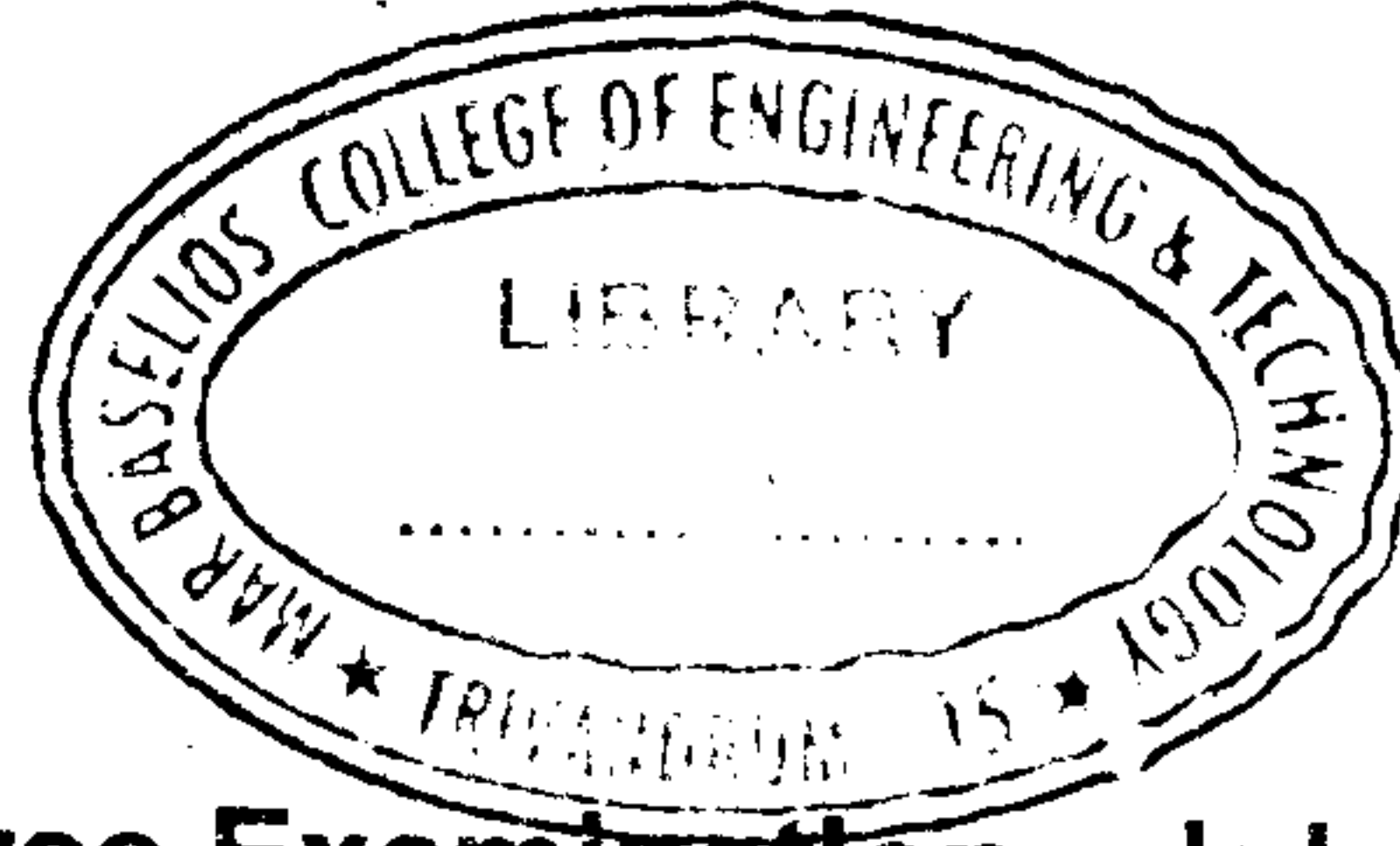


Reg. No. :

Name :



**Seventh Semester B.Tech Degree Examination , July 2019
(2013 Scheme)**

13.702 MECHATRONICS (MPSU)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer all questions. Each carries 2 marks.

1. Define Mechatronics.
2. Give an example for control element.
3. Give the application for comparison element.
4. Give the applications of direction control valves.
5. Represent the following symbolically
 - (a) Push button
 - (b) By pedal.
6. Enumerate the working of Rotary actuators.
7. Give the applications of internal Relay.
8. Explain the role of adaptive controllers in machine tools.
9. Define stepper motors with its specific application.
10. What is robotic vision system?

(10 × 2 = 20 Marks)

P.T.O.

PART – B

Answer **any one** full question from each module.

Module – I

11. (a) What is mechatronics? Explain measurement system with appropriate block diagram.
- (b) With a neat sketch explain the working of sequential controller system.

OR

12. (a) Explain the working of microcontroller taking the example of a domestic washing machine.
- (b) Explaining the following terms as applicable to measurement system

- (i) Range and span
- (ii) Error
- (iii) Accuracy
- (iv) Sensitivity
- (v) Hysteresis.

Module – II

13. (a) What are actuators ? What is its role in Mechatronic systems?
- (b) Explain the pneumatic power supply system.

OR

14. (a) List and explain different pressure control valves.
- (b) Explain the applications of gear train in measurement system.

Module – III

15. (a) With a neat sketch explain flat and dovetail Guideways.
(b) With a neat sketch explain CNC servomotor for DC current. How is it different from one designed for alternating current.

OR

16. (a) Write a note on Antifriction Bearings.
(b) With a neat sketch explain the working of an Encoder.

Module – IV

17. (a) Explain the following
(i) Interfacing
(ii) Monitoring
(iii) Diagnostics
(b) Explain AC and DC brushless motors with sketches.

OR

18. (a) With a neat sketch explain robot vision system.
(b) With a neat diagram explain Generalized PLC system.

(4 × 20 = 80 Marks)

