**18EI503**

**Hall Ticket Number:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **III/IV B.Tech(Regular) DEGREE EXAMINATION** | | | |
| **February, 2021** | **Electronics and Instrumentation Engineering** | | |
| **Fifth Semester** | **Linear Integrated Circuits & Applications** | | |
| **Time:** Three Hours | | **Maximum:**50 Marks | |
| *Answer ALL Questions from PART-A.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | (4X10=40 Marks) |
| **Part - A** | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1. | Answer all questions | | | (10X1=10 Marks) | | |
|  | a) | Draw the pin configuration of the OP AMP? | | | CLO-1 |  |
|  | b) | What are the advantages of Precision rectifiers? | | | CLO-1 |  |
|  | c) | Give the applications of Positive Feedback in Op-amps. | | | CLO-1 |  |
|  | d) | Give the difference between Oscillator and Amplifier? | | | CLO-2 |  |
|  | e) | What are the advantages of Schmitt Trigger? | | | CLO-2 |  |
|  | f) | Draw the circuit diagram of the Clamper? | | | CLO-3 |  |
|  | g) | Draw the circuit diagram of the Binary Weighted resistor DAC? | | | CLO-3 |  |
|  | h) | Give the expression of Time period of Astable Multivibrator using 555 Timer | | | CLO-4 |  |
|  | i) | What is the transfer function of the first order Low Pass Filter? | | | CLO-4 |  |
|  | j) | What are the applications of All Pass Filter? | | | CLO-4 |  |
|  | **Part - B** | | | | | |
| 2. | a)  b) | | Draw the Block Diagram of Op-amp and explain each block  Draw the circuit diagrams of the Inverting and Non Inverting Amplifiers and derive the gain expressions | | CLO-1  CLO-1 | 5M  5M |
|  |  | | | | | |
| 3. |  | | Draw and Explain the Half wave & Full Wave rectifiers using op-amp. | | CLO-1 | 10M |
|  |  | | | | | |
| 4. | a)  b) | | Explain the principle of Wein Bridge oscillator with a circuit diagram and derive the expression for frequency of oscillation.  Draw Zero crossing detector circuit using op-amp and explain with waveforms | | CLO-2  CLO-2 | 6M  4M |
|  |  | | | | | |
| 5. |  | | With a neat circuit diagram explain the operation of Square Wave & Triangular wave generator and derive the expression for time period of any one. | | CLO-2 | 10M |
|  |  | | | | | |
| 6. | a)  b) | | Explain the R-2R ladder type DAC with a neat circuit diagram with one example  With a neat diagrams explain the operation of Clippers | | CLO-3  CLO-3 | 5M  5M |
|  |  | | | | | |
| 7 | a)  b) | | Describe the operation of Ramp type ADC with a neat block diagram  Describe the operation of Sample and hold circuit with a neat circuit diagram. | | CLO-3  CLO-3 | 5M  5M |
|  |  | | | | | |
| 8. | a)  b) | | Explain the Working of Astable Multivibrator using IC555 and derive the expression for time period.  Derive the Transfer function for 2nd order Low pass Filter. | | CLO-4  CLO-4 | 5M  5M |
|  |  | | | | | |
| 9. | a)  b) | | Draw the internal BD of the IC723 and design a low Voltage regulator for 5V.  Draw the block diagram of the PLL and explain | | CLO-4  CLO-4 | 5M  5M |

****