state diagram captures behavior of multiple objects and shows transitions between states of those objects". State True/False and Justify. [2]

CO3 U (f) Mention two situations in which activity diagram can be useful. [2]

Q.2 Attempt ***Any TWO*** from the following questions. **[12]**

CO3 N (a) Draw a DFD model (Level 0, 1 and 2) for the Supermarket Automation Software (SAS). [6]
- The supermarket stocks a set of items. Customers pick up their desired items from the different counters in required quantities. The customers present these items to the sales clerk. The sales clerk enters the code number of these items along with the respective quantity/units.
- SAS should print the bill containing the serial number of the sales transaction, the name of the item, code number, quantity, unit price, and item price at the end of a sales transaction.
- SAS should allow manager to maintain the inventory of the various items of the supermarket. The manager upon query should be able to see the inventory details.
- SAS should support printing the sales statistics for every item the supermarket deals with for any particular day or any particular period. The sales statistics should indicate the quantity of an item sold, the price realized, and the profit.

CO3 N (b) Draw structure chart for Supermarket Automation Software (SAS). Problem description for the software is given in Q.2 (a). [6]

CO3 R (c) What is Coupling? Describe the different types of coupling that might exist between two modules. Give examples of each. [6]

Q.3			Attempt the following questions.	**[12]**
CO3	N	(a)	Develop use case model for word processor software that has features similar to MS-Word. Write use case description for any one use case.	[6]
CO3	N	(b)	Draw Class diagram (with attribute and operations for every class) to represent the following: "An orderRegister consists of many orders. Each order consists of up to ten order items. Each order item contains item name, quantity and date by which it is required. Each order item is described by an item specification having details such as unit price, name and address of manufacturer and the warranty period."	[6]

OR

Q.3			Attempt the following questions.	**[12]**
CO3	N	(a)	Develop use case model for an IDE software that has features similar to Visual Studio Code. Write use case description for any one use case.	[6]
CO3	N	(b)	Draw Class diagram (with attribute and operations for every class) to represent the following: "An engineering college offers B.Tech. Degrees in three branches: CE, IT and EC. These degrees are offered by respective departments. Each branch can admit 60 students each year. For a student to complete degree, he/she has to clear all 30 core courses and at least 10 elective courses".	[6]