SET 1

Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019

Course: Software Engineering and Project Management **Semester: 4th**
Program: B.tech CSE IBM and XEBIA(All branches) **Time 03 hrs.**
Course Code: CSEG2008 **Max. Marks: 100**

	SECTION A		
Q1	Explain the two categories of prototypes in software models?	**4**	**CO1**
Q 2	Differentiate between alpha testing, beta testing, validation testing, verification testing?	**4**	**CO5**
Q3	What is the role of project manager in software development process?	**4**	**CO4**
Q4	What is requirement engineering ?Name its phases along with diagrammatic representation	**4**	**CO2**
Q5	Describe various classes of risk under risk identification?	**4**	**CO3**
	SECTION B		
Q 6	Elaborate the model, which takes into consideration the risk factor during development process?	**10**	**CO1**
Q7	What are the components of use case? Draw a use case diagram for bus ticket reservation system?	**5+5**	**CO2**
Q8	Discuss various modes of development under COCOMO? Assume that the size of an organic type software product has been estimated to be 32,000 lines of source code. Assume that the average salary of software engineers be Rs. 15,000/- per month. Determine the effort required to develop the software product and the nominal development time.	**5+5**	**CO4**
Q9	• The table below gives the estimated cash flow for three different projects: • Calculate Net Profit for each project. Based on your answer select which project you would choose to develop. • Using shortest payback method identify which project you would select for development. Justify your answer referring to the projects payback period and possible profits in payback year. • Calculate ROI of each project given in the table and select the project based on your ROI calculation. • Calculate NPV using 10% discount rate.	**10(1+2+ 2+5)**	**CO4**

Year	Project-1	Project-2	Project-3
0	-195000	-160000	-295000
1	15000	15000	30000
2	30000	15000	35000
3	55000	20000	50000
4	50000	35000	120000
5	55000	55000	110000
6	50000	90000	115000

OR

Consider a project with the following parameters.

(i) External Inputs:

(a) 10 with low complexity (b)15 with average complexity

(c) 17 with high complexity

(ii) External Outputs:

(a) 6 with low complexity (b)13 with high complexity

(iii) External Inquiries:

(a) 3 with low complexity

(b) 4 with average complexity

(c) 2 high complexity

(iv) Internal logical files:

- (a) 2 with average complexity (b)1 with high complexity

(v) External Interface files:

- (a) 9 with low complexity
- In addition to above, system requires
  i. Significant data communication
  ii. Performance is very critical
  iii. Designed code may be moderately reusable

10(5+5)

	iv. System is not designed for multiple installation in different organizations. • Other complexity adjustment factors are treated as average. Compute the function points for the project.		
	SECTION-C		

Q 10	a) Draw control flow graph for the program hence compute Cyclomatic complexity using any two methods, and draw the Graph matrix for the same.
	int compute_gcd (int x, int y) {
	1 while (x ! = y) {
	2 if (x>y) then
	3 x = x-y;
	4 else y = y-x;
	5 }
	6 return x; }
	
	b) Describe the information flow model? And
	Arrange the following with the worst and best cases
	1) COHESION
	• Procedural cohesion
	• Logical cohesion
	• Coincident cohesion
	• Sequential cohesion
	• Temporal cohesion
	• Functional cohesion
	
	2) COUPLING
	• External
	• Common
	• Content
		10+10	**CO5, CO2**

	• Stamp • Data • Control		
Q11	a) Consider a program for the determination of the largest amongst three numbers. Its input is a triple of positive integers (say x,y,z) and values are from interval [1, 300]. Design the boundary value cases for this problem. b) How can we deal with the risk in a project?Explain? **OR** a) A program determines the previous date. Its input is triple of day, month and year with values in the range 1≤ month ≤ 12 ; 1 ≤ day ≤ 31 and 1900 ≤ year ≤ 2025. The possible outputs would be the Previous date or invalid input date. Perform the Boundary Value Analysis for this problem. b) "A project goes through a process before it is delivered to the client as a product". Comment on the life cycle of project and identify the common deliverables"	**10+10**	**CO3, CO5**

