Code No: 136FE

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2019

INDUSTRIAL ELECTRONICS

(Common to EEE, ECE)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Write the need of differential amplifiers.	[2]
b)	Write the ideal specifications of operational amplifiers.	[3]
c)	Write the applications of servo voltage stabilizer.	[2]
d)	Explain the role of current boosting in voltage regulators.	[3]
e)	Write the applications of class A power amplifiers.	[2]
f)	Draw and label characteristics of SCR.	[3]
g)	Write the protection of SCR.	[2]
h)	Explain about the static circuit breaker.	[3]
i)	Name the different type of timers.	[2]
j)	What is meant by the term welding?	[3]

PART - B

(50 Marks)

2.a) Explain in detail about Darlington Emitter Follower.
b) What are the advantages of differential amplifiers over normal common Emitter amplifier? [5+5]

OR

3. Explain the DC amplifier using emitter follower as the 1st stage and derive the expression for its gain using its equivalent circuit. [10]

4. How is short-circuit current protection provided for an IC regulator? Draw and explain the circuit diagram. [10]

OR

5.a) Explain about a voltage regulator circuit using LM 105 IC with an external pass transistor.
b) What are the advantages of a current limiting circuit? [5+5]

6. Discuss briefly the different components of power loss that occur in a thyristor during its working. Which of the power loss components are dominant at power frequencies and which are dominant at high frequencies? [10]

OR

7.a) Draw and explain the waveforms of trigger pulse voltage and output voltage.
b) Explain how SCR is used in triggering of thyristors. [5+5]

8.a) Explain different triggering modes of Triac and give comparison among them.
b) Discuss in detail about Firing Circuits. [5+5]

OR

9. Discuss about the following:
a) Single transistor chopper
b) Two transistor chopper. [5+5]

10.a) Explain the theory and principle of dielectric heating.
b) List various Industrial applications of dielectric heating. [5+5]

OR

11.a) Write the merits and applications of High frequency heating.
b) Define the terms plastic welding and fusion welding. [5+5]

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