Sample Question Format

KIIT Deemed to be University
Online Mid Semester Examination(Spring Semester-2021)

Software Engineering & IT-3003:
Full Marks=20 **Time:1 Hour**

SECTION-A(Answer All Questions. All questions carry 2 Marks)

Time:20 Minutes **(5×2=10 Marks)**

Question No	Question Type(MCQ/SAT)	Question	Answer Key(if MCQ)	CO Mapping
Q.No:1(a)	MCQ	Which is not true about Gantt chart? **A.** Lists the activities **B.** Provides activity start and end time **C.** Estimates Activity complexity **D.** Captures Activity Overlapping	C	CO3
	MCQ	Function point metric of software also depends on the? **A.** Time required for calculating one set of output **B.** Number of interfaces **C.** Complexity of files **D.** Level of abstraction	B	CO3
	MCQ	Which of the following statement is correct regarding COCOMO? **A.** Basic COCOMO uses 15 cost drivers in order to make the estimation more accurate. **B.** Constant parameters in basic and indeterminate COCOMO have no impact on the estimation. **C.** basic and the intermediate COCOMO consider a software product as a single homogeneous entity	C	CO3

		D. A and B both		
	MCQ	Which of the following statement is correct regarding the work breakdown structure of a system? **A.** leaf-level subactivity requires approximately two months to develop **B.** The system should be decomposed till hidden complexities are exposed. **C.** There is no limit to the decomposition of a activity. **D.** Only A and C	B	CO3
Q.No:1(b)	**MCQ**	Choose the correct option from given below: **A.** XP is an appropriate agile process model for projects involving old technology or non-research projects **B.** The objective of Sprint review is to review the work done by the Scrum team and provide feedback. **C.** User story can be defined as a quantifiable value that can be used to track testing progress. **D.** Agile is not suitable for adopting dynamic changes during the development process.	B	CO1
	MCQ	Which of the following do not apply to agility to a software process? **A.** Less emphasis on Communication among team members **B.** Working Software Over Documentation **C.** Uses incremental product	A	CO1

		delivery strategy **D.** Working Software Over Documentation		
	MCQ	Abstraction refers to: **A.** process of representing the entire information of the system **B.** The principle advocates decomposing the problem into many small independent parts. **C.** Process of crafting the various prototypes **D.** the simplification of a problem by focusing on only one aspect of the problem while omitting all other aspects	D	CO1
	MCQ	Choose the correct option from given below: **A.** Daily scrum is a formal opportunity to inspect the testing scenarios of the entire project **B.** The sprint retrospective is a formal opportunity to review how the last Sprint went and identify areas for continuous improvement for future Sprints. **C.** Timeboxing helps in stay focused on ethics. **D.** A sprint is a period during which complete project work has to be completed and made ready for review	B	CO1
Q.No:1(c)	**MCQ**	Product Backlog Refinement is the process where: **A.** The user stories are developed **B.** The Scrum team understands the Product Backlog and keeps it ready for at least a couple of Sprints. **C.** A formal inspection is done for tracking the team's progress	B	CO1

		with respect to Sprint Goal. **D.** Several quick designs are created that are useful in a sprint		
	MCQ	What are the criteria for a successful software project? **A.** Complete the project without including documentation process **B.** Develop all the requirements without concerning about quality factors **C.** Emphasis more on adopting changes even if a project is not meeting budget and schedule **D.** Complete the project within the given budget and deadline	D	CO1
	MCQ	The classical waterfall model is useful when: **A.** There are regular changes during the development process **B.** When customers are involved in assisting regular changes **C.** When there is a need for incremental delivery **D.** No defect is introduced during any development activity	D	CO1
	MCQ	Choose the correct option from given below: **A.** RAD model is the most suitable process model for high risk oriented projects **B.** The spiral model is best suited for rapid development. **C.** The evolutionary software development process is sometimes referred to as design a little, build a little, test a little, deploy a little model. **D.** Waterfall process models are best suited for incomplete and ever-changing requirements.	C	CO1