SET 2

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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2019
Course: Software Engineering and Project Management **Semester: 4th**
Program: B.tech CSE IBM and XEBIA(All branches) **Time 03 hrs.**
Course Code: CSEG2008 **Max. Marks: 100**

SECTION A

Q1	Explain the RAD model of prototypes in software models?	**4**	**CO1**
Q 2	Differentiate between Structural and functional testing.	**4**	**CO5**
Q3	What is the scope of project in software development process?	**4**	**CO4**
Q4	What is requirement engineering ?How mant types of requirements are considered in requirement analysis.	**4**	**CO2**
Q5	Describe various classes of risk under risk identification?	**4**	**CO3**

SECTION B

Q 6	Elaborate the Spiral model, Does it takes into consideration the risk factor during development process?when and where?	**10**	**CO1**
Q7	What are the components of use case? Draw a use case diagram library management system?	**5+5**	**CO2**
Q8	Illustrate difference between basic and intermediate COCOMO model?A project of 32000 LOC is estimated. Compute the effort, development time, productivity and Average Staff Size using the basic COCOMO Model?	**10**	**CO4**
Q9	• The table below gives the estimated cash flow for three different projects: • Calculate Net Profit for each project. Based on your answer select which project you would choose to develop. • Using shortest payback method identify which project you would select for development. Justify your answer referring to the projects payback period and possible profits in payback year. • Calculate ROI of each project given in the table and select the project based on your ROI calculation. • Calculate NPV using 10% discount rate.	**10(1+2+ 2+5)**	**CO4**

Year	Project-1	Project-2	Project-3
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	5	55000	55000	110000		
	6	50000	90000	115000		

OR

a) A system being developed has the 15 user inputs (Complex), 8 user outputs (Average), 5 user inquiries (Average), 4 external logical files (Complex) and 2 external interfaces (Average). Compute the UFP for the project.

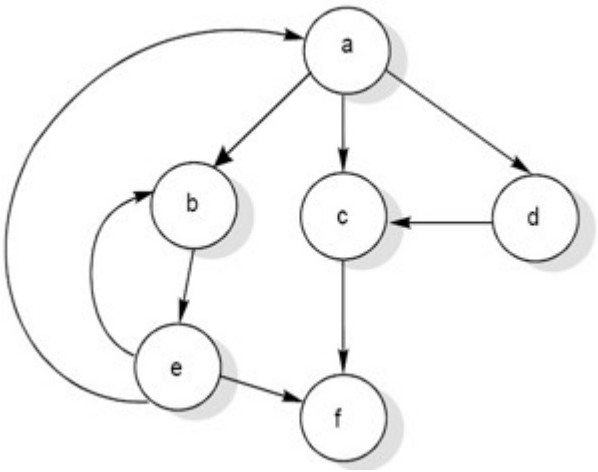
b) What is the advantage of using FP over LOC? Differentiate them.

10(5+5)

SECTION-C

Q 10

a)



For the figure given above find cyclomatic complexity and independent paths

b) Describe the components of information flow model? How do we calculate information flow for a system. Give example.

c) "A software shall be less cohesive and highly coupled". Comment.

On the basis of your answer Arrange the following with the worst and best cases

3) COHESION

- Procedural cohesion
- Logical cohesion
- Coincident cohesion
- Sequential cohesion

10+5+5 | **CO5, CO2**

	• Temporal cohesion • Functional cohesion 4) COUPLING • External • Common • Content • Stamp • Data • Control		
Q11	c) Consider a simple program to classify a triangle. Its inputs is a triple of positive integers (say x, y, z) and the date type for input parameters ensures that these will be integers greater than 0 and less than or equal to 100. The program output may be one of the following words:[Scalene; Isosceles; Equilateral; Not a triangle] .Identify equivalence class test cases for output and input domain d) How can we deal with the risk in a project? Explain? **OR** c) A program determines the previous date. Its input is triple of day, month and year with values in the range 1≤ month ≤ 12 ; 1 ≤ day ≤ 31 and 1900 ≤ year ≤ 2025. The possible outputs would be the Previous date or invalid input date. Perform the Boundary Value Analysis for this problem. d) "A project goes through a process before it is delivered to the client as a product". Comment on the life cycle of project and identify the common deliverables"	**10+10**	**CO3, CO5**