

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B. Tech II Year II Semester Regular Examinations MAY 2026**DESIGN THINKING FOR INNOVATION****Time: 3 Hours**

Branch: CSE & ECE

Max. Marks: 70**Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	Name any four principles of design and briefly describe them.	2M	CO1	L2
	b	What are the key differences between elements and principles of design?	2M	CO1	L2
	c	What is a customer journey map, and why is it useful in design thinking?	2M	CO2	L2
	d	Why is empathy important in the design thinking process?	2M	CO2	L1
	e	Interpret the idea of 'flow from idea to innovation'.	2M	CO3	L2
	f	Compare the key differences between innovation and creativity.	2M	CO4	L3
	g	Summarize the purpose of product planning.	2M	CO5	L1
	h	Give one example of a functional specification for a smartphone.	2M	CO5	L3
	i	Summarize the concept of 'strategic innovation'.	2M	CO6	L1
	j	State the various fields of applications for design thinking.	2M	CO6	L1
PART-B					
UNIT-I					
2		How does design thinking differ from traditional problem-solving approaches? Also give an example.	10M	CO1	L3
OR					
3		Explain a real-world example where design thinking has been successfully applied to solve a problem.	10M	CO1	L3
UNIT-II					
4		How does the design thinking process enhance product development? Provide an industry example.	10M	CO2	L3
OR					
5		Explain how design thinking can be applied to create social impact. Provide a case study.	10M	CO2	L3
UNIT-III					
6	a	How can an organization transition from creativity to innovation? Describe a step-by-step process.	5M	CO3	L3
	b	Explain how you would measure the value of creativity in a software company.	5M	CO4	L3
OR					
7		Create a scoring rubric to evaluate the impact of creativity in student projects. Test it on a hypothetical project.	10M	CO4	L3
UNIT-IV					
8	a	How does a product be defined? Explain its classification.	5M	CO5	L3
	b	Discuss the innovation in materials with an example.	5M	CO5	L3
OR					
9		Create a rubric to evaluate the quality of product specifications in student design projects.	10M	CO5	L6
UNIT-V					
10	a	Stimulate how can a large corporation use design thinking to meet corporate needs like cost reduction?	5M	CO6	L3
	b	Apply design thinking to a startup's business model? Give a stepwise approach.	5M	CO6	L3
OR					
11		Design a real corporate problem (e.g., low employee engagement) and use design thinking to develop and test a prototype solution for the business process.	10M	CO6	L6

CODE: A1HS401**R23****H.T.No:**

**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)**

**B. Tech II Year II Semester Regular Examinations APRIL 2026
MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**

Time: 3 Hours**(CSE &ECE)****Max. Marks: 70****Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A

1	a	What is cross elasticity of demand?	2M	CO1	L2
	b	Write the significance of Managerial Economics in Decision Making.	2M	CO1	L2
	c	Differentiate between short-run and long-run production functions.	2M	CO2	L2
	d	Calculate the break-even point if fixed costs are Rs. 50,000, variable cost per unit is Rs. 20, and selling price per unit is Rs. 50.	2M	CO2	L2
	e	What is monopolistic competition?	2M	CO3	L2
	f	Mention different Public Enterprises	2M	CO4	L3
	g	What is Payback Period?	2M	CO5	L4
	h	What is Net Present Value (NPV)?	2M	CO5	L3
	i	What is a journal?	2M	CO6	L2
	j	Define trading account.	2M	CO6	L2

PART-B**UNIT-I**

2	a	Evaluate the effectiveness of different methods of demand forecasting in predicting market trends.	10M	CO1	L3
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OR

3	a	Explain how would you forecast the demand forecasting a new product (product of your choice) in an emerging market.	10M	CO1	L3
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UNIT-II

4	a	The following information relates to XYZ company. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Particulars</th> <th style="width: 50%;">Amount in Rs</th> </tr> </thead> <tbody> <tr> <td>Fixed cost</td> <td>72000</td> </tr> <tr> <td>Variable cost per Unit</td> <td>15</td> </tr> <tr> <td>Selling cost per Unit</td> <td>24</td> </tr> </tbody> </table> <p>From the above find out. (i) Break-even point in terms of sales value and in units. (ii) Number of units that must be sold to earn a profit of Rs. 90,000.</p>	Particulars	Amount in Rs	Fixed cost	72000	Variable cost per Unit	15	Selling cost per Unit	24	10M	CO2	L3
Particulars	Amount in Rs												
Fixed cost	72000												
Variable cost per Unit	15												
Selling cost per Unit	24												

