Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous College Affiliated to University of Mumbai)

End Semester Examination
November 2020

Max. Marks: 60   **Duration: 2 hours**
Class: B.Tech Semester: V   **Branch: INFORMATION TECHNOLOGY**
Course Code: IT51
Name of the Course: SOFTWARE ENGINEERING

Instructions:
   (1) All Questions are Compulsory
   (2) Draw neat diagrams

Answer all 6 questions Each question carries 10 marks (maximum).Question 5 and 6 has internal option.

Q. No		Max. Marks	CO-BL-PI
Q 1	Attempt to suggest a process model for the 4 scenarios. Justify the chosen model a) Requirements has a number of risk so has to include risk analysis as they develop the software b) Team size is less and but have excellent skill so team can prioritize requirement and develop	5 5	**CO1-4-2.4.3**
Q 2	For the given Event List (a) Draw the DFD level 1 diagram (Happy path) (b) Sequence diagram for a single use case i. Customer books a cab from his/her smartphone via an app ii. UBER dispatch algorithm sends a request to the driver nearest in proximity to customer iii. Driver may accept or reject the ride request iv. If driver decides to reject the request then system will attempt to connect the customer with next closet available driver v. If driver accepts the request then system sends Driver Details and an estimation on how long your car will take to show up vi. Driver picks up customer and drops at destination vii. Application prepares Trip Bill and driver shows the same to	7 3	**CO2-4-2.4.4**

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	customer viii. Customer verifies Trip Bill ix. Customer can pay in cash or electronically x. If customer makes payment electronically then payment made by customer is sent to accounts department. Account department keeps 20% of received amount and sends remaining to driver xi. Receipt is send to customer via email		
Q 3	a) Choose the most appropriate architectural pattern i. Wants a system that can be divided into reusable, loosely coupled components that can be flexibly combined and arranged to transform between various data formats. ii. Wants a distributed system with a structure that enables that service users do not need to know the nature or location of service providers. iii. Wants a system that quickly can analyze enormous volumes of data by sorting the data and then analyzing the grouped data. b) Give a scenario and explain any two design pattern	6 4	CO2-4-3.2.3
Q4	Find the critical path. Tabulate EST, EFT, LST, LFT and FLOAT (CO3)	10	CO3-5-4.3.3
Q 5	5. An artist agreed to prepare portraits of 100 celebrities in 200 days at a price of $500 per portrait. Fifty days later, artist finished 21 portraits with an actual total cost of $11,400. What is the status of the Project? Specify your answer by making all possible EVA (Earned Value Analysis) calculations like PV, AC, EV, SV, CV, SPI and CPI.	10	CO3-5 4.3.4
	OR		

Q4 table:

Activity	Description	Duration	Predecessors
A	Prepares Office	12	-
B	Procure Equipments	8	-
C	Design tests	5	-
D	Install Equipment	10	A and B
E	Test Systems	10	C and D
F	Train Users	5	A and B

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	Explain the factors that might delay a Project Schedule. State the product metrics that will be affected.	**10**	**CO3-5 4.3.4**

Q 6	6. For the given code below find the cyclomatic complexity in all the three methods
	
	``cpp
	int main()
	{
	    int n, index;
	    cout << "Enter a number: " << endl;
	    cin >> n;
	    index = 2;
	    while (index <= n - 1) {
	        if (n % index == 0) {
	            cout << "It is not a prime number" << endl;
	            break;
	        }
	        index++;
	    }
	    if (index == n)
	        cout << "It is a prime number" << endl;
	} // end main
	``
		10	**CO4-5 4.1.2**

	OR		
	``` What is the best way of doing software integration Justify your answer ```	**10**	