Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S3 (S) Examinations May 2026 (2024 Scheme)

Course Code: PBMRT304

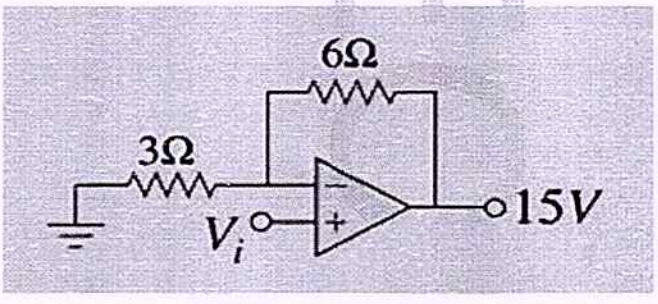
Course Name: ANALOG ELECTRONICS

Max. Marks: 40 Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 2 marks)

		CO	Marks
1	Explain the negative resistance region in the V-I characteristics of UJT.	CO1	(2)
2	In a CB configuration, current amplification factor is 0.9. If the emitter current is 1mA, determine the value of Base current.	CO1	(2)
3	Discuss the effects of negative feedback in terms of gain & bandwidth.	CO2	(2)
4	What are the key differences between LC & RC Oscillators.	CO2	(2)
5	List any four ideal characteristics of op-amp.	CO3	(2)
6	Calculate the i/p voltage if the o/p voltage is 15V in the given op-amp circuit?	CO3	(2)



7	Define any two specifications of ADC.	CO4	(2)
8	How does an integrator circuit help in generating a triangular waveform.	CO4	(2)

PART B

(Answer any one full question from each module, each question carries 6 marks)

Module -1

9	a)	Prove that the maximum conversion efficiency of a Class B power amplifier is 75%.	CO1	(6)
10	a)	Explain the V-I characteristics of an n-channel MOSFET in enhancement mode and describe different regions of operation.	CO1	(6)

Module -2

11	a)	With a neat circuit diagram, explain the working principle of a Hartley Oscillator and how does it achieve sustained oscillations?	CO2	(6)
12	a)	Derive the expression for the frequency of oscillation of an astable multi-vibrator using 555 Timer IC.	CO2	(6)

Module -3

13	a)	Explain the working of an instrumentation amplifier with circuit diagram and derive its output voltage equation.	CO3	(6)
14	a)	Derive the equation for voltage gain for the first order low pass filter. Using the gain magnitude equation illustrate the variation of gain with respect to frequency.	CO3	(6)

Module -4

15	a)	With suitable example and diagram, explain the working of flash type ADC.	CO4	(6)
16	a)	Draw the circuit diagram and explain the working of triangular wave generator.	CO4	(6)

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