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Name of Examination : **Summer 2021** - (Preview)

Course Code & Course Name : **ET151U - Basic Electronics and Measurement Techniques**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

1) Solve any three sub-questions.

- a) Draw and explain block diagram of d.c. regulated power supply in detail. [6]
- b) i. Draw and explain the V-I characteristics of PN junction diode. [3]
- ii. Explain center tap full wave rectifier. [3]
- c) Draw transistor construction and symbol. Which are different ways of transistor biasing. Explain the operation of transistor in active mode and draw the input characteristics in common base configuration. [6]
- d) Explain the working of transistor as a switch and as an amplifier. [6]

2) Solve any three sub-questions.

- a) State the characteristics of an ideal operational amplifier and derive the expression for gain of non-inverting operational amplifier. [6]
- b) Explain virtual ground concept and explain the application of operational amplifier as an adder. [6]
- c) i. Explain amplitude modulation, frequency modulation and modulation index. [3]
- ii. Draw and explain block diagram communication system. [3]
- d) i. Draw and explain basic block diagram of measurement system. [4]
- ii. What is the need of modulation? Explain briefly. [2]

3) Solve any three sub-questions.

- a) Define the following terms. [6]
- i) Accuracy
- ii) Precision
- iii) Significant figure
- iv) Gross error
- v) Random error
- vi) Tolerance
- b) Give applications of thermistor and explain the properties of thermistor. [6]
- c) Describe the constructional details and principle of operation of D'Arsonval galvanometer. [6]
- d) Draw and explain basic d.c. voltmeter circuit and explain how it can be converted to multirange voltmeter. [6]

4) Solve the following sub-questions.

- a) Give classification of transducers. [3]
- b) What are the applications of CRO. [3]

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