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3 (Sem-4/CBCS) CSC HC 2

2023

COMPUTER SCIENCE

(Honours Core)

Paper : CSC-HC-4026

(Software Engineering)

Full Marks : 60

Time : Three hours

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

1. Choose the correct answer for the following :

1×7=7

(a) Effort is measured using which one of the following units :

(i) Persons

(ii) Person-months

(iii) Months

(iv) Rupees

Contd.

(b) Which one of the following is NOT desired in a good software requirement specification SRS document ?

- (i) Functional requirement
- (ii) Non-functional requirement
- (iii) Goals of implementation
- (iv) Algorithms for software implementation

(c) The modules in a good software design should have which of the following characteristics ?

- (i) High cohesion, low coupling
- (ii) Low cohesion, high coupling
- (iii) Low cohesion, low coupling
- (iv) High cohesion, high coupling

(d) Which of the following can be considered as a program validation technique ?

- (i) Unit testing
- (ii) Code reviews
- (iii) Integration testing
- (iv) Acceptance testing

(e) In the waterfall SDLC model, unit testing is carried out during which one of the following phase ?

- (i) Coding
- (ii) Testing
- (iii) Design
- (iv) Maintenance

(f) Which one of the following is NOT a factor for LOC being considered as a poor size metric?

(i) It is programming language dependent

(ii) It penalises efficient and compact coding

(iii) It is programmer dependent

(iv) It is dependent on the complexity of the requirement

(g) A DFD depicts which of the following?

(i) Flow of data

(ii) Flow of control

(iii) Flow of statements

(iv) None of the above

2. Define the following terms : $2 \times 4 = 8$

(a) Sliding window planning

(b) Function point (FP) metric

(c) Unit testing

(d) Black-box testing

3. Answer **any three** of the following questions : $5 \times 3 = 15$

(a) What do you mean by system testing? Explain **any one** system testing.

(b) What is SRS? Explain the characteristics of a good SRS.

(c) What do you mean by software quality assurance? What is importance of debugging and reliability analysis in software quality?

(d) What is DFD? Briefly explain the element of a DFD.

- (e) Distinguish between software verification and software validation. In which phase(s) of the iteration waterfall SDLC are the verification and validation activities performed?

4. Answer the following questions : **(any three)**

10×3=30

- (a) What are the differences between top-down and bottom-up integration testing approaches?

What are their advantages and disadvantages? Explain your answer using an example.

5+5=10

- (b) Define software quality. How to get ISO 9000 certification? What are the shortcomings of ISO 9000?

2+5+3=10

- (c) Explain the following:

(i) Basic COCOMO model

(ii) Software risks

- (d) What is SDLC models? Explain the spiral model of SDLC in detail.

3+7=10

- (e) Explain the concept of coupling and cohesion in software design. Discuss the ideal requirement of cohesion and coupling for good software design.

5+5=10

- (f) What are the differences between data flow diagram and entity relationship diagram? Briefly explain it.