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QUESTION PAPER

Name of the Examination: Fall 2023-24 Semester – CAT-2

Course Code: CSE 1005

Set number: 2

Duration: 90min

Course Title: Software Engineering

Date of Exam: 16/10/2023 (FN)(B1)

Total Marks: 50Marks

Instructions:

1. Assume data wherever necessary.

2. Any assumptions made should be clearly stated.

1. What do you mean by strategic issues in a business context? Share a real-life example of a strategic issue and describe how a company could approach solving it.   (10M)

2. How can behavioral Testing be utilized to examine potential gameplay issues or technical glitches that could impact the user experience in the context of a gaming company launching a new multiplayer online game? Provide a comprehensive explanation of how Black Box Testing would be implemented in this specific scenario to guarantee the software or system's quality and dependability.   (10M)

3. Discuss some challenges that teams might face when applying architectural design metrics. How can these challenges be addressed or mitigated? Provide strategies for ensuring that architectural design metrics are used effectively to guide design decisions.   (10M)

4. Discuss some challenges that teams might face when applying Function Point Metrics. How can these challenges be addressed or mitigated? Provide strategies for ensuring that Function Point Metrics are used effectively to size software projects.   (10M)

5. Explain the concept of 'Boundary Value Analysis' and 'Equivalence Partitioning' in software testing. Provide examples to illustrate how these techniques can be applied.   (10M)

QUESTION PAPER

Name of the Examination: CAT 2 (WINTER 2022-2023)

Course Code: CSE 1005

Course Title: Software Engineering

Slot: 3

Date of Exam: 30/03/2023 (AN)

Duration: 90 min

Total Marks: 50 (D2)

Instructions:

1. Assume data wherever necessary.
2. Any assumptions made should be clearly stated.

Q1. a) Discuss about importance of verification and validation in context of software testing.

[8 M]

b) Considering an information system following values related to it, calculate functional point when complexity adjustment factors are average product and weight factors in all three cases (simple, Average and Complex). [7 M]
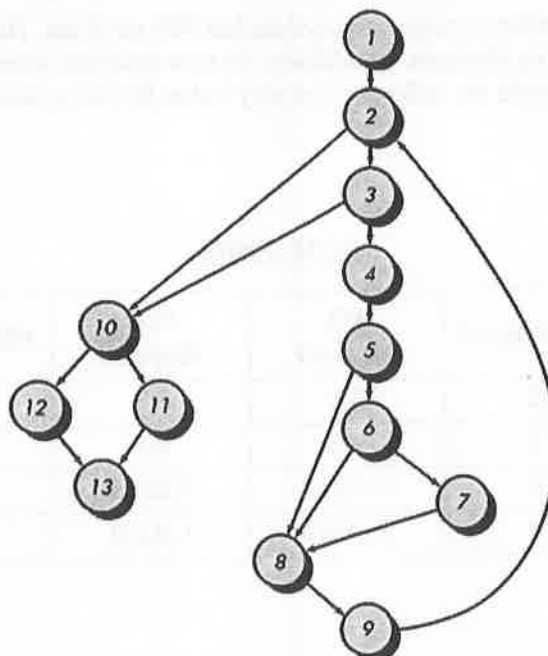
user inputs = 40   user outputs = 20

user inquires = 25   Internal logical files = 5

External Interfaces = 10

Q2. Discuss how important is cyclomatic complexity in software testing? compute the cyclomatic complexity for the below given graph. [10 M]

Q3. a) Explain about the three major software design complexity measures (Architectural design metrics) [5 M]

b) Discuss about Fenton simple morphology metrics and calculate metrics for below graph [5 M]
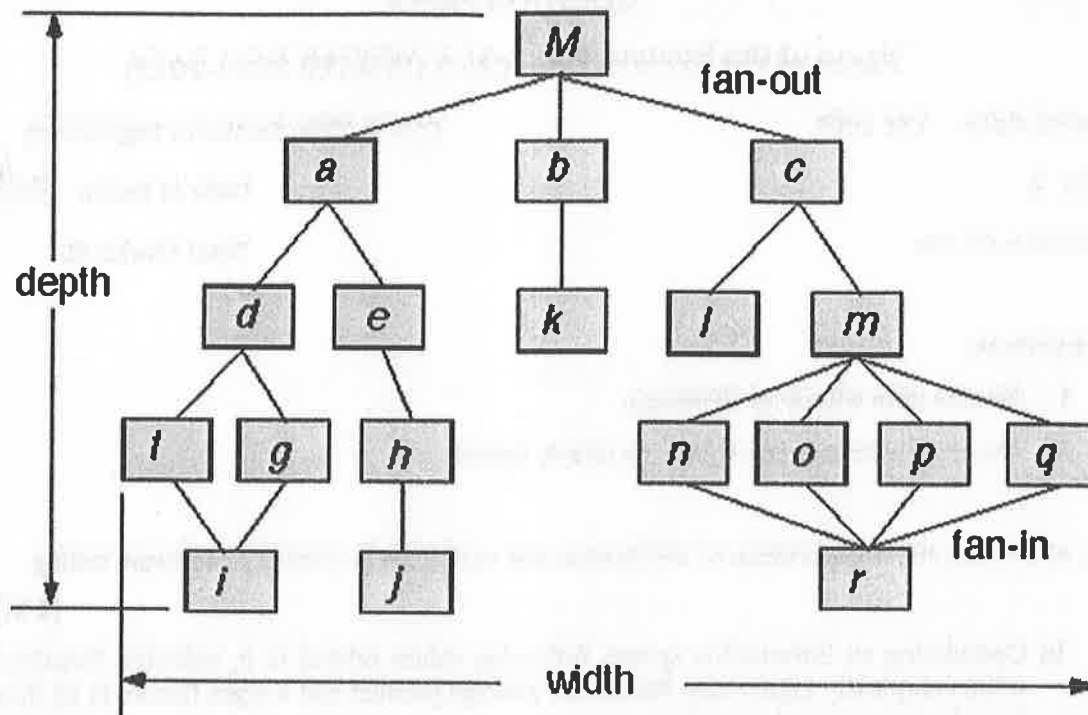
Q4. a) A Fin Tech mobile app has 1800 modules. There are 86 modules that perform control and coordination functions and 400 modules whose function depends on prior processing. The system processes approximately 380 data objects that each have an average of three attributes. There are 110 unique database items and 90 different database segments. Finally, 700 modules have single entry and exit points. Compute the DSQI for this system. [8 M]

