

**B.Tech. - VIEP - ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

December, 2016

BIEEE-016 : INDUSTRIAL DRIVES

Time : 3 hours

Maximum Marks : 70

Note : (i) *Attempt any seven questions.*

(ii) *All questions carry equal marks.*

(iii) *Use of calculator is permitted.*

(iv) *Missing data, if any, may be suitably assumed.*

1. Write a brief note on the sources employed in electrical drives. What are the main factors which decide the choice of an electrical drive for a given application ? 10
2. Describe the operation of closed-loop torque control scheme and its application. 10
3. Explain why current sensing is required in electrical drives. What are the common methods of current sensing ? 10

4. Describe the operation of four-quadrant DC drives employing non-circulating and circulating current dual converters. 10
5. A fully controlled rectifier is feeding a separately excited motor driving a friction load. The motor is operating in steady state with a rectifier firing angle of 30° . The firing angle is now changed from 30° to 60° . Explain how the motor current and speed will change with time. 10
6. Explain the working of self-controlled synchronous motor drives employing cycloconverter. 10
7. Describe the operation of a brushless DC motor drive. Also write its advantages and applications. 10
8. With the help of suitable waveshapes, explain the operation of a VSI fed induction motor drive. 10

9. Write short notes on any *two* of the following :

2×5=10

- (a) Phase Locked Loop Speed Control**
 - (b) PWM Drives**
 - (c) Slip Power Recovery Scheme**
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