OR

5	a	Explain the concept of Production Function and describe the salient features of Cobb-Douglas production function.	10M	CO2	L3
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UNIT-III

6	a	Illustrate how the main features and organizational structure of a Joint Stock Company are applied in real business situations.	10M	CO3	L3
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OR

7	a	Analyze price-output to determination under monopoly.	5M	CO4	L3
	b	Discuss monopolistic competition and its features.	5M	CO4	L4

UNIT-IV

8		An investment of \$200,000 is expected to generate the following cash inflows in six years: \$70,000 , \$60,000 , \$55,000, \$40,000, \$30,000, \$25,000. Compute payback period of the investment. Should the investment be made if management wants to recover the initial investment in 3 years or less?	10M	CO5	L3
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OR

9	a	What is the importance of capital? What factors determine the working capital requirements of a company?	10M	CO4	L3																					
UNIT-V																										
10	a	Transactions for a business named "Geetha & Co." for April 2025, followed by the correct journal entries.	10M	CO6	L3																					
		<table border="1"> <thead> <tr> <th>Date (2025)</th> <th>Particulars</th> <th>Amount (₹)</th> </tr> </thead> <tbody> <tr> <td>Apr 1</td> <td>Geetha commenced business with cash</td> <td>50,000</td> </tr> <tr> <td>Apr 2</td> <td>Opened a bank account with SBI</td> <td>20,000</td> </tr> <tr> <td>Apr 3</td> <td>Purchased goods for cash</td> <td>14,000</td> </tr> <tr> <td>Apr 4</td> <td>Sold goods to Bhaskar on credit</td> <td>12,000</td> </tr> <tr> <td>Apr 5</td> <td>Paid telephone bill by cheque</td> <td>500</td> </tr> <tr> <td>Apr 6</td> <td>Goods returned by Bhaskar</td> <td>1,000</td> </tr> </tbody> </table>				Date (2025)	Particulars	Amount (₹)	Apr 1	Geetha commenced business with cash	50,000	Apr 2	Opened a bank account with SBI	20,000	Apr 3	Purchased goods for cash	14,000	Apr 4	Sold goods to Bhaskar on credit	12,000	Apr 5	Paid telephone bill by cheque	500	Apr 6	Goods returned by Bhaskar	1,000
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OR																										
11	a	Apply the rules of accounting to record business transactions in the journal.	5M	CO6	L2																					
	b	Describe how a Trading Account is prepared to find gross profit or loss.	5M	CO6	L3																					

CODE: A1CS402T**R23****H.T.No:**

**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)**

**B. Tech II Year II Semester Regular Examinations APRIL 2026
Object Oriented Programming Though Java**

Time: 3 Hours

Branch: CSE

Max. Marks: 70**Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A				
1	a	What is the structure of a Java program?	2M	CO1 L2
	b	What are tokens in Java?	2M	CO1 L2
	c	What is a constructor?	2M	CO2 L2
	d	What is constructor overloading?	2M	CO2 L1
	e	Differentiate 1D and 2D arrays.	2M	CO3 L2
	f	Explain array declaration with example.	2M	CO3 L2
	g	What is the use of the Math class?	2M	CO4 L1
	h	What is the superclass of all exceptions?	2M	CO4 L3
	i	What is deadlock?	2M	CO5 L1
	j	What is a String in Java?	2M	CO6 L1
PART-B				
UNIT-I				
2		Design a Java program using if-else and nested if statements to solve a real-world problem (e.g., grading system).	10M	CO1 L3
OR				
3		Develop a Java program using switch statement for menu-driven applications.	10M	CO1 L3
UNIT-II				
4		Develop a Java program to demonstrate access control using public, private, and protected members.	10M	CO2 L3
OR				
5		Develop a Java program to illustrate method overloading and method overriding.	10M	CO2 L3
UNIT-III				
6	a	Write a JAVA program to search for an element in a given list of elements using binary search mechanism.	5M	CO3 L3
	b	Explain dynamic method dispatch with example	5M	CO3 L3
OR				
7		Write a Java program to find the second largest and second smallest element in a given array.	10M	CO3 L3
UNIT-IV				
8		Compare wrapper classes and primitive data types in Java. Analyze their advantages and use cases.	10M	CO4 L3
OR				
9		Explain the working of Java I/O streams and analyze the difference between byte streams and character streams.	10M	CO4 L2
UNIT-V				
10	a	Discuss thread priority and its role in scheduling.	5M	CO5 L2
	b	What is a race condition? Explain with example.	5M	CO6 L2
OR				
11		Explain different methods of Thread class?	10M	CO6 L4

