

**AUTUMN MID SEMESTER EXAMINATION-2019****School of Computer Engineering****KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY  
DEEMED TO BE UNIVERSITY, BHUBANESWAR-24****Software Engineering [IT-3003]****Time: 1½ Hours****Full Mark: 20***Answer any four questions including question No.1 which is compulsory.**The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.***Q.1.****[5x1]**

- (a) Identify the factors that contribute to the software crisis.
- (b) What is software Engineering? Why is it important in software development?
- (c) What do you understand by feasibility study?
- (d) What do you mean by perfective maintenance? Give an example?
- (e) List out the responsibilities of a project manager in software project management.

**Q.2.****[2.5x2]**

- (a) Briefly explain the process of developing software using prototyping model. Under what circumstances is it beneficial to develop a prototyping model?
- (b) Explain the spiral model with the help of a neat sketch. Write its advantages and disadvantages?

**Q.3.****[2.5x2]**

- (a) Write the importance of SRS document. What criteria are used to develop SRS for a given software project?
- (b) Explain different components that are performed in scrum methodology.

**Q.4.****[2.5x2]**

- (a) Define Function point metric. How is it better as compared to the LOC metric in determining the project size estimates?
- (b) Assume that the size of an semidetached type of software product has been estimated to be 60,000 lines of source code. Assume that the average salary of software engineers be Rs. 30,000/- per month. Determine the effort required to develop the software product, the nominal development time and productivity using basic COCOMO. (Constants:  $a_1=3.0$ ,  $a_2=1.12$ ,  $b_1=2.5$ ,  $b_2=0.35$ )

**Q.5. (a) What is Gantt chart ? Show the Gantt chart of scheduling of activities by taking a suitable example. [2]**

(b) Consider a software project scenario that has 7 activities named as A, B, C, D, E, F, and G. The duration of the activities, in weeks, are 3, 2, 8, 4, 5, 10, and 10 respectively. Tasks B and E can start only when A is completed. Tasks C and F can commence only after the completion of task B. Tasks D and G can be initiated only when task C gets over. Task F can get started only after tasks D and E are over. For the given problem:

**[3]**

- I. Draw the activity network diagram
- II. Identify the critical path and slack time for all the paths.

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