

Total No. of Questions – [05]

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G.R. No.	
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Paper code - U119-104A (BE-ES)

DECEMBER 2019 / ENDSEM (Backlog)

F. Y. B. TECH. (COMMON) (SEMESTER - I)

COURSE NAME: Basic Electronics Engineering

COURSE CODE: ET10174A

(2017 PATTERN)

Time: [2 Hours]

[Max. Marks: 50]

(*) Instructions to candidates:

- 1) Answer Q.1 OR Q.2, Q.3 OR Q.4 and Q.5
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed.
- 4) Use suitable data wherever required.

- Q.1**
- a) Construct basic gates such as AND, OR and NOT gate and write their truth table. [6]
 - b) Explain working of D- flip flop using NAND gate and truth table. [6]
 - c) State and prove Demorgan's theorems, Draw the logical diagrams [4]
- OR**

- Q.2**
- a) Explain the working of 4:1 MUX with block diagram and truth table. [6]
 - b) Explain, commutative law, associative law using logic expressions. [6]
 - c) State the advantages of Digital Electronics. [4]

- Q.3**
- a) What is RTD? Explain its construction and working principle. Draw the circuit diagram for measurement of temperature using RTD. [6]
 - b) What is transducer? Give its classification based on principle used. [4]
 - c) Compare active and passive transducer. [4]
- OR**

- Q.4**
- a) Draw and explain the block diagram of basic instrumentation system. [6]
 - b) Explain the working of LVDT using circuit diagram. Explain the use of LVDT to measure air pressure. [4]
 - c) List advantages of thermistor used for measurement of temperature. [4]

Q.5 Attempt following multiple choice questions: [2×10=20 marks]

1.	When forward biased, the voltage drop across Ge diode is _____. a) 0.7 V b) 0.6 V c) 0.3 V d) 1 V	[2]
2.	In photodiode ----- current is proportional to light incident.. a) forward current b) reverse current c) reverse leakage current d) dark current.	[2]
3.	If the ac supply is 60 Hz, what will be the ripple frequency out of the full-wave rectifier? a) 50 Hz b) 60 Hz c) 120 Hz d) 100 Hz	[2]
4.	The phase difference between the input and output ac voltage signals of a common-collector amplifier is _____. a) 0° b) 180° c) 80° d) 360°	[2]
5.	In which region are both the collector-base and base-emitter junctions forward biased? a. Active b. Cutoff c. Saturation d. All of the above	[2]
6.	V_{CE} approximately equals _____ when a transistor is in saturation state. a) V_B b) V_{CC} c) 0.2 V d) 0.7 V	[2]
7.	In an E-MOSFET, there is no drain current until V_{GS} (a) reaches $V_{GS(th)}$ (b) is positive (c) is negative (d) equals 0 V	[2]
8.	The 7912 regulator IC provides _____. a. 5 V b. -12 V c. 12 V d. -5 V	[2]
9.	For an op-amp with negative feedback, the output is (a) equal to the input (b) increased (c) fed back to the non-inverting input (d) fed back to the inverting input	[2]
10.	A certain inverting amplifier has an $R_1=1K\Omega$ and $R_F=20K\Omega$. The close loop gain is a) 1 b) -20 c) 11 d) 20	[2]