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Roll No.	Total No. of Pages : 02
Total No. of Questions:18	
B.Tech. (EE) (2012 Onwards) / (Electrical & Ele B.Tech. (Electronics & Electrical Engg./ Elec Control) (2012 to 2017) ELECTRONIC DEVICES A Subject Code : BT	ectronics Engg.) (2011 Onwards) ctrical Engineering & Industrial (Sem.–3) AND CIRCUITS EE-304
Time : 3 Hrs.	Max. Marks:60

INSTRUCTION TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

Answer briefly :

- Q1 How do you distinguish between tow leads of an LED?
- Q2 Why the space charge region is also called the depletion region?
- Q3 How transistor " α " and " β " are related?
- Q4 Why is the input impedance of the MOSFET very high?
- Q5 List the ideal characteristics of operational amplifier.
- Q6 Define CMRR.
- Q7 Why the series regulator is mostly commonly used regulator circuitry?
- Q8 Define line and load regulation.
- Q9 State the conditions under which a feedback amplifier works as an oscillator?
- Q10 What is the basic principle of operation of crystal oscillator?

SECTION-B

Q11 Draw the circuit diagram of half wave rectifier. What is the minimum frequency of ripple in its output?

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- Q12 Draw CB configuration circuit diagram and explain with characteristics.
- Q13 Explain the working of RC phase shift oscillator and state some of its applications.
- Q14 In the circuit shown below $R_1 = 5k\Omega$ and $R_2 = 105 k\Omega$.

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Assume that the op-amp is ideal. Determine the closed-loop gain, $G = v_0 / v_s$.

Q15 Draw the pin package and circuit diagram of LM317 and explain its working.

SECTION-C

- Q16 Draw the various types of biasing circuits and explain voltage divider biasing circuit using expressions.
- Q17 If R_s is connected in series with the zener diode to limit the current flow through the diode with the voltage source. A 10.0V stabilized power supply is required to be produced from a 24V DC power supply input source. The maximum power rating P_z of the Zener diode is 2W. Using the above data calculate :
 - a) The maximum current flowing through the Zener diode.
 - b) The minimum value of the series resistor, R_s
 - c) The Zener current Iz at full load.
 - d) The load current I_L if a load resistor of $2k\Omega$ is connected across the Zener diode.
- Q18 Explain any two with necessary diagrams;
 - a) 555 timer.
 - b) SMPS.
 - c) RC low pass filter.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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