

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth semester B.Tech examinations (S), September 2020

Course Code: EC212**Course Name: LINEAR INTEGRATED CIRCUITS AND DIGITAL ELECTRONICS (MC)**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all the questions below; each one carries 5 marks.*

Marks

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|---|---|-----|
| 1 | Define the following terms and explain their significance in practical circuits | (5) |
| | (i) Input offset Voltage | |
| | (ii) CMRR | |
| 2 | How can we use op amp as peak detector | (5) |
| 3 | Discuss briefly about narrow band pass filter. | (5) |
| 4 | Convert the following | (5) |
| | a) $[468]_{10} = [\quad]_2$ | |
| | b) $[10101011]_2 = [\quad]_{16}$ | |
| | c) $[237]_8 = [\quad]_{10}$ | |
| | d) $[A3B6]_{16} = [\quad]_2$ | |
| 5 | Design and implement a half adder with minimum number of gates. | (5) |
| 6 | Compare the characteristics of RAM and ROM. | (5) |
| 7 | Distinguish between combinational and sequential circuits. | (5) |
| 8 | Discuss briefly about race around condition in JK flip flop. | (5) |

PART B*Answer any three full questions; each carries 10 marks.*

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|----|---|------|
| 9 | Demonstrate any two applications of op amp. | (10) |
| 10 | (a) Illustrate any two applications of op amp as comparator. | (5) |
| | (b) Draw the circuit diagram and show that op amp can be used as log amplifier. | (5) |
| 11 | (a) Illustrate the working principle of an weighted resistor type D/A converter. | (6) |
| | (b) With neat circuitry explain the working of flash type ADC. | (4) |
| 12 | Simplify the following SOP function using Karnaugh map and implement with basic logic gates | (10) |
| | $F(A,B,C,D) = \sum m(2,3,6,7,8,10,11,12) + d(14,15)$ | |

- 13 Elucidate the working of a monostable multivibrator with a circuit diagram and waveform. (10)

PART C

Answer any two full questions; each carries 15 marks.

- 14 Design the following combinational circuits (15)
i) 8X1 MUX
ii) 1X8 DEMUX
- 15 Design and implement a 3-bit gray to binary code converter. (15)
- 16 Obtain the characteristic equation and explain the following (15)
i) D- flipflop
ii) T - flipflop
- 17 Summarize the following (15)
i) SISO
ii) SIPO
