

SANT GADGE BABA AMRVATI UNIVERSITY, AMRAVATI
Summer Examination 202 Credit Point0
HVPM's College of Engineering and Technology, Amravati
Department of Electronics & Tele communication Engineering
Bachelor of Engineering Sem. :- V

Subject :- AE-II

Code :- 5ET1

Instructions:-

- 1) Solve any two questions**
- 2) All question carry equal marks**

Q1.

- a) Design a Astable voltage regulator using IC LM317 to satisfy following
Output voltage : 5 to 12 V
Output Current: 1 Amp **02 Credit Point**
- b) Design a circuit to add three Dc input voltage. The output of a circuit must be equal to two times negative sum of inputs. **02 Credit Point**
- c) Design free running multivibrator using IC 741 for following $F_0 = 5\text{KHz}$. $V_0 \text{ Max} = 5\text{v}$ duty cycle = 40% $V_{cc} = 12\text{v}$ **02 Credit Point**
- d) Design a 555 based square wave generator to produce a symmetrical square wave of 2Khz. If $V_{cc} = 12\text{v}$ Draw the voltage across timing capacitor and the output. **01 Credit Point**
- e) Design second order high pass Butterworth filter having cutoff frequency = 1.408 KHz.
- f) Design Temperature indicator with assuming suitable data. **01 Credit Point**

Q2.

- a) What is voltage regulator draw and explain dual tracking regulator using IC 78xx and IC 79xx. **02 Credit Point**
- b) Design wein bridge oscillator circuit to produce undamped oscillation of 2MHZ. **02 Credit Point**
- c) Design FM Modulator by IC 566 for following Specification
Carrier frequency: - 26.16Khz
Frequency division: + 10KHZ
