

National University of Computer and Emerging Sciences, Lahore Campus



Course:
Program:
Duration:
Quiz Date:
Section:

Software Engineering
BS (Computer Science)
40 Minutes
20-March-24
6D

Course Code:
Semester:
Total Marks:
Roll No.
Name:

CS-3009
Spring 2024
25

Question 1:

(10 Marks)

Provide a functional decomposition of the below mentioned system.

Suppose a company wants to develop a new e-commerce website. The website will need to have a variety of features, such as product browsing, shopping cart functionality, payment processing, and order tracking.

The company decides to use functional decomposition to break down the project into smaller components and ensure that each feature is implemented properly. For example, the product browsing component will handle displaying products on the website, filtering products by different categories, and enabling users to search for products. The shopping cart component will manage the shopping cart functionality, allowing users to add and remove products, update quantities, and calculate the total price. The payment processing component will handle payment gateway integrations, user authentication, and processing payments. Finally, the order tracking component will enable users to track their orders and view order history.

By breaking down the website into smaller components, the development team can focus on implementing each component separately, ensuring that each feature works properly before moving onto the next. This also makes it easier to manage the project and track progress. Additionally, if any issues arise during development, the team can isolate and address them in the specific component rather than the entire website.

E-commerce Website

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|— Product Browsing Component

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|— Display Products

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|— Filter Products

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|— Search Products

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|— Shopping Cart Component

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|— Add Products

|

|— Remove Products

|

|— Update Quantities

- | |— Calculate Total Price
- |
- |— Payment Processing Component /
- | |— Payment Gateway Integration
- | |— User Authentication
- | |— Payment Processing
- |
- |— Order Tracking Component
 - |— Track Orders
 - |— View Order History

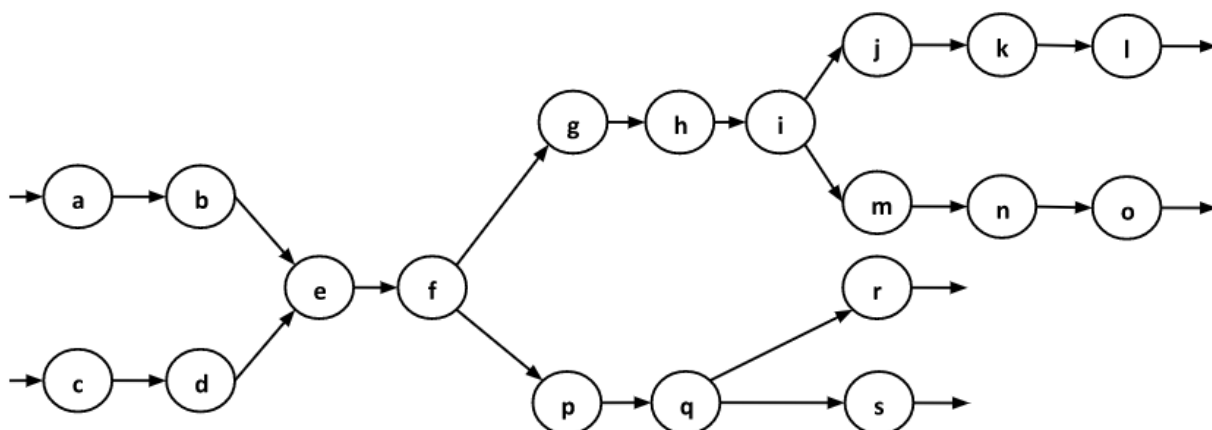
Question 2) (15 marks)

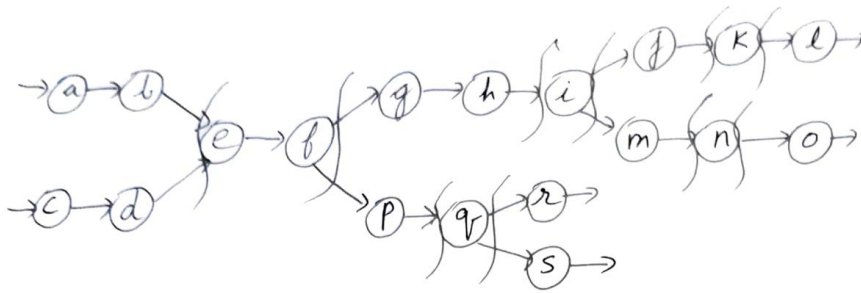
Consider the following DFD for a point-of-sales system. Arrow labels have been removed for simplicity. Perform structured design and provide the call-and-return architecture for this DFD. Design heuristics should be used to produce the final (i.e., most refined) architecture. Also mark the flow boundaries in the DFD provided below:

The following information should be used for mapping:

4 Transform centers: 'e' and 'f' (together); 'k'; 'n'; 'q'.

1 Transaction center: 'i'.





Solution :-