b) A university information management system has 900 modules. The latest release required that 65 of these modules be changed. In addition, 70 new modules were added, and 20 old modules were removed. Compute the software maturity index for the system. [7 M]

QP MAPPING

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	3	3	3,5	3,5	1	15
Q2	3	3	3,5	3,5	1	10
Q3	4	4	7,10,11	7,10,11	1	10
Q4	4	4	7,10,11	7,10,11	1	15

Name of the Examination: WINTER 2022-2023 – CAT-2

Course Code: CSE1005

Set number: 5

Duration:90 minutes

Course Title: Software Engineering

Date of Exam: 30/03/2023 (FN) (D₁)

Total Marks: 50M

Instructions:

1. Assume data wherever necessary.

2. Any assumptions made should be clearly stated.

Q1. Compute the function point value for a project with the following information domain characteristics:
Number of user inputs: 32
Number of user outputs: 60
Number of user inquiries: 24
Number of files: 8
Number of external interfaces: 2
Assume that all complexity adjustment values are average and weighting factors are high.   **(10M)**

Q2. Discuss Basis path testing? Consider the Code Snippet below and Perform Basis Path Testing?

```
int num1 = 6;
int num2 = 9;
if (num2 ==0) {
cout<<"num1/num2 is undefined" <<end1;
} else {
If (num1 > num2) {
cout<<"num1 is greater" <<end1;
} else {
Cout<<"num2 is greater" <<end1;
}
}                                                                    (10M)
```

Q3. How is debugging different from testing? Explain the process of Debugging? List out the characteristics that lead to testable software?

(10M)

Q4. Explain the Significance of Software Maturity Index (SMI) in the software Maintenance. A legacy software system has 940 modules. The latest release requires that 90 of these modules be changed. In addition, 40 new modules were added, and 12 old modules were removed. Compute the software maturity index for the system.   **(10M)**

Q5. Testing proceeds in an outward manner. It starts from testing the individual units, progresses to integrating these units, and finally, moves to system testing. Justify the statement. What are the test Strategies for Conventional Software? Explain with an example?

<div align="right">(10M)</div>

<div align="center">**QP MAPPING**</div>

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	4	4	4,9,10,11	1	1	10
Q2	3	3	1,2,4,5,9,10	1	1	10
Q3	3	3	1,2,4,5,9,10	1	1	10
Q4	4	4	4,9,10,11	1	1	10
Q5	3	3	1,2,4,5,9,10	1	1	10

QUESTION PAPER

Name of the Examination: WINTER 2022-2023 – CAT-2

Course Code: CSE1005

Set number: 2

Duration: 90 minutes

Course Title: Software Engineering

Date of Exam: 31/03/2023 (FN)

Total Marks: 50 (E1)

Instructions:

1. Assume data wherever necessary.
2. Any assumptions made should be clearly stated.

Q1. Present an argument against lines of code as a measure for software productivity. Will your case hold up when dozens or hundreds of projects are considered? **(10M)**

Q2. (A) A system has 12 external inputs, 24 external outputs, fields 30 different external queries, manages 4 internal logical files, and interfaces with 6 different legacy systems (6 EIFs). All of these data are of average complexity and the overall system is relatively simple. Compute function point for the system. **(10M)**

(B) Assume a scenario where a software product has been released which contains 103 modules.

Once it is delivered to the customer, based on the feedback 11 modules are to undergo modification and 8 new modules are to be added. Further 4 modules have to be deleted from the current release. **(5M)**

Q3. Write a program in a language of your choice to check whether a number is prime. Draw the control

flow graph for the program and calculate the cyclomatic complexity. **(15M)**

Q4. Give two examples of whitebox testing and blackbox testing each with proper justification. **(10M)**

QP MAPPING

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	4	2	2	3	2	10
Q2	4	3	1	2	3	15
Q3	3	1	3	1	2	15
Q4	3	3	4	2	1	10