

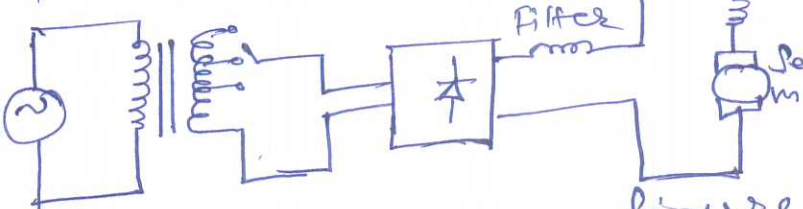
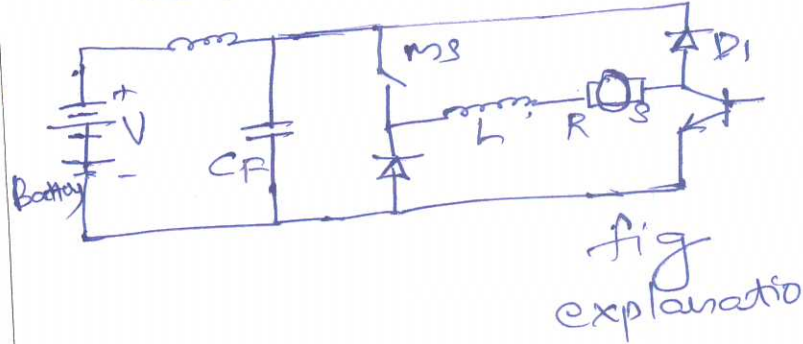
| Revision: 2015 | | Course Code:6034 | | |
|---|--|------------------|-----------|-------|
| Course Title: Electrical drives and control | | | | |
| Qst. No. | Scoring Indicator | Split up | Sub Total | Total |
| PART A | | | | |
| I 1. | Compare electric drive & mech. drive | 2 | | 10 |
| 2. | star delta, auto transformer | 2 | | |
| 3. | Regenerative, braking, plugging | 2 | | |
| 4. | Armature voltage control, variable resistance. | 2 | | |
| 5. | Synchronous motor. | 2 | | |
| PART B | | | | |
| II 1. | <pre> graph LR Source[Source] --> PM[Power Modulator] PM --> Motor[Motor] Motor --> Load[Load] CU[Control Unit] -- Input command --> PM SU[Sensing Unit] -.-> CU </pre> | 3 | | 6 |
| | Block diagram explanation | 3 | | |
| 2. | Comparison of VSI vs CSI. 3 points, (3x2) | 6 | 6 | |
| 3. | Speed control by torque voltage control | 3 | 6 | |
| | figure explanation | 3 | | |

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| PART B | | | | |
| 4. | Chopper controlled DC drives explanation figure | 3 3 | 6 | |
| 5. | Speed control by cycloconverter Explanation phase voltage wave form | 3 3 | 6 | 42 |
| 6. | Electric drives in textile mills - Double cage induction motor - group drive - motors totally enclosed - high torque. | | 6 | |
| 7. | Solar powered pump drives fig & char. explanation | 3 3 | 6 | |
| PART C UNIT I | | | | |
| III(a) | Advantages (5) dis advantages 3 | 5 3 | 8 | 15 |
| (b) | Classification of electric drives eg: mode of operation, - means of control, No. of machine etc | 2 7 | 7 | |

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|----------|--|----------------|-----------|-------|
| IV (a) | <p style="text-align: center;">PART B OR</p> Choice of electric drives - factors - Capital & Running cost - Reliability - Maintenance etc. explain | 4x2 | 8 | 15 |
| | | Any (4x2) = 8 | | |
| (b) | Power rating motor for continuous operation at constant speed figure (curve) explanation | 4 | 7 | |
| | | 3 | | |
| UNIT II | | | | |
| V (a) | Any two methods of braking (4x2) | 4x2 | 8 | 15 |
| | | 4 | | |
| (b) | Variable frequency control figure explanation | 4 | 7 | |
| | | 3 | | |
| VI (a) | OR Speed control by voltage source inverter figure explanation | 4 | 8 | 15 |
| | | 4 | | |
| (b) | Self controlled synchronous motor drive. fig explanation | 4 | 7 | |
| | | 3 | | |

| Qst. No. | Scoring Indicator | Split up | Sub Total | Total |
|---|--|----------|-----------|-------|
| PART C | | | | |
| UNIT III | | | | |
| VII(a) | Any two methods of starting of DC motors | 4+4 | 8 | |
| (b) | Speed control by transformer & uncontrolled rectifier fed DC drives. | | | 15 |
|  | | 4 3 | 7 | |
| OR | | | | |
| VIII (a) | Any two methods of speed control of DC motors. (figure + explanation) | 4+4 | 8 | |
| (b) |  | 4 3 | 7 | 15 |

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| Qst. No. | Scoring Indicator | Split up | Sub Total | Total |
|----------|--|---|--------------------------------------|---------------------------------------|
| IX(a) | <p style="text-align: center;">PART V UNIT IV</p> <p>Battery powered pump drives.</p> | <p style="text-align: center;">figure 4 explanation 4</p> | <p style="text-align: center;">8</p> | <p style="text-align: center;">15</p> |
| (b) | <p>Electrical drives in papermill industry</p> <p style="text-align: right;">explanation (4) + character (3)</p> <p style="text-align: center;">OR</p> | <p style="text-align: center;">4 3</p> | <p style="text-align: center;">7</p> | |
| X(a) | <p>Solar powered pump drives</p> <p style="text-align: right;">figure Speed torque char. explanation</p> | <p style="text-align: center;">3 2 3</p> | <p style="text-align: center;">8</p> | <p style="text-align: center;">15</p> |
| (b) | <p>Electric drives in cement mills</p> <p style="text-align: right;">explanation character</p> | <p style="text-align: center;">4 3</p> | <p style="text-align: center;">7</p> | |