

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: M.Tech.(CFD)	Semester: III
Programme: Software Engineering and Project Management	Max. Marks: 100
Time: 03 hrs.	
Instructions:	

SECTION A

S. No.	Question	Marks	CO
Q 1	What is software engineering?	4	CO1
Q 2	Distinguish between DFD and flowchart with the help of examples.	4	CO3
Q 3	What is the need for maintenance? Justify your answer with the help of an example.	4	CO4
Q 4	What is software quality? Mention the role of testing with respect to software quality.	4	CO2
Q 5	What is the difference between conceptual design and technical design?	4	CO1

SECTION B

Q 6	Explain any four software development process models and compare them.	8	CO4
Q 7	Why is risk management essential in a software development process? Justify your answer with an example.	8	CO2
Q 8	Discuss various types of coupling and cohesion with illustrative examples. Or Narrate the path testing procedure in detail with a sample code.	8	CO3
Q 9	Differentiate between any two testing methodologies with the help of examples. Or Draw an ER diagram for university information system. Specify at least four cardinality relationships.	8	CO5
Q 10	(i) Explain top down and bottom up programming practice. (ii) What is requirement engineering? State its process. Justify your explanation with the help of an example.	8	CO2

SECTION-C

Q 11	Image various entities and activities involved in a restaurant. Give a use case diagram and DFD for the restaurant of your choice. Or Imagine various entities and activities involved in a university. Give a use case diagram and DFD for this university.	20	CO5
Q 12	Discuss about requirements collection for the Government Staff Salary Processing System.	20	CO4

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SECTION A

S. No.	Question	Marks	CO
Q 1	What is software engineering?	4	CO1
Q 2	Why software metrics are important? Justify your answer with an example.	4	CO3
Q 3	Why requirement analysis is performed in software? Justify your answer with an example.	4	CO4
Q 4	When do the verification and validation testing are performed in SDLC?	4	CO2
Q 5	Write a short note on Reliability. Justify your answer with an example.	4	CO1

SECTION B

Q 6	Explain the significance of cohesion and coupling in designing a software with an example.	8	CO4
Q 7	What do you mean by software requirement analysis and specification? What are the challenges in it? Justify your answer with an example.	8	CO2
Q 8	Describe about modularity in detail and explain its role in structured design along with an example. Or Draw an ER diagram for any computational fluid dynamics based system. Specify at least two cardinality relationships.	8	CO3
Q 9	Differentiate between use cases, use case diagrams and data dictionary with the examples. Or Narrate the path testing procedure in detail with a sample code.	8	CO5
Q 10	(i) Differentiate between error, fault and failure with the help of examples. (ii) Differentiate between data design and function oriented design with the help of examples.	4 x 2 = 8	CO2

SECTION-C

Q 11	<p>What is the difference between Level 0, Level 1 and Level 2 DFDs? How many levels are possible in a DFD? Draw a Level 0, Level 1 and Level 2 for safe home security system.</p> <p style="text-align: center;">Or</p> <p>What do you understand by functional independence in the context of software design? How can we be able to achieve functional independence in a software design? Justify your explanations help of a well-defined example.</p>	20	CO5
Q 12	<p>(i) Draw an ER diagram for a company database representing the relationship, cardinality, association and participation constraints.</p> <p>(ii) Describe the features of COCOMO-I estimation model with an example.</p>	10 x 2 = 20	CO4