**18EE603**

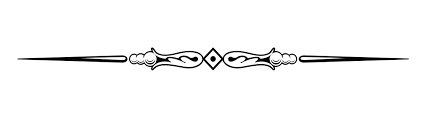
**Hall Ticket Number:**

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



| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| --- | --- | --- | --- |
| **July, 2021** | **Electronics and Electronics Engineering** | | |
| **Sixth Semester** | **Electrical Drives** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No.1 compulsorily.* | | | (1X10= 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |

|  |  |  | CO | BL | M | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | a) | Define an electric drive. | CO1 | L1 | 1M | | |
|  | b) | What is meant by active load torque. | CO1 | L2 | 1M | | |
|  | c) | Define PLL. | CO1 | L2 | 1M | | |
|  | d) | Draw the Speed- torque Characteristics of a DC series motor. | CO2 | L3 | 1M | | |
|  | e) | What is plugging? | CO2 | L1 | 1M | | |
|  | f) | Compare VSI & CSI fed drives. | CO2 | L2 | 1M | | |
|  | g) | What is meant by eddy current drive. | CO3 | L1 | 1M | | |
|  | h) | What are the starting methods of synchronous motor? | CO3 | L1 | 1M | | |
|  | i) | Write applications of stepper motor. | CO3 | L1 | 1M | | |
|  | j) | What is space vector modulation technique? | CO4 | L1 | 1M | | |
| **Unit-I** | | | | | | | |
| 2 | a) | Draw the block diagram of an electric drive and explain few advantages. | CO1 | L1 | 5M | | |
|  | b) | Explain the Multi-quadrant operation of an electrical drives with an example. | CO1 | L2 | 5M | | |
|  |  | **(OR)** |  |  |  | | |
| 3 | a) | Explain the modes of operation for speed control of drive. | CO1 | L2 | 5M | | |
|  | b) | A drive has following parameters.  J=10 Kg-m2, T=100 ─ 0.1N, N-m, passive load torque Tl=0.05N, N-m Where N is speed in rpm.Initially the drive is operating in steady state. Now it is to be reversed. For this motor characteristic is changed to T= ─ 100 ─ 0.1N. Calculate the time of reversal. | CO1 | L3 | 5M | | |
| **Unit-II** | | | | | |  | **UNIT-II** |
| 4 | a) | Explain the transient analysis of separately excited dc motor with armature control. | CO2 | L3 | 5M | | |
|  | b) | Explain the dynamic braking of separately excited DC motor and draw its speed torque characteristics. | CO2 | L2 | 5M | | |
| **(OR)** | | | | | |  | **(OR)** |
| 5 | a) | Explain the operation of a separately excited dc motor supplied from 1-Φ fully controlled rectifier. Assume Continuous conduction. | CO2 | L2 | 5M | | |
|  | b) | Explain the operation of a separately excited dc motor supplied from dual converter. | CO2 | L2 | 5M | | |
| **Unit-III** | | | | | |  | **UNIT-III** |
| 6 | a) | Obtain the analysis and performance of three phase induction motor when operation from unbalanced source voltages. | CO3 | L3 | 5M | | |
|  | b) | What is soft start of induction motor? Explain with different circuits. | CO3 | L2 | 5M | | |
| **(OR)** | | | | | |  | **(OR)** |
| 7 | a) | Discuss about the static Scherbius drive in detail. | CO3 | L2 | 5M | | |
|  | b) | Discuss about the Static Kramer drive with neat sketch. | CO3 | L2 | 5M | | |
| **Unit-IV** | | | | | |  | **UNIT-IV** |
| 8 | a) | Explain braking methods of synchronous motor. | CO4 | L2 | 5M | | |
|  | b) | Explain about the switched reluctance motor drives in detail. | CO4 | L3 | 5M | | |
| **(OR)** | | | | | |  | **(OR)** |
| 9 | a) | Explain the brush less dc motor drives and its applications. | CO4 | L2 | 5M | | |
|  | b) | Briefly explain about the Stepper motor and its advantages | CO4 | L2 | 5M | | |

****