

Final Assessment Test (FAT) - APRIL/MAY 2023

Programme	B.Tech	Semester	Winter Semester 2022-23
Course Title	SOFTWARE ENGINEERING	Course Code	BCSE301L
Faculty Name	Prof. Parkavi K	Slot	C1+TC1
		Class Nbr	CH2022235000240
Time	3 Hours	Max. Marks	100

Section 1 (7 X 10 Marks)

Answer All questions

01. An Inventory Management System in a library can help the librarian to simplify the process of ordering books, maintaining details such as books, faculty, staffs and students in the database. Librarian can add, update, delete the details about the records of books, faculties, staffs and students and generate various kinds of reports. Faculties, staffs and students can search, reserve, renew and lend the books. The project requirements are well defined. As a project developer, a. Identify and explain the suitable process model for this system and justify your choice. (7 marks) [10]
b. Highlight the advantages and disadvantages of the chosen model. (3 marks)
02. MiniMart Departmental store plans to switch over the manual process to computerized operation by incorporating various features in the software as follows. [10]
• maintaining the purchase order
• managing the stock details
• product selling details
• report generation
• authentication of users
• back up in a regular basis
a. Create the work break down structure for given system (5 marks)
b. Provide the project schedule using gantt chart for the given specification (5 marks)
03. Design the data flow diagram for the scenario given in question 1 (up to level 2). [10]
04. Consider a system containing the following components X, Y, Z, P, Q and R. Each component has interaction with other components in different ways as below. Identify the type of coupling among the components and justify. [10]
a. Class X passes its data members to Class Y through method call
b. Class Y passes an object inside a method which is invoked by Class Z
c. Both P and Q classes shares the same common data store for their operations
d. Class Y passes a control flag that alters the execution flow of Class Q
e. Class Z directly accesses an attribute in Class P by creating an object for it.
05. Consider the code fragment given below: [10]
number = int(input())
if number > 1:
for i in range(2, number):
if (number % i) == 0:
print("No")

```
break a
else: print("Yes")
```

The objective of the software tester is to check the internal structure or functionality of the software.

- Identify the type of testing to be done on given scenario (1 Mark)
- Draw the flow graph and find independent paths (5 Marks)
- Find the cyclomatic complexity using all three methods (4 Marks)

06. Consider the University exam portal Code-Mantra which includes the following modules.

- Examinee details (Name, Reg.no)
- Subject Details (Sub-code and credits)
- Proctor Details(Name, Phone number)
- Attendance details (Examinee should have 70 percentage of Attendance).

[10]

you are requested to perform reengineering process to improve their quality, performance, and maintainability of a University exam portal Code-Mantra as per the given specification.

- Clarify the major factors which can be re-engineered for accessing this portal.(6 marks)
- Describe the re-engineering steps involved for given scenario.(4 marks)

07. The ABC manufacturing company produces various products such as Desktop, Laptop, Tablet and Mobile phone. The company likes to get the ISO certification for their products. [10]

- Identify and provide various ISO quality metrics. (5 marks)
- Discuss about the six sigma applications in ABC Company (5 marks)

Section 2 (2 X 15 Marks)

Answer All questions

08. a) ATM allows the customers to deposit amount into machine and withdraw amount from the machine. Initially, the customer has to insert a card and enter pin number in the machine. If the Pin number is found to be correct then machine allows the customer to perform further process. Otherwise, warn the customer as "Invalid PIN Number". Describe and perform the following as per the given specification. [15]

- Designing test cases (3 marks)
- Equivalence Partitioning (3 marks)
- Boundary value analysis (3 marks)
- Decision table testing (3 marks)

b) Estimate the project cost and Effort by using LOC approach for the given ATM System as follows.(3 marks)

Function	Estimated LOC
Pin validation	100
Withdraw	300
Deposit	800
Checking balance	200
Transfer money	500

- Average productivity of the system = 75 LOC/pm.
- the cost per line of code is approximately Rs. 10.
- Burdened labor rate =8000 per month.

19. Consider the scenario given in question 1 and perform the following.

[15]

- a. Identify the functional and nonfunctional requirements of the given system and elaborate it in detail (10 marks)
- b. Identify and explain the risks involved in developing such a system (5 marks)

