**18EE303**

**Hall Ticket Number:**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **II/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **February, 2021** | **Electrical & Electronics Engineering** | | |
| **Third Semester** | **Analog Electronics** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| ***Answer question 1 compulsory.*** | | | **(10X1 = 10Marks)** |
| ***Answer one question from each unit.*** | | | **(4X10=40Marks)** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | CO | BL | M |
| 1 | a) | What is diode | CO1 | BL1 | 1M |
|  | b) | Define clipper | CO1 | BL1 | 1M |
|  | c) | What is an amplifier | CO2 | BL1 | 1M |
|  | d) | What are different regions of operation of transistor | CO2 | BL1 | 1M |
|  | e) | Define negative feedback | CO3 | BL1 | 1M |
|  | f) | Classify different types of feedback amplifier | CO3 | BL1 | 1M |
|  | g) | Write the condition for sustained frequency of oscillations | CO3 | BL1 | 1M |
|  | h) | What is op-amp | CO4 | BL1 | 1M |
|  | i) | What is comparator | CO5 | BL1 | 1M |
|  | j) | Draw the circuit diagram of differentiator circuit | CO5 | BL1 | 1M |
| **Unit-I** | | | | | |
| 2 |  | Explain the operation of P-N junction diode and also plot the V-I characteristics of diode | CO1 | BL2 | 10M |
|  |  | **(OR)** |  |  |  |
| 3 |  | With neat sketch explain the operation of full wave bridge rectifier and also derive the expression for efficiency and ripple factor. | CO1 | BL3 | 10M |
| **Unit-II** | | | | | |
| 4 | a) | With neat sketch Explain the input and output characteristics of CE configuration of transistor | CO2 | BL3 | 5M |
|  | b) | Compare CE,CB,CC configurations of the transistor | CO2 | BL2 | 5M |
| **(OR)** | | | | | |
| 5 | a) | With neat sketch explain the drain and transfer characteristics of JFET | CO2 | BL2 | 5M |
|  | b) | Give differences between BJT and JFET | CO2 | BL2 | 5M |
| **Unit-III** | | | | | |
| 6 | a) | Derive expression for input and output resistance of voltage series feedback amplifier | CO3 | BL2 | 5M |
|  | b) | Derive expression for input and output resistance of voltage shunt feedback amplifier | CO3 | BL3 | 5M |
| **(OR)** | | | | | |
| 7 | a) | Explain the characteristics of Negative feedback | CO3 | BL2 | 5M |
|  | b) | With neat sketch explain the operation of RC phase shift oscillators | CO3 | BL2 | 5M |
| **Unit-IV** | | | | | |
| 8 |  | Explain the operation of instrumentation amplifier with neat sketch and also give its applications | CO5 | BL2 | 10M |
| **(OR)** | | | | | |
| 9 |  | With neat sketch explain the operation Integrator circuit using op-amp | CO5 | BL2 | 10M |

