

2024

(5th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : SWE:502 (Old Course)

(Software Engineering)

Full Marks : 70

Pass Marks : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 45)

*The figures in the margin indicate full marks
for the questions*

1. (a) Briefly explain about the prototype model with a neat diagram. 5

(b) Describe about different types of software myths. 4

Or

(c) What do you understand by the term software crisis? What are the main causes of software crisis? Give one example of software crisis. 5

(2)

- (d) List out the merits and demerits of waterfall model. 4

2. (a) A software project is planned to cost 95 PY in a period of 2 years 9 months. Calculate the peak manning and average rate of software team build up. 5

- (b) What do you understand by the term 'risk'? Explain different types of risk management. 4

Or

- (c) Compute the function point for the following data :

- (i) Number of user input=30
- (ii) Number of external output=60
- (iii) Number of external inquiries=23
- (iv) Number of files=8
- (v) Number of external interface=2

It is given that weighing factors are average and complexity adjustment factor (CAF) are moderate. 5

- (d) Compare the following : 4
- (i) Static single variable and static multivariable model
 - (ii) Basic and detailed COCOMO model

(3)

3. (a) What do you mean by the terms 'cohesion' and 'coupling'? How are the concepts useful for good design system? 5

- (b) What is data dictionary? Explain each component. 4

Or

- (c) Define coupling. Discuss various types of coupling. 5

- (d) Draw an ER diagram for the following situation: 4

An account is a relationship between customer and bank.

A customer has a name.

A bank has a branch.

A customer may have several accounts of different types and balance.

4. (a) What do you mean by software quality assurance? Explain various factors of software quality. 5

- (b) Write a short note on formal technical review. 4

Or

- (c) Relate quality assurance with quality control. Justify your answer that quality assurance is not quality control. 5

(d) Show the relationship among failure, fault and error. 4

5. (a) What are the different levels of testing? Explain in detail. 5

(b) Define reverse engineering. What are the main objectives of reverse engineering? 4

Or

(c) Why is maintenance of a software important? Discuss some of the problems that are faced during maintenance of software. 5

(d) Explain the difference between white-box testing and black-box testing along with their advantages. 4

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Paper : SWE:502 (Old Course)

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(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

1. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

(a) SDLC is

- (i) structured ()
- (ii) unstructured ()
- (iii) semi-structured ()
- (iv) All of the above ()

(b) The most important feature of spiral model is

- (i) requirement analysis ()
- (ii) risk management ()
- (iii) quality management ()
- (iv) configuration management ()

(c) Which of the following is not a recognized software project type under COCOMO model?

- (i) Embedded ()
- (ii) Semidetached ()
- (iii) Detached ()
- (iv) Organic ()

(d) Which of the following is not a direct measure of software engineering process?

- (i) Efficiency ()
- (ii) Cost ()
- (iii) Effort applied ()
- (iv) All of the above ()

(e) Integrated data dictionary consists of

- (i) active ()
- (ii) passive ()
- (iii) shared ()
- (iv) Both (i) and (ii) ()

(f) Who identifies documents and verifies that corrections have been made to the software?

- (i) Project manager ()
- (ii) Project team ()
- (iii) SQA group ()
- (iv) All of the above ()

(g) What is not included in prevention cost?

- (i) Quality planning ()
- (ii) Formal technical review ()
- (iii) Test equipment ()
- (iv) Equipment calibration and maintenance ()

(h) A software might allow a user to interact via

- (i) keyboard commands ()
- (ii) mouse movements ()
- (iii) voice-recognition ()
- (iv) All of the above ()

(i) What is cyclomatic complexity?

- (i) Black-box testing ()
- (ii) White-box testing ()
- (iii) Yellow-box testing ()
- (iv) Green-box testing ()

(j) Maintenance is classified in how many categories?

- (i) Two ()
- (ii) Three ()
- (iii) Four ()
- (iv) Five ()

(5)

2. State whether the following are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

(a) The prototype model delivers software in small but usable pieces.

(T / F)

(b) The COCOMO model takes account different approaches to software development, reuse, etc.

(T / F)

(c) There are basically two types of data dictionaries in a DBMS.

(T / F)

(d) Software quality assurance consists of the auditing and reporting function of management.

(T / F)

(e) Regression testing is a very expensive activity.

(T / F)

3. Answer the following questions in short : $2 \times 5 = 10$

- (a) When can we use waterfall model? List out the advantages of waterfall model.

(7)

(b) What is cyclomatic complexity in software testing?

(c) Explain the symbols used in ER model.

- (d) What are the three categories belonging to McCall's factor model?

(10)

(e) Compare verification with validation.
