Total No. of Questions: 6 Total No. of Printed Pages:2

## Enrollment No.....



## Faculty of Engineering End Sem (Odd) Examination Dec-2018 CS3CO11/IT3CO12 Software Engineering

Programme: B.Tech. Branch/Specialisation: CSE/IT

Duration: 3 Hrs. Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

| Q.1 | i.    | Waterfall model is suggested when:                       |                              | 1 |
|-----|-------|--|------------------------------|---|
|     |       | (a) Requirements are clearly                             | understood                   |   |
|     |       | (b) Problems are small and                               | easy                         |   |
|     |       | (c) Software development is                              | s fast paced                 |   |
|     |       | (d) Team size is small                                   |                              |   |
|     | ii.   | Spiral model was developed by:                           |                              | 1 |
|     |       | (a) Bev Littlewood                                       | (b) Barry Boehm              |   |
|     |       | (c) Roger Pressman                                       | (d) Ian Somerville           |   |
|     | iii.  | User-system scenario is rep                              | resented by which diagram:   | 1 |
|     |       | (a) Dataflow diagram                                     | (b) Activity diagram         |   |
|     |       | (c) Use-case diagram                                     | (d) Class diagram            |   |
|     | iv.   | During analysis phase requirements cannot be modelled a  |                              | 1 |
|     |       | (a) Flow oriented models                                 | (b) Data oriented models     |   |
|     |       | (c) Class oriented models                                | (d) Programs                 |   |
|     | v.    | Design does not include:                                 |                              | 1 |
|     |       | (a) System design  | (b) Interface design         |   |
|     |       | (c) Data design  | (d) Cost Estimations         |   |
|     | vi.   | Process to control changes during system development is: |                              | 1 |
|     |       | (a) System management                                    | (b) Configuration management |   |
|     |       | (c) Version control                                      | (d) Change control           |   |
|     | vii.  | Reliability is achieved by:                              |                              | 1 |
|     |       | (a) Fault avoidance                                      | (b) Fault tolerance          |   |
|     |       | (c) Fault detection                                      | (d) All of these             |   |
|     | viii. | Risks involve loss due to:                               |                              | 1 |
|     |       | (a) Technical Risks                                      | (b) Business Risks           |   |
|     |       | (c) Project Risks  | (d) All of these             |   |

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|     | ix.   | Efforts are measured in:  |                       |                    | 1 |  |
|-----|---|---|-----------------------|--------------------|---|--|
|     |   | (a) Person-months   | (b) Persons           |                    |   |  |
|     |   | (c) Months  | (d) Rupees            |                    |   |  |
|     | х.  | What is not considered as a valid metric:   |                       |                    | 1 |  |
|     |   | (a) Quality (b) KLOC  | (c) Constraints       | (d) Defect rate    |   |  |
| Q.2 | i.  | Define Software Engineering.  |                       |                    |   |  |
|     | ii.   | Elaborate on the software generic process framework.  |                       |                    |   |  |
|     | iii.  | Explain spiral model in detail. Why is spiral model referred as a metamodel?                                |                       |                    |   |  |
| OR  | iv.   | Enumerate and describe various software application domains with suitable examples of each.                 |                       |                    | 5 |  |
| Q.3 | i.  | Differentiate functional and non-functional requirements?   |                       |                    | 4 |  |
|     | ii.   | Explain different requirement elicitation techniques? How are   |                       |                    |   |  |
|     |   | requirements modelled and analysed?   |                       |                    |   |  |
| OR  | iii.  | Explain the components and significance of class diagram? How are relationships between classes classified? |                       |                    | 6 |  |
| Q.4 | i.  | What are components? How  | do classes and comp   | onents differ?     | 2 |  |
|     | ii.   | Enumerate and explain basic design principles?  |                       |                    |   |  |
|     | iii.  | What is the significance of user interfaces in software design? List  |                       |                    |   |  |
|     | some characteristics of effective interface design? |   |                       |                    |   |  |
| OR  | iv.   | . Describe architectural design and its types?  |                       |                    | 5 |  |
| Q.5 | i.  | Differentiate verification and  | l validation?         |                    | 4 |  |
|     | ii.   | Explain various quality char-   | acteristics of softwa | re. How are risks  | 6 |  |
|     |   | classified and managed?   |                       |                    |   |  |
| OR  | iii.  | What is the aim of software t   | esting? Explain V m   | nodel for testing? | 6 |  |
| Q.6 |   | Write short note on any two:  |                       |                    |   |  |
|     | i.  | <b>Function Point Analysis</b>  |                       |                    | 5 |  |
|     | ii.   | COCOMO Model  |                       |                    | 5 |  |
|     | iii.  | <b>Project and Product Metrics</b>  |                       |                    | 5 |  |