Q.No:1(d)	**MCQ**	Which statement is correct regarding requirements Gathering and analysis? **A.** A stakeholder is a source of the requirements and is usually a person or a group of persons directly or indirectly concerned with the software. **B.** Uncertain and incomplete requirements do not lead to any complications during the design and development phases. **C.** The requirement gathering and analysis outcome does not deal with ambiguities, incompleteness, and inconsistencies in requirements. **D.** Only B and C	A	CO2
	MCQ	Choose the correct option from given below: **A.** Decision trees and decision tables are used to represent the complex processing logic **B.** Non-functional requirements can be represented as a set of functions. **C.** Non-functional requirements are not part of the SRS. **D.** B and C	A	CO2
	MCQ	A software requirements specification (SRS) document should avoid discussing which one of the following? **A.** Functional requirements **B.** Non-Functional requirements **C.** Product perspective: **D.** Fundamentals for configuration management	D	CO2
	MCQ	Which of the following is not a goal of requirements analysis? **A.** Weed out ambiguities in the requirements **B.** Weed out inconsistencies in	C	CO2

		the requirements **C.** Weed out non-functional requirements D. Weed out incompleteness in the requirements		
Q.No:1(e)	**MCQ**	Activities A, B, and C are the immediate predecessors for D activity. If the earliest finishing time for the three activities is 11, 14, and 14, what will be D's earliest starting time? **A.** 11 **B.** 12 **C.** 13 **D.** 14	D	CO3
	MCQ	Which statement is correct regarding critical path (CPM)? **A.** CPM can be used to determine the optimal estimated duration of a project. **B.** A critical task is one with a non-zero slack time. **C.** A path from the start node to the finish node containing few critical tasks is called a critical path. **D.** A critical task is one with zero slack time.	D	CO3
	MCQ	Which of the following statement is correct regarding project risk? A. A risk is any predictable and known event or circumstance that can occur while a project is underway. B. schedule slippage is one of the examples of risk handling method C. Risk reduction involves planning ways to contain the	C	CO3

		damage due to risk. D. A and B		
	MCQ	Which of the following is not a SCM (software configuration management) activity? A. Configuration Object identification B. Change Control C. Risk management D. Release Management	C	CO3

SECTION-B(Answer Any One Question. Each Question carries 10 Marks)

Time: 30 Minutes **(1×10=10 Marks)**

<table>
<tr><th>Question No</th><th>Question</th><th>CO Mapping</th></tr>
<tr><td>Q.No:2</td><td>Q.No:2 (a) Consider a software project scenario with the following activities and their duration in weeks. [Total 6 marks]

<table>
<tr><th>Activity</th><th>Duration</th><th>Immediate Predecessor (s)</th></tr>
<tr><td>A</td><td>4</td><td>-</td></tr>
<tr><td>B</td><td>5</td><td>-</td></tr>
<tr><td>C</td><td>3</td><td>B</td></tr>
<tr><td>D</td><td>12</td><td>A</td></tr>
<tr><td>E</td><td>6</td><td>A,C</td></tr>
<tr><td>F</td><td>9</td><td>B</td></tr>
<tr><td>G</td><td>4</td><td>E,F</td></tr>
</table>
(i) Draw the activity network diagram.
(ii) Identify the critical path and slack time for all paths.

Q.No:2 (b) Define risk reduction leverage. After doing risk analysis, a team estimated that a 1% chance of fire could cause damage of Rs. 100000/- to the company. However, the team found that if they install a fire alarm system to resolve the risk, the chances of damage will be reduced to 0.5%. The fire alarm system installation will cost Rs.1000/- to the company. As a team leader, will you go ahead with the installation of a fire alarm system? [Total 4 marks]</td><td>CO-3</td></tr>
<tr><td>Q.No:3</td><td>Q.No:3 (a)
Consider a software project consisting of 12 activities, namely A, B, C, D, E, F, G, H, I, J, K, and</td><td>CO3</td></tr>
</table>

