**Unit wise Sample assessment questions**

**SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY**

**AUTONOMOUS**

**Seetharampuram, NARSAPUR-534 280**

**DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING**

**CYCLE - I**

Course/Sem**:** B.Tech-VI Semester Branch: EEE Date: 09-01-2019

Time: 02.30PM to 04.00PM  **Subject**: PSD Max. Marks: 30

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**Answer All THREE questions. (3 X 10 = 30Marks)**

**SET1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1.a) | Explain the speed control scheme of single phase fully controlled converter fed separately excited DC Motor  | K2 | CO1 | 4M |
|  b) | Write the speed torque expressions for separately excited DC motor.  | K3 | CO1 | 6M |
| 2.a) | Discuss the speed control of Three phase fully controlled converter fed separately excited DC Motor | K2 | CO1 | 5M |
|  b) | Sketch the output voltage waveforms for Three phase fully controlled converter fed separately excited DC Motor | K3 | CO1 | 5M |
| 3.a) | Explain about time ratio and current limit control strategies | K2 | CO2 | 3M |
|  b) | Explain the operation of chopper fed separately excited DC motor. | K3 | CO2 | 7M |

**NOTE:K1- Remember,K2- Understand,K3- Apply,K4- Analyze**

**SET2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1.a) | Explain the speed control of single phase fully controlled converter fed DC series motor | K2 | CO1 | 4M |
|  b) | Write the speed torque expressions for fully controlled converter fed DC series motor  | K3 | CO1 | 6M |
| 2.a) | Discuss the speed control of Three phase fully controlled converter fed DC series Motor | K2 | CO1 | 5M |
|  b) | Sketch the output voltage waveforms for Three phase fully controlled converter fed separately excited DC Motor | K3 | CO1 | 5M |
| 3.a) | Differentiate between Class A and Class B chopper.  | K2 | CO2 | 3M |
|  b) | Explain the operation of a four- quadrant transistorized chopper drive for control of dc separately excited dc motor. | K3 | CO2 | 7M |

**NOTE:K1- Remember,K2- Understand,K3- Apply,K4- Analyze**

**SET3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1 | A 220 V, 1500 rpm, 11.6 A separately excited motor is controlled by a l-phase fully controlled rectifier with an ac source voltage of 230 V, 50 Hz. Enough filter inductance is added to ensure continuous conduction for any torque greater than 25 percent of rated torque, R. = 2ohm.a. Calculate the value of the firing angle to get the rated torque at 1000 rpm?b. Ca1culate the firing angle for the rated braking torque and -1500 rpm | K3 | CO1 | 10 |
| 2.a) | Discuss the operation of circulation current mode of dual converter  | K2 | CO1 | 6M |
| b) | Explain the four quadrant operation of DC Motor drive. | K2 | CO1 | 4M |
| 3.a) | Sketch the circuit diagram of two-quadrant chopper for separately excited DC motor with relevant waveforms for I and II quadrant operation. | K3 | CO2 | 10M |

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**CYCLE - II**

Course/Sem**:** B.Tech-VI Semester Branch: EEE Date: 01-03-2019

Time: 02.30PM to 04.00PM  **Subject**: PSD Max. Marks: 30

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**Answer All THREE questions. (3 X 10 = 30Marks)**

**SET1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1.a) | Discuss the stator voltage control scheme of induction motor. Also draw and explain the speed- torque characteristics. | K2 | CO3 | 6 M |
| b) | Explain about the closed loop operation of VSI fed induction motor drive with a neat sketch. | K3 | CO3 | 4 M |
| 2.a) | Describe speed torque characteristics of induction motor with neat diagram on rotor side and mention its advantages and applications. | K2 | CO3 | 7 M |
| 2.b) | Explain slip power recovery schemes for rotor side control of induction motor | K3 | CO3 | 3 M |
| 3.a) | Differentiate between true synchronous mode and self-control mode of variable frequency control of synchronous motor. | K2 | CO4 | 4 M |
| b) | Sketch & discuss the principle of operation of self controlled synchronous motor drive. | K3 | CO4 | 6 M |

**NOTE:K1- Remember,K2- Understand,K3- Apply,K4- Analyze**

**SET2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1.a) | Sketch the schematic diagram for speed control of 3 Ø Induction motor using solid state AC Voltage Controller on stator side. | K3 | CO3 | 4 M |
| b) | Explain the variable frequency control of VSI of induction motor and draw speed –torque characteristics of the induction motor | K3 | CO3 | 6 M |
| 2.a) | Explain the operation of Static Scheribus for rotor side control of Induction Motor | K2 | CO3 | 5 M |
| b) | Explain the operation of Static Kramer’s drive for rotor side control of Induction | K3 | CO3 | 5 M |
| 3.a) | With a neat block diagram explain the closed loop operation of synchronous motor drives | K2 | CO4 | 4 M |
| b) | Explain separate control & self control of synchronous motor. | K3 | CO4 | 6 M |

**NOTE:K1- Remember,K2- Understand,K3- Apply,K4- Analyze**

**SET3**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q.No** | **Question** | **Knowledge Level** | **Course Out Come** | **Marks** |
| 1.a) | Explain about the closed loop operation of VSI fed induction motor drive with a neat sketch. | K3 | CO3 | 5 M |
| 1.b) | Explain the PWM control of voltage source inverter. | K3 | CO3 | 5 M |
| 2.a) | Sketch the speed - torque characteristics of the induction motor. | K3 | CO3 | 4 M |
| 2.b) | Explain about variable frequency control of voltage source inverter of induction motor | K2 | CO3 | 6 M |
| 3.a) | Justify the different methods of speed control of synchronous motor. | K6 | CO4 | 5 M |
| 3.b) | Explain the closed loop speed control of inverter fed synchronous motor? | K3 | CO4 | 5 M |

**NOTE:K1- Remember,K2- Understand,K3- Apply,K4- Analyze**