

Total number of printed pages-5

53 (IT 605) SWEN

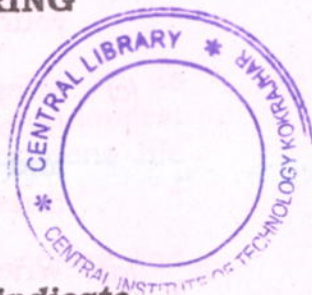
2019

SOFTWARE ENGINEERING

Paper : IT 605

Full Marks : 100

Time : Three hours



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

Answer any five questions.

1. (a) With a clear diagram, discuss briefly the different phases of Classical Waterfall Model for software development. 10
- (b) Why Classical Waterfall Model is not a choice of the modern software developers? 5
- (c) Discuss any other models that can overcome the problem of Classical Waterfall Model. 5

Contd.



2. (a) What is SRS? Lists six desirable characteristics of a good Software Requirement Specification (SRS) documents. 1+3=4
- (b) Create a suitable SRS for the library of your college. 10
- (c) Suppose that a project was estimated to be 400 KLOC. Calculate the effort and development time for each of the three modes of basic COCOMO. 6
3. (a) Write the differences between CPM and PERT project management. 4
- (b) Consider the following table summarizing the details of a project.

Activity	Predecessor(s)	DURATION (weeks)		
		Optimistic time	Most likely time	Pessimistic time
A	-	5	6	7
B	-	1	3	5
C	-	1	4	7
D	A	1	2	3
E	B	1	2	9
F	C	1	5	9
G	C	2	2	8
H	EF	4	4	10
I	D	2	5	8
J	H, G	2	2	8

- (f) Construct the Project Network.

- (ii) Find the expected duration and variance of each activity. 4+8+4=16
- (iii) Find the critical path and expected project completion time. 4+8+4=16

4. (a) Why software maintenance is considered as the costliest and longest phase in software development life cycle? 4
- (b) Explain Software RE Engineering and Reverse Engineering. 4
- (c) Suggest why the architectural design of a system should precede the development of a formal specification. 4
- (d) Explain the steps in Requirement Engineering. 4
- (e) Define Software Risk and Software Quality Assurance. Write the differences between Proactive and Reactive Risk strategies. 4

5. (a) Briefly explain Cohesion and Coupling with suitable diagram. 5+5=10

(b) Can a module be both highly cohesive and highly coupled? Would that be desirable? Justify your answer. 4

(c) Explain the following context of UML:
(i) Sequence Diagram 6
(ii) Class and Objects. 6

6. (a) Describe different types of views and diagrams supported in UML. 4+8=12

(b) Describe three golden rules of User Interface Design. 3

(c) Consider the following: 3+2=5

```
IF A=10 THEN  
  IF (B>C) THEN  
    A=B  
  ELSE  
    A=C;  
  END IF  
END IF  
PRINT A  
PRINT B  
PRINT C
```

Create a CFG and also compute McCabe's Cyclomatic Complexity for the above code.

7. Write short notes on the following: 4×5=20
(any four)

(a) White box testing and Black box testing

(b) Alpha testing (α) and Beta testing (β)

(c) Top down and Bottom-up Integration testing

(d) Functional and Non-functional requirements

(e) GUI and Test-based interface.