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## Marking Scheme CS3CO11/IT3CO12 Software Engineering

| Q.1 | 1.    | Waterfall model is suggested when:                    |               | 1 |
|-----|-------|---|---------------|---|
|     |       | (a) Requirements are clearly understood               |               |   |
|     | ii.   | Spiral model was developed by:                        |               | 1 |
|     |       | (b) Berry Bohem                                       |               |   |
|     | iii.  | User-system scenario is represented by which dia      | gram:         | 1 |
|     |       | (c) Use-case diagram                                  |               |   |
|     | iv.   | During analysis phase requirements cannot be mo       | odelled as:   | 1 |
|     |       | (d) Programs  |               |   |
|     | v.    | Design does not include:                              |               | 1 |
|     |       | (d) Cost Estimations                                  |               |   |
|     | vi.   | Process to control changes during system develop      | oment is:     | 1 |
|     |       | (b) Configuration management                          |               |   |
|     | vii.  | Reliability is achieved by:                           |               | 1 |
|     |       | (d) All the above                                     |               |   |
|     | viii. | Risks involve loss due to:                            |               | 1 |
|     |       | (d) All the above                                     |               |   |
|     | ix.   | Efforts are measured in:                              |               | 1 |
|     |       | (a) Person-months                                     |               |   |
|     | х.    | What is not considered as a valid metric:             |               | 1 |
|     |       | (c) Constraints                                       |               |   |
| Q.2 | i.    | Define Software Engineering                           |               | 2 |
|     | ii.   | Software generic process framework.                   |               | 3 |
|     | iii.  | Spiral model.   |               | 5 |
|     |       | Diagram   | 2 marks       |   |
|     |       | Explanation   | 2 marks       |   |
|     |       | Spiral model referred as a metamodel                  | 1 mark        |   |
| OR  | iv.   | Software application domains with suitable exam       | ples of each. | 5 |
|     |       | Atleast 5 types ,1 mark each                          | (1 mark *5)   |   |
| Q.3 | i.    | Difference functional and non-functional requirements |               | 4 |
|     |       | At least 4 points 1 mark for each                     | (1 mark *4)   |   |
|     | ii.   | Different requirement elicitation techniques          | 4 marks       | 6 |
|     |       | How are requirements modelled and analysed            | 2 marks       |   |
| OR  | iii.  | Components and significance of class diagram          | 3 marks       | 6 |
|     |       | _   |               |   |

|     |      | How are relationships between classes classified   | 3 marks     |   |
|-----|------|--|-------------|---|
| Q.4 | i.   | What are components                                | 1 mark      | 2 |
|     |      | How do classes and components differ               | 1 mark      |   |
|     | ii.  | Basic design principles                            |             | 3 |
|     |      | At least 5 points 1 mark for each                  | (1 mark *3) |   |
|     | iii. | Significance of user interfaces in software design | 2 marks     | 5 |
|     |      | Characteristics of effective interface design      | 3 marks     |   |
| OR  | iv.  | Architectural design                               | 1 mark      | 5 |
|     |      | Its types At least 4 types 1 mark for each         | 4 marks     |   |
| Q.5 | i.   | Differentiate verification and validation          |             | 4 |
|     |      | At least 4 points 1 mark for each                  | (1 mark *4) |   |
|     | ii.  | Quality characteristics of software.               | 3 marks     | 6 |
|     |      | Risks classified and managed                       | 3 marks     |   |
| OR  | iii. | Aim of software testing                            | 2 marks     | 6 |
|     |      | V model for testing                                | 4 marks     |   |
| Q.6 |      | Attempt any two:                                   |             |   |
| -   | i.   | Function Point Analysis                            |             | 5 |
|     | ii.  | COCOMO Model                                       |             | 5 |
|     | iii. | Project and Product Metrics                        |             | 5 |

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