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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019
Course Code: EC209
Course Name: ANALOG ELECTRONICS

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 5marks.

Marks

1   Differentiate between Zener breakdown and avalanche breakdown.   (5)

2   Elucidate the concept of thermal runaway in BJT.   (5)

3   With a neat circuit diagram explain about common source amplifier.   (5)

4   Give a brief description about class C power amplifier with neat circuit diagram.   (5)

5   State Barkhausen criteria and list out various types of oscillators.   (5)

6   Derive an expression for the frequency of Hartley oscillator and explain its working.   (5)

7   Explicate about the construction and characteristics of UJT.   (5)

8   Illustrate the role of VCO in PLL.   (5)

PART B
Answer any three questions, each carries10 marks.

9   a)   Prove that the ripple factor and efficiency of full wave rectifier is 0.484 and 81.2% respectively.   (6)

    b)   Derive an expression for the ripple factor of capacitive filter.   (4)

10   Draw a hybrid model of BJT by deriving h parameters and derive an expression to obtain input impedance, output impedance and voltage gain of amplifier using h parameter.   (10)

11   Demonstrate the construction and characteristics of Depletion type and enhancement type MOSFET with relevant diagrams.   (10)

12   a)   Prove that the theoretical efficiency of Class A power amplifier is 50% and explain the working with neat diagrams.   (6)

    b)   How can we overcome cross over distortion?   (4)

13   a)   Define stability factor. Derive the stability factor for fixed bias method for BJT.   (5)

PART C

Answer any two questions, each carries 15 marks.

14   a)   Demonstrate the working of RC phase shift oscillator with neat circuit diagram.   (6)

     b)   Derive an expression to obtain the frequency obtained by RC phase shift   (9) oscillator with relevant diagrams.

15   a)   Draw and explain the working of Astable multivibrator using BJT.   (7)

     b)   "Monostable mutivibrator using BJT has only one stable state." Justify the   (8) statement with relevant diagram.

16   a)   Using the internal circuitry explain the working of Astable multivibrator using   (9) IC555.

     b)   With a neat block diagram explain the working of SMPS.   (6)

17   a)   Describe in detail about the building blocks of PLL.   (8)

     b)   How can we use PLL as frequency multiplier?   (7)

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