MAY 2018 / ENDSEM

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

COURSE NAME: Basic Electronics Engineering

(2017 PATTERN)

Q.NO	Sub Q.NO	Marking Scheme	Marks	Difficulty Level	Cognitive level	CO Mapped
Q1	a)	Construct NOT, OR and AND gates using only NAND gate: Each gate: 2M	[6]	M	Comprehension	CO4
	b)	Truth table of Ex-NOR gate:2M Develop Ex-NOR gate logic expression using De-Morgan's theorem:4M	[6]	M	Knowledge/ Comprehension	CO4
	c)	Proper proof of: $A + AB + A\bar{B}C = A$:2M Proper proof of: $(\bar{A} + B)C + ABC = C(\bar{A} + B$: 2M	[4]	M	Comprehension	CO4
		OR				
Q2	a)	Convert binary number 110110.1011 to decimal number is **50.6875**: 3M convert decimal number 69.625 to binary number**1000101.101**: 3M	[6]	M	Comprehension	CO4
	b)	Draw the block diagram of full Adder using two half adders: 3M Explain its working with proper expression along with sum and carry: 3M	[6]	H	Comprehension /Application	CO4
	c)	Advantages of Digital Electronics over Analog Electronics:4M	[4]	L	Knowledge	CO4
Q3	a)	Explain the working of LVDT using circuit diagram:4M State any two advantages and disadvantages of LVDT:2M	[6]	M	Knowledge	CO5
	b)	Explanation of four characteristics of transducer: 4M	[4]	L	Knowledge	CO5
	c)	Construction diagram of strain gauge:2M Explanation of working principle:2M	[4]	L	Knowledge	CO5
		OR				

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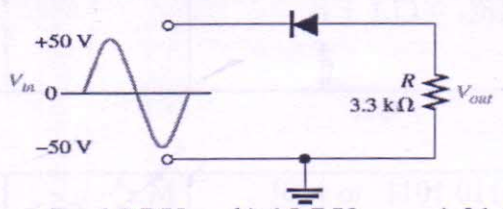
Q4	a)	Define Instrumentation :2M The various blocks involved in instrumentation system:4M	[6]	M	Knowledge and Comprehension	CO5
	b)	Explanation to measure pressure in industrial systems using primary and secondary transducer:4M	[4]	M	Knowledge	CO5
	c)	List of any four important factors used in selection of transducers: 4M	[4]	M	Comprehension	CO5

Q.5

1.	The average output voltage in the circuit shown in figure is  a) -15.7 V b) 15.7 V c) 31.4 V d) -31.4 V Ans: a	[2]
2.	When the reverse current in particular Zener diode increases from 20mA to 30mA, the Zener voltage changes from 5.6V to 5.65 V. The resistance of Zener diode will be a) 1 Ω, b) 5 Ω c) 0.5 Ω d) 10 Ω Ans:b	[2]
3.	In a given single stage transistor amplifier collector resistance is 2.2KΩ and r_e' is 20 Ω and supplied with 10 mV, the output voltage will be a) 1V b) 1.2 V c) 1.1V d) -1V Ans: c	[2]
4.	If I_E=5.34mA , I_B= 475 μA, current gain beta of BJT will be a) 10.24 b) 9.24 c) 10.48 d) 11.24 Ans: a	[2]
5.	For n channel E-MOSFET, if V_{GS}=5V, V_{th}=1V and K=6.17mA/V^2 the drain current is a) 95mA b) 90.18mA c) 98.7mA d) 101.24mA Ans: c	[1]
6.	For SCR with firing angle of α=90, the DC voltage at the output of full wave controlled rectifier is a) Vm/π b) 2Vm/π c) Vm/2π d) 0	[2]

	Ans: a	
7.	The specified value holding current for SCR means that ----- a) the device will turn on when the anode current exceeds this value b) the device will turn off when the anode current falls below this value. c) the device may be damaged if the anode current exceeds this value. d) the gate current must equal or exceed this value to turn the device Ans: b	[2]
8.	A certain non-inverting amplifier has an R_1=1KΩ and RF=100KΩ. The close loop gain is a) 100,000 b) 1000 c) 101 d) 100 Ans: c	[2]
9.	If $A_{v(d)}$=3500 and A_{cm}=0.35, the CMRR is a) 1225 b) 10,000 c) 80dB d) answer (b) and (c) Ans: d	[2]
10.	The output of a particular op-amp increases 8V in 12μs. The slew rate is a) 96V/μs b) 0.67V/μs c) 1.5V/ μs d) none of these Ans: b	[2]