

Roll No.

22614

**M. Tech. 1st Semester (MAE)
CBCS Scheme
Examination – February, 2022
MECHATRONICS & PRODUCT DESIGN**

Paper : MTMA21C2

Time : Three hours] [Maximum Marks : 100

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : There are *nine* questions. Attempt any *five* questions in all. Question No. 1 is *compulsory*. *One* question must be attempt from each Section.

1. (a) What do you mean by Mechatronics ?
- (b) Define Transducer.
- (c) Explain the first order system in series.
- (d) Explain the designing criteria for a Mechatronic system. 5 × 4 = 20

SECTION – A

2. Discuss about the various types of amplifiers and also explain the low pass and high pass filters. 20

3. Discuss about the principle of basic electronics and also explain the digital logic and number system logic. 20

SECTION – B

4. Discuss the Mechanical actuation system in detail. 20
5. Discuss the Electrical actuation system in detail. 20

SECTION – C

6. Explain in detail the hardware and software principle used in Analog to Digital Converter. 20
7. Discuss the principle of electronic system used in Mechatronics. 20

SECTION – D

8. Explain the designing of a Mechatronic product by using the MATLAB software. 20
9. Explain the designing of a Mechatronic product by using the SIMULINK software. 20