

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

Term-End Examination

00943

June, 2018

BIEEE-004 : MECHATRONICS

Time : 3 hours

Maximum Marks : 70

*Note : Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. Distinguish between active and passive transducers. Also discuss how displacement is sensed by LVDT. 10

2. Classify the actuators based on their design and principle of operation. Also explain about the electromechanical actuators. 10

3. What are the characteristics of the stepper motor ? In what ways are stepper motors more advantageous than the dc and ac motors ? 10

4. Define amplification. Write down the equivalent gain of the amplifiers in cascade. Also distinguish between inverting and non-inverting amplifiers. 10
 5. Explain pneumatic actuator. What are the various types of pneumatic actuators that are commonly used in automation applications ? 10
 6. Distinguish between registers and flags. What are the different types of registers within the microprocessor ? 10
 7. Why is modelling essential in the context of system design ? Model a translational mechanical system with spring, mass and damper. 10
 8. What is an industrial robot ? Discuss the robot based automation scheme. 10
 9. Write short notes on any **two** of the following : 2×5=10
 - (a) Electrical Actuation System
 - (b) Programmable Logic Controllers
 - (c) Automobile Engine Control
 - (d) Process Control Valves
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