	L. The duration, in days, for the activities are 5, 7, 6, 5, 10, 15, 8, 8, 4, 4, 5, and 3, respectively. Activity A is an independent activity. However, activities B and D can start only after the completion of activity A. Similarly, we can start the activities F, C, and G only after the completion of B. When activity D gets completed, we can initiate activity E. Again, activity H and J can be started only when activity G is completed, whereas activity I can commence after completing activity C. Activity K will be commenced only after completion of activities E and F. Similarly, the commencement of activity L depends on the completion of I and H. Assuming yourself as a project manager: **[Total 7 marks]** i. Draw the activity network diagram. ii. Identify the critical path and slack/float for all other possible paths. iii. Determine slack/float for activities D and F. **Q.No:3 (b)** Critical path finding can optimize resource allocation. True or false, justify your answer with an example. **[Total 3 marks]**	
Q.No:4	**Q.No:3 (a)** Consider a software project that consists of 8 activities, namely A, B, C, D, E, F, G, and H. The duration, in days, for the activities are 3, 4, 2, 5, 1, 2, 4, and 3, respectively. Activity A is an independent activity. However, activities B and C can start only after the completion of activity A. Similarly, we can start activity D after completing B. Activities E and F can only start after the completion of C. When activities D and E gets completed, we can initiate activity G. Again. Activity H can be started once the acclivities G and F are completed. Assuming yourself as project manager: **[Total 6 marks]** i. Draw the activity network diagram. ii. Identify the critical path and slack/float for all other possible paths. iii. Determine slack/float for activities D and F. **Q.No:3 (b)** A project has 7.5 KLOC, and the average salary of a software developer is Rs. 18,000 per month. Calculate the following: [Total 4 marks] i. Effort ii. Development Time iii. Average Staff iv. Productivity Cost to develop the project.	CO3

<table>
<tr><td></td><td>[Total 3 marks]</td><td></td></tr>
<tr><td><u>Q.No:5</u></td><td><u>Q.No:5 (a)</u> Consider a software project scenario with the following activities and their duration in weeks. [Total 6 marks]

<table>
<tr><th>Activity</th><th>Duration</th><th>Immediate Predecessor (s)</th></tr>
<tr><td>A</td><td>4</td><td>-</td></tr>
<tr><td>B</td><td>5</td><td>-</td></tr>
<tr><td>C</td><td>3</td><td>B</td></tr>
<tr><td>D</td><td>12</td><td>A</td></tr>
<tr><td>E</td><td>6</td><td>C</td></tr>
<tr><td>F</td><td>9</td><td>B</td></tr>
<tr><td>G</td><td>4</td><td>E,F</td></tr>
</table>

(iii) Draw the activity network diagram.
(iv) Identify the critical path and slack time for all paths.

<u>Q.No:2 (b)</u> Consider the following function point components and their complexities. Calculate the estimated function points [Total 4 marks]
<table>
<tr><th>Function type</th><th>Estimated count</th><th>Complexity</th></tr>
<tr><td>EIF (Interface)</td><td>2</td><td>Average</td></tr>
<tr><td>ILF (logical files)</td><td>4</td><td>Simple</td></tr>
<tr><td>EQ (inquiry)</td><td>22</td><td>Average</td></tr>
<tr><td>EO (O/P)</td><td>16</td><td>Complex</td></tr>
<tr><td>EI (I/P)</td><td>24</td><td>Complex</td></tr>
</table>

Various processing complexity (influencing parameters) factors are: 4, 1, 0, 3, 3, 5, 4, 4, 3, 3, 2, 2, 4, 5.</td><td>CO3</td></tr>
<tr><td><u>Q.No:6</u></td><td><u>Q.No:6 (a)</u>
Consider a software project that consists of 8 activities, namely T_1, T_2, T_3, T_4, T_5, T_6, T_7, and T_8. The duration, in days, for the activities are 3, 4, 2, 5, 1, 2, 4, and 3, respectively. Activity T_1 is an independent activity. However, the activities T_2 and T_3 can start only after the completion of activity T_1. Similarly, we can start activity T4 after the completion of T_2. Activities T_5 and T_6 can only start after the completion of T_3. When activities T_4 and T_5 get completed, we can initiate activity T_7. Again, activity T_8 can be started once activities T_7 and T_6 are completed.
Assuming yourself as project manager:
[Total 6 marks]

i. Draw the activity network diagram.
ii. Identify the critical path and slack/float for all</td><td>CO3</td></tr>
</table>

	other possible paths. iii. Determine slack/float for activities D and F. **Q.No:6 (b)** Consider a project with a large project team, complex, innovative, severe constraints, and 400 KLOC, and the average salary of a software developer is Rs. 17,000 per month. Calculate the following: **[Total 4 marks]** i. Effort ii. Development Time iii. Average Staff iv. Productivity v. Cost to develop the project. **[Total 3 marks]**	

Controller of Examinations