

6E6066

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B. Tech. VI Sem. (Main & Back) Exam., April/May-2016
Electronic Inst. & Control Engineer
6EI6.1A Control System Components

Time: 3 Hours

Maximum Marks: 80

Min. Passing Marks (Main & Back): 26

Instructions to Candidates:-

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly.

Units of quantities used/ calculated must be stated clearly.

Use of following supporting material is permitted during examination.

1. NIL

2. NIL

UNIT-I

- Q.1 (a) Explain the specifications of pressure switch with applications. [8]
(b) Explain the working of hermetically sealed relay with suitable diagram. [8]

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OR

- Q.1 (a) Explain the specifications of flow switch with applications. [8]
(b) Explain the working of electromechanical relay with their merits & demerits. [8]

UNIT-II

- Q.2 (a) Explain the following with applications:- [8]
(i) Direction controlled valves
(ii) Time delay valves
(b) Explain the working of filter regulator lubricator with suitable diagram. [8]

OR

- Q.2 (a) Explain the following with applications:- [8]
(i) Double rod cylinder
(ii) Rotary cylinder

- (b) Explain the working of sequencing pneumatic circuits with merits & demerits. [8]

UNIT-III

- Q.3 (a) Explain the DC motor control using pulse width modulation with neat sketch and characteristics. [8]
- (b) Discuss about the shunt wound compound DC motor. Explain its characteristics, merits & demerits also. [8]

OR

- Q.3 (a) Explain the DC motor control using analog drive with applications, merits & demerits. [8]
- (b) Explain and draw the torque – speed characteristics of DC motor. Discuss the Brushless DC motors also. [8]

UNIT-IV

- Q.4 (a) Explain the working and applications of universal motors. Discuss its merits and demerits also. [8]
- (b) Explain the block diagram of the vector control of AC induction motors. Discuss its characteristics, merits and demerits also. [8]

OR

- Q.4 Explain the following with suitable diagrams:-
- (a) Variable speed control of AC motors [8]
- (b) Variable frequency drives. [8]

UNIT-V

- Q.5 Write short notes on the following:-
- (a) Variable reluctance stepper motors [8]
- (b) Ladder diagram programming of PLC. [8]

OR

- Q.5 (a) Explain the working and applications of programmable logic controllers and networks. [8]
- (b) Explain the techniques of improving torque at higher stepping rates of stepper motor. [8]
