CODE: A1EC405T	R23	H.T.No:									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B. Tech II Year II Semester Supplementary Examinations May-2026

Analog and Digital Communication

Time: 3 Hours Branch: 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	Justify the need for modulation.	2M	CO1	L2
	b	Define selectivity and Fidelity of radio receivers?	2M	CO1	L2
	c	Define sensitivity and selectivity of receiver.	2M	CO2	L2
	d	Define Noise equivalent Bandwidth & Noise Figure	2M	CO2	L1
	e	List any two properties of matched filter.	2M	CO3	L2
	f	List the merits of eye pattern in pulsed binary data transmission system.	2M	CO3	L2
	g	What is correlation receiver.	2M	CO4	L1
	h	What is Schwarz inequality?	2M	CO4	L3
	i	Illustrate the signal space diagram for QAM signal for M=8	2M	CO5	L1
	j	Draw signal constellation diagrams for BPSK & QPSK	2M	CO6	L1

PART-B

UNIT-I

2	a	Explain with diagrams, the generation of PM. Derive its efficiency.	5M	CO1	L2
	b	Find the modulation index for an amplitude modulation. Consider an AM signal s(t) = 2 cos ($2\pi fct$) + 0.5 cos ($2\ \pi fmt$). Cos ($2\pi fct$). Compute the modulation index used to generate the signal.	5M	CO1	L3

OR

3		State sampling theorem and Illustrate the sampling process analytically. Provide required diagrams.	10M	CO1	L2

UNIT-II

4		Discuss in detail delta modulation and demodulation with block diagram and explain the working with waveform	10M	CO2	L3

OR

5		With neat block diagram, explain the PCM communication system.	10M	CO2	L3

UNIT-III

6	a	Construct duo binary system with and without precoder for the binary data sequence 001101001	5M	CO3	L3
	b	Interpret in brief about Modified Duobinary signaling scheme.	5M	CO3	L3

OR

7		What is Matched filter? Derive an expression for probability of error of a matched filter receiver.	10M	CO3	L3

UNIT-IV

8		Derive and analyze probability of error for binary signaling using geometric representation and noise statistics.	10M	CO4	L3

OR

9		Represent a binary signaling scheme in signal space and analyze decision boundaries using Euclidean distance.	10M	CO4	L2

UNIT-V

10	a	Express the BPSK waveform for the given 1011 data.	5M	CO5	L3
	b	Derive the expression for probability of error for coherent FSK.	5M	CO5	L3

OR

11		State and prove Shannon Hartley theorem	10M	CO6	L4

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RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B. Tech II Year II Semester Regular Examinations MAY 2026

Sub: Electronic Circuits Analysis Branch: ECE

Time: 3 Hours **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 main advantage of a Darlington pair?	2M	CO1	L2
	b	In a differential amplifier, the input bias current is 0.75 μA. What is the effect of this bias current on the output voltage if the load resistance is 20 kΩ?	2M	CO1	L3
	c	How does the Miller effect influence the frequency response of a BJT amplifier?	2M	CO2	L2
	d	What is a high-frequency model of BJT?	2M	CO2	L2
	e	An RC phase shift oscillator has R=10 $k\Omega$, C=0.01 μF. Find the frequency of oscillation	2M	CO3	L2
	f	Explain feedback topology	2M	CO4	L3
	g	Define Class AB amplifier	2M	CO5	L2
	h	Compare push-pull amplifier, power amplifier.	2M	CO5	L2
	i	Draw the frequency response of double tuned Amplifier.	2M	CO6	L2
	j	An astable multivibrator has R_1=R_2=10 $k\Omega$, C_1=C_2=0.01 μF. Find frequency.	2M	CO6	L3
PART-B					
UNIT-I					
2		Describe the small-signal operation of an NMOS differential pair. Derive the expressions for the differential gain and common-mode gain.	10M	CO1	L3
OR					
3		An amplifier has: Gain = 200 .Bandwidth = 500 kHz Calculate gain-bandwidth product and find new bandwidth if gain is reduced to 50.	10M	CO1	L3
UNIT-II					
4		Design a Common-Emitter amplifier with a voltage gain of 50 dB and calculate its low-frequency bandwidth considering coupling and bypass capacitors.	10M	CO2	L5
OR					
5		Analyze the high-frequency response of an emitter follower (Common Collector) amplifier. Discuss its advantages at high frequencies	10M	CO2	L3
UNIT-III					
6		Derive the expression for frequency of oscillations of RC-phase shift oscillator.	10M	CO3	L3
OR					
7		Draw the circuit diagram of a RC phase shift oscillator and calculate the cutoff frequency (fc) and open loop gain (A) with the given values. Does it fulfill the Barkhausen criteria? Justify your answer. R_f = 10kΩ, R_1 = 1kΩ, R = 2kΩ, C = 10pF	10M	CO3	L4
UNIT-IV					
8		Compare Class A, Class B and Class C power amplifiers.	10M	CO5	L4
OR					
9		Describe the working of a Class A output stage. Derive its efficiency and discuss its advantages and disadvantages.	10M	CO5	L4
UNIT-V					
10		Design a fixed-bias bi-stable circuit using n-p-n transistors given V_{CC}=12V, V_{BE}(sat) = 0.75V ,V_{CE}(sat)=0.3 V , h_{FE}(min)=20. Assume a specific collector current I_C(sat)	10M	CO6	L3
OR					
11	a	Design and explain about Monostable multivibrator	5M	CO5	L4
	b	Write the difference between Bistable, Astable and Monostable multivibrator	5M	CO5	L2