CODE: A1CS403T**R23****H.T.No:**

**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)**

**B. Tech II Year II Semester Regular Examinations APRIL 2026
OPERATING SYSTEMS**

Time: 3 Hours

Branch: CSE

Max. Marks: 70**Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	List any four types of system calls.	2M	CO1	L2
	b	Define Free and Open-Source Operating Systems with examples.	2M	CO1	L2
	c	Define a thread.	2M	CO2	L2
	d	What are multithreading models?	2M	CO2	L1
	e	What is semaphore & monitors?	2M	CO4	L2
	f	Discuss the concept of deadlock in operating systems.	2M	CO3	L3
	g	Define swapping in memory management.	2M	CO5	L1
	h	Explain 'starvation' in operating system?	2M	CO5	L3
	i	Explain how file sharing is achieved in an operating system.	2M	CO6	L1
	j	List the different types of file access methods.	2M	CO6	L1
PART-B					
UNIT-I					
2	a	Explain different Operating System structures (Monolithic, Microkernel, Layered).	10M	CO1	L3
OR					
3	a	Discuss Operating System services and user interfaces in detail.	10M	CO1	L3
UNIT-II					
4	a	Discuss various CPU scheduling algorithms (FCFS, SJF, Round Robin).	10M	CO2	L3
OR					
5	a	Explain Inter-Process Communication methods.	10M	CO2	L3
UNIT-III					
6	a	Demonstrate Peterson's solution to ensure mutual exclusion between two processes.	5M	CO3	L3
	b	Examine how a Resource Allocation Graph supports deadlock avoidance and detection.	5M	CO4	L3
OR					
7	a	Construct and analyze a Resource Allocation Graph and explain how it is used for deadlock detection.	10M	CO4	L3
UNIT-IV					
8		Given memory partitions 100K,500K,200K,300K,600K, place processes 212K,417K,112K,426K using First-fit, Best-fit, Worst-fit. Determine most efficient.	10M	CO5	L3
OR					
9	a	Disk with 200 cylinders, last request at 100, queue: 55,58,39,18,90,160,150,38,184. Compute seek time using FCFS, SSTF, SCAN, C-SCAN, LOOK.	10M	CO5	L3
UNIT-V					
10	a	Explain the goals of protection in an operating system.	5M	CO6	L3
	b	Discuss file system structures and their role in an operating system.	5M	CO6	L3
OR					
11	a	Develop a protection mechanism using access matrix or protection domains for a banking system and justify its security.	10M	CO6	L4

CODE: A1HS402

R23

H.T.No:

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)

B. Tech II Year II Semester Regular Examinations APRIL 2026
PROBABILITY & STATISTICS

Time: 3 Hours

Branch: CSE

Max. Marks: 70

Instructions:

- Answer all 10 questions from Part-A. Each question carries two marks
- Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A																				
1	a	Explain about Collection of data, primary and secondary data.	2M	CO1 L2																
	b	Define measures of Kurtosis	2M	CO1 L1																
	c	If A and B are two events such that $P(A)=1/3$, $P(B)=3/4$ and $P(A \cup B) = 11/12$ then find $P(A/B)$.	2M	CO2 L3																
	d	Define discrete random variable	2M	CO2 L1																
	e	If X is a normally distributed with mean 1 and standard deviation 3, find $P(3.43 \leq X \leq 6.19)$	2M	CO3 L3																
	f	Define Poisson's distribution	2M	CO4 L2																
	g	Define Null Hypothesis with notation	2M	CO5 L1																
	h	Define critical and acceptance regions	2M	CO5 L3																
	i	Give 95% confidence interval, for difference of means in small samples in t-test	2M	CO6 L1																
	j	Write the test statistics in F- test for equality of variances	2M	CO6 L1																
PART-B																				
UNIT-I																				
2	a	The following data, based on 450 students, are given for marks in statistics are Economics at a certain examination. Mean marks in Statistics= 40. Mean marks in Economics = 8, S.D of marks in Statistics = 12, variance of marks (Economics)= 256. Sum of the products of deviations of marks from this respective mean 42075. Give the equations of the two lines of regression and estimate the average marks in Economics of candidates who obtained 50 marks in statistics.	10M	CO1 L3																
OR																				
3	a	Describe about mean, median and mode and write the merits and demerits of all the three. <table border="1" style="margin: 10px auto;"> <tr> <td>X</td> <td>2</td> <td>4</td> <td>5</td> <td>8</td> <td>10</td> <td>12</td> <td>14</td> </tr> <tr> <td>Maths</td> <td>4</td> <td>2</td> <td>5</td> <td>10</td> <td>4</td> <td>11</td> <td>12</td> </tr> </table> Find also regression x on y and y on x and also estimate of y when x = 13.	X	2	4	5	8	10	12	14	Maths	4	2	5	10	4	11	12	5M	CO1 L3
X	2	4	5	8	10	12	14													
Maths	4	2	5	10	4	11	12													
	b	Find the rank correlation coefficient for the ranks of 16 students in mathematics and statistics are as follows (1,1) (2,10) (3,3) (4,4) (5,5) (6,7) (7,2) (8,6) (9,8) (10,11) (11,15) (12,9) (13,14) (14,12) (15,16) (16,13)	5M	CO1 L3																
UNIT-II																				
4	a	In a certain town 40% have brown hair, 25% have brown eyes and 15% have both brown hair and brown eyes. A person is selected at random from the town. (i) If he has brown hair, what is the probability that he has brown eyes also? (ii) If he has brown eyes, determine the probability that he does not have brown hair?	10M	CO2 L3																
OR																				
5	a	A random variable x has the following probability distribution: <table border="1" style="margin: 10px auto;"> <tr> <td>X</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>P(x)</td> <td>0.1</td> <td>K</td> <td>0.2</td> <td>2k</td> <td>0.3</td> <td>3k</td> </tr> </table> Find (i) k, (ii) $P(-2 < x < 2)$, (iii) Mean of x, (iv) S.D of x.	X	-2	-1	0	1	2	3	P(x)	0.1	K	0.2	2k	0.3	3k	10M	CO2 L3		
X	-2	-1	0	1	2	3														
P(x)	0.1	K	0.2	2k	0.3	3k														

UNIT-III					
6	a	The probability that the life of a bulb is 100 days is 0.05 Find the probability that out of 6 bulbs (a) At least one (b) Greater than four (c) None will be having a life of 100 days	5M	CO3	L3
	b	If a random variable has a Poisson distribution such that $P(1) = P(2)$ Find (a) Mean of the distribution (b) $P(4)$ (c) $P(x \geq 1)$ (d) $P(1 < x < 4)$	5M	CO4	L3
OR					
7	a	In a sample of 1000 students, the mean of a certain test is 14 and standard deviation is 2.5 Assuming the distribution to be normal, find a) how many students score between 12 and 15? b) how many scores above 18? c) how many score below 18?	10M	CO4	L3
UNIT-IV					
8		Random samples of 400 men and 600 women were asked whether they would like to have a flyover near their residence. 200 men and 325 women were in favor of the proposal. Test the hypothesis that proportions of men and women in favor of the proposal are same, at 5% level and find its confidence interval	10M	CO5	L3
OR					
9	a	A manufacturer of electronic equipment subjects samples of two competing brands of transistors to an accelerated performance test. If 45 of 180 transistors of the first kind and 34 of 120 transistors of the second kind fail the test, what can he conclude at the level of significance 0.05 about the difference between the corresponding sample proportions?	10M	CO5	L3
UNIT-V					
10	a	Write the working rule for test of hypothesis for Chi-Square test for independence of attributes in small sample tests	5M	CO6	L2
	b	The mean life time of a sample of 25 fluorescent light bulbs produced by a company is computed to be 157 hours with a S.D. of 120 hours. The company claims that the average life of the bulbs produced by the company is 1600 hours using the level of significance 0.05 Is the claim acceptable?	5M	CO6	L3
OR					
11	a	The number of automobile accidents per week in a certain community are as follows 12,8,20,2,14,10,15,6,9,4 Are these frequencies in agreement with the belief that that the accident conditions were the same during this 10-week period.	10M	CO6	L3

