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Vivekananda College of Engineering & Technology, Puttur
 [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]
 Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08

Rev 1.11

<FY>

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CONTINUOUS INTERNAL EVALUATION - 1

Dept: FY	Sem / Div: 1 AI & CD	Sub: Introduction to Electronics and Communication	S Code: BESCK104C
Date: 10.11.2023	Time: 9:30-11:00	Max Marks: 50	Elective: Y

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
PART A				
1 a	What is Regulated Power Supply? With neat block diagram explain the working of DC power supply. Also mention the principal components used in each block.	8	L2	CO1
b	What are voltage multipliers? With circuit diagram explain the operation of voltage doubler.	8	L2	CO1
c	What is oscillator? Mention the conditions for oscillations. Explain the operation of three-stage RC Network oscillator with neat circuit diagram.	9	L2	CO1
OR				
2 a	With a neat circuit diagram and waveforms, explain full wave bridge rectifier.	8	L2	CO1
b	Mention the advantages of negative feedback in amplifier circuits. With relevant equations and diagram, explain the concept of negative feedback.	8	L2	CO1

c	Explain the following operational amplifier circuits and write the output equation and/or input-output waveforms: (i) Inverting Amplifier (ii) Summing Amplifier (iii) Subtractor.	9	L2	CO1
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PART B

3 a	What is an embedded system? Compare – (i) Embedded systems with General computing systems (ii) RISC processors with CISC processors.	8	L2	CO3
b	What are multivibrators? Illustrate single-stage astable multivibrator/ oscillator using operational amplifier and explain the threshold voltages.	8	L2	CO1
c	With circuit diagram, explain the operation of Wein bridge oscillator. A Wien bridge oscillator based on an operational amplifier is having $C_1 = C_2 = 100 \text{ nF}$, determine the output frequencies produced by this arrangement (a) when $R_1 = R_2 = 1 \text{ k}\Omega$ and (b) when $R_1 = R_2 = 6 \text{ k}\Omega$.	9	L3	CO1

OR

4 a	Explain the elements of a typical embedded system with a neat diagram.	8	L2	CO3
b	Define the following operational amplifier parameters: (i) Open loop voltage gain (ii) Output resistance (iii) Closed loop voltage gain (iv) Slew rate	8	L2	CO1
c	Draw the circuit diagram and input-output waveforms of the following operational amplifier circuits: (i) Non-Inverting Amplifier (ii) Differentiator (iii) Integrator	9	L3	CO1

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HOD