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RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B. Tech II Year II Semester Supplementary Examinations May 2026

Sub: EM WAVES & TRANSMISSION LINES Branch: ECE

Time: 3 Hours **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	Explain about Spherical Coordinates	2M	CO1	L2
	b	Explain Gauss law.	2M	CO1	L2
	c	Explain Ampere's circuit law	2M	CO2	L2
	d	Define magnetic flux and flux density.	2M	CO2	L2
	e	Explain about polarization.	2M	CO3	L2
	f	Explain about Lossless medium.	2M	CO4	L2
	g	Write the expression for characteristic impedance.	2M	CO5	L2
	h	What are the types of Transmission lines.	2M	CO5	L2
	i	Explain about the Standing wave ratio?	2M	CO6	L2
	j	A 50Ω lossless transmission line is terminated on a load impedance of Z_l=(25 + j 50) Ω. Find VSWR.	2M	CO6	L2
PART-B					
UNIT-I					
2	a	Point charges 5 nC and -2 nC are located at (2,0,4) and (-3,0,5), respectively.(a) Determine the force on a 1-nC point charge located at (1,-3,7).(b) Solve the electric field E at (1,-3,7).	5M	CO1	L3
	b	State and prove Gauss's law.	5M	CO1	L3
OR					
3		What is electric filed intensity? Derive an expression for E due to infinite sheet charge.	10M	CO1	L3
UNIT-II					
4		Mention Maxwell's equation in integral and differential form for time varying fields.	10M	CO2	L3
OR					
5		Analyze the Boundary Conditions of electromagnetic Fields at the interface between the two media? Derive them for all possible cases of different media	10M	CO2	L3
UNIT-III					
6		Define Brewster angle and Derive expression for Brewster angle.	10M	CO3	L3
OR					
7	a	Derive the wave equation for electric fields in free space.	5M	CO3	L3
	b	Explain the reflection of uniform plane waves by a perfect conductor in the case of normal incidence.	5M	CO3	L3
UNIT-IV					
8		Derive the expressions for reflection coefficient of a transmission line.	10M	CO5	L3
OR					
9		Explain about distortion less and lossless transmission line.	10M	CO5	L3
UNIT-V					
10		Derive the expression for r-circles and x-circles and draw the circles for different values of r and x	10M	CO6	L6
OR					
11		Compare and analyze the performance of: i) Lossless transmission line ii) Distortion less transmission line and discuss their practical applications.	10M	CO6	L3

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CODE: A1HS401	R23	H.T.No:									

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN

(AUTONOMOUS)

B. Tech II Year II Semester Supplementary Examinations MAY 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	Define Managerial Economics.	2M	CO1	L2
	b	Identify 4 factors that influence demand forecasting.	2M	CO1	L2
	c	What is meant by Least-Cost Combination? Give examples.	2M	CO2	L2
	d	Calculate the break-even point if fixed costs are Rs.25,000, variable cost per unit is Rs.10, and selling price per unit is Rs.25.	2M	CO2	L2
	e	Define Joint Stock Company.	2M	CO3	L2
	f	Mention different Public Enterprises	2M	CO4	L3
	g	Define Accounting Rate of Return (ARR).	2M	CO5	L4
	h	Define Internal Rate of Return (IRR).	2M	CO5	L3
	i	Define accounting.	2M	CO6	L2
	j	Define ledger.	2M	CO6	L2
PART-B					
UNIT-I					
2	a	What is Demand Forecasting? Explain the factors and methods involved in demand forecasting.	10M	CO1	L3
OR					
3	a	Discuss the Law of Demand with its exceptions and Distinguish between Micro and Macroeconomic concepts.	10M	CO1	L3
UNIT-II					
4	a	The following information relates to XYZ company. Particulars | Amount in Rs Fixed cost | 72000 Variable cost per Unit | 15 Selling cost per Unit | 24 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.	10M	CO2	L3
OR					
5	a	Illustrate the concept of cost behavior with examples and explain how understanding cost behavior helps in managerial decision-making.	10M	CO2	L3
UNIT-III					
6	a	Explain different types of markets with example	10M	CO3	L2
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 — A company is considering whether to purchase a new machine. Machines A and B are available for $80,000 each. Evaluate Net Present Value at 10%.Earnings after taxation are as follows:

Year	Machine A	Machine B
1	24,000	8,000
2	32,000	24,000
3	40,000	32,000
4	24,000	48,000
5	16,000	32,000

10M | CO5 | L3

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 — From the following balances extracted from the books of a trader as on 31st March 2025, prepare a Trial Balance:

S.No	Particulars	Amount (₹)
1	Capital	1,00,000
2	Drawings	12,000
3	Purchases	70,000
4	Sales	1,20,000
5	Returns Inwards	5,000
6	Returns Outwards	3,000
7	Opening Stock	25,000
8	Wages	15,000
9	Salaries	10,000
10	Rent	6,000
11	Debtors	30,000
12	Creditors	20,000
13	Cash	8,000
14	Bank	12,000
15	Furniture	18,000
16	Machinery	40,000
17	Discount Allowed	2,000
18	Discount Received	1,000

10M | CO6 | L3

OR

11 a — Describe how the preparation of Balance Sheet with simple adjustments. — 5M | CO6 | L3

b — Describe how a Trading Account is prepared to find gross profit or loss. — 5M | CO6 | L3

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