CODE: A1CS405**R23****H.T.No:**

**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)**

**B. Tech II Year II Semester Regular Examinations APRIL 2026
SOFTWARE ENGINEERING**

Time: 3 Hours

Branch: CSE

Max. Marks: 70**Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A

- | | | | | | |
|---|---|--|----|-----|----|
| 1 | a | What is the Waterfall model? | 2M | CO1 | L2 |
| | b | What is Agile development model? | 2M | CO1 | L2 |
| | c | What is Halstead's Software Science? | 2M | CO2 | L2 |
| | d | What is risk management in software projects? | 2M | CO2 | L1 |
| | e | Define control hierarchy in software design. | 2M | CO3 | L2 |
| | f | List the characteristics of good software design. | 2M | CO3 | L2 |
| | g | List the various levels of testing used in software development. | 2M | CO4 | L1 |
| | h | Demonstrate how ISO 9001 certification can be used to ensure software quality in an organizational scenario. | 2M | CO4 | L3 |
| | i | Demonstrate how Mean Time To Failure (MTTF) can be used to determine the reliability of a software system. | 2M | CO5 | L1 |
| | j | List the primary objectives of using CASE tools in software development. | 2M | CO6 | L1 |

PART-B**UNIT-I**

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|---|--|---|-----|-----|----|
| 2 | | Discuss different types of software development projects and exploratory development style. | 10M | CO1 | L3 |
|---|--|---|-----|-----|----|

OR

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|---|--|---|-----|-----|----|
| 3 | | Discuss the Rapid Application Development (RAD) model and its applications. | 10M | CO1 | L3 |
|---|--|---|-----|-----|----|

UNIT-II

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|---|--|---|-----|-----|----|
| 4 | | Describe requirements gathering and analysis process. | 10M | CO2 | L3 |
|---|--|---|-----|-----|----|

OR

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|---|--|---|-----|-----|----|
| 5 | | Explain different metrics used for project size estimation. | 10M | CO2 | L3 |
|---|--|---|-----|-----|----|

UNIT-III

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|---|---|--|----|-----|----|
| 6 | a | Differentiate the various levels of coupling by examining their implications on software design quality. | 5M | CO3 | L3 |
| | b | Demonstrate the use of Transform Analysis in converting a given DFD model into a structure chart with an example scenario. | 5M | CO3 | L3 |

OR

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|---|--|--|-----|-----|----|
| 7 | | Show how Agile principles can be implemented in a software project to efficiently manage changing requirements and reduce the cost of modifications. | 10M | CO3 | L3 |
|---|--|--|-----|-----|----|

UNIT-IV

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|---|--|---|-----|-----|----|
| 8 | | Apply Six Sigma to reduce software defects in a project, with an example. | 10M | CO4 | L3 |
|---|--|---|-----|-----|----|

OR

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|---|--|---|-----|-----|----|
| 9 | | Analyze significance of testing levels in ensuring reliability and correctness. | 10M | CO4 | L4 |
|---|--|---|-----|-----|----|

UNIT-V

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|----|---|---|----|-----|----|
| 10 | a | Differentiate the steps involved in software reverse engineering and describe their importance. | 5M | CO5 | L4 |
| | b | Inspect the steps involved in repository maintenance for reuse programs. | 5M | CO6 | L4 |

OR

- | | | | | | |
|----|--|--|-----|-----|----|
| 11 | | Assess the importance of repository and CASE environment architecture in software development. | 10M | CO6 | L4 |
|----|--|--|-----|-----|----|
