COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

B.TECH. DEGREE II SEMESTER EXAMINATION IN MARINE ENGINEERING JUNE 2020

19-208-0204 BASIC ELECTRONICS AND MEASUREMENTS

(*2019 Scheme*)

Time:2hrs 30 minutes [30 Minutes for Answering and Scanning/Uploading the page of the Answer Sheet per module]
Max. Marks: 10 per module

INSTRUCTIONS

1. You have to be available in Google Meet on demand by the faculty.
2. You have to share your '**live location**' to the faculty before uploading the answer sheet.
3. You have to answer only one question per module.
4. Answer may not exceed one page of an A4 size paper in a standard handwriting, as far as possible.
5. If at all an answer goes beyond one page, (due to your handwriting) another page can also be used. In such a situation, the page number should be given as 1/2, 2/2.
6. You have to put dated signature along with Register Number, Subject Code, Module/Group Number (as given in the Question Paper) in each page.
7. You have to put the Question Number correctly.
8. After answering the question, you have to scan and upload the answer page.

MODULE - I

(Answer ***ANY ONE*** question)

I(1).		Draw the Common Base (CB) configuration circuit and describe along with equations about its current amplification factor, collector current, input and output characteristic curve.	(10)
		OR	
I(2).	(a)	Describe fixed bias circuits with its diagram and all loop equations. Mention its advantages and disadvantages.	(7)
	(b)	List any three effects of negative feedback in transistors.	(3)

MODULE - II

(Answer ***ANY ONE*** question)

II(1). Draw the circuit diagram of RC coupled amplifier and describe its operation, frequency response curve, 3dB line and its significance. (10)

OR

II(2). (a) Draw the circuit diagram and describe the working of Transistor series voltage regulator. (5)

(b) Describe the working of JFET and draw its output characteristics. (5)

MODULE - III

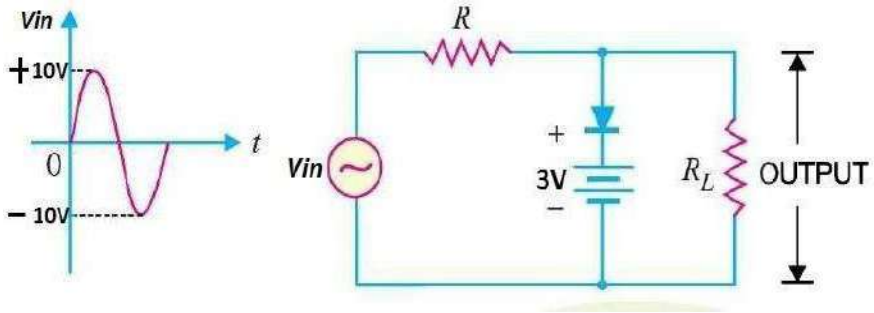
(Answer ***ANY ONE*** question)

III(1). What is Barkhausen criteria? Write about the working of RC phase shift oscillator along with its circuit diagram and frequency of oscillation expression. (10)

OR

III(2). (a) Describe the working of astable multivibrator with neat diagram and mention its applications. (7)

(b) The given positive biased clipper has a peak input voltage of 10 V. Draw the output of the given positive biased clipper. (Consider the diode as ideal) (3)



MODULE - IV

(Answer ***ANY ONE*** question)

IV(1). (a) Moving coil instrument has resistance of 10 Ω and gives full scale deflection when carrying a current of 50 mA. Show how it can be adopted to measure currents up to 100 A and voltage up to 750 V. (6)

(b) What are the different methods to provide damping torque in an indicating instrument? Describe about any one along with its diagram. (4)

OR

IV(2). (a) Write about the 3 phase power measurement for a star connected load using 2 wattmeter method with circuit diagram. Derive the power equations and draw the phasor diagram. (7)

(b) Differentiate between moving coil instruments and moving iron instruments. (3)

MODULE - V

(Answer ***ANY ONE*** question)

V(1). Draw block diagram of CRO and briefly describe about each block and hence its working. (10)

OR

V(2). (a) With necessary diagrams describe the working principle of any one type of (6)
(i) pressure transducer (ii) temperature transducer

(b) Define the two laws of illumination. (4)

***