

B.Voc Mechatronics
Subject: Applied Mechatronics
Subject Code: MTE-701
Semester: Fifth
September 2022
Theory (External): 35 Marks
Time: 03 Hours

Instructions to the Students

1. This question paper consists of two sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labelled.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Roll Number

2209T119

SECTION -A (OBJECTIVE TYPE QUESTIONS)
(10 x 1 = 10 Marks)

- A. Differentiate between power electronics and linear electronics.
- B. Draw a block diagram of a typical operational amplifier.
- C. Mention the characteristics of a typical operational amplifier.
- D. What is an ideal operational amplifier?
- E. Why the convertors are used in the circuits?
- F. Draw a full bridge DC-DC convertor.
- G. Differentiate between single phase and three phase AC-voltage controllers.
- H. What is a power factor control strategy in case of convertors?
- I. Draw an ideal voltage transfer curve and mention its use.
- J. What are the functions of (a) differential and (b) inverting amplifiers?

SECTION -B (ESSAY TYPE QUESTIONS)
(5 x 5 = 25 Marks)

1. What do you mean by an equivalent circuit and open loop configuration?
2. Draw a block diagram and schematic symbol for typical operational amplifier.
3. What are the functions of a convertor in a circuit? Describe a buck boost convertor with its circuit diagram.
4. Distinguish between DC-DC convertor and AC-AC convertor.

2209T119

5. What are the functions of power factor control and multistage sequence control?
6. Differentiate between cyclo and voltage convertors using schematic diagram.
7. What do you mean by phase in rectifiers? Why rectifiers are installed in the circuits?
8. Write short note on:
 - a. Thyristor circuit
 - b. Positive feedback vs negative feedback

END OF PAPER