	ADAMAS UNIVERSITY		
	END-SEMESTER EXAMINATION : JANUARY 2021		
	(Academic Session: 2020 – 21)		
Name of the Program:	B.TECH	**Semester:**	III
Paper Title :	**ELECTRONIC DEVICES**	**Paper Code:**	**EEC42101**
Maximum Marks :	40	**Time duration:**	3 hours
Total No of questions:	08	**Total No of Pages:**	02
Note:	1. All parts of a Question should be answered consecutively. 2. Each Answer should start from a fresh page. 3. Assumptions made if any, should be stated clearly at the beginning of your answer. 4. Submit scan copy of the answers on A4 sheet.		

Answer all the Groups
Group A
Answer all the questions of the following $5 \times 1 = 5$

1. **a)** What do you understand by compensated semiconductor??
    b) Briefly explain the base width modulation of a BJT.
    c) How to calculate the overall gain of a Multi-stage Amplifier?
    d) Explain with suitable diagram n-MOSFET.
    e) How to find out the efficiency of a solar cell?

GROUP –B
Answer *any three* of the following $3 \times 5 = 15$

2. Design and briefly explain the input and output characteristics of an amplifier operated in Common Base (CB) configurations.

3. Write down the working principle of a PIN photo diode.

4. Design a Direct Coupled Amplifier using transistor and also explain the class of its operation.

5. A Si p-n junction diode with doping concentration in p and n region $3 \times 10^{17} \text{cm}^{-3}$ and 10^{15}cm^{-3} respectively is in equilibrium. Calculate the contact potential for it at room temperature.

GROUP –C
Answer *any two* of the following $\qquad$ $2 \times 10 = 20$

6. a) Draw and explain the working principle of an EMOSFET.
   b) Explain working principle of CMOS inverter. $\qquad$ [5+5]

7. a) Draw and explain the working principle of Schottky barrier.
   b) Derive the mathematical expression of depletion width in a p^+-n junction diode.
   $\qquad$ [4+6]

8. a) Derive the one dimensional continuity equation for transport carriers in a semiconductor.
   b) Design a Class AB amplifier and explain the working principle of it. $\qquad$ [7+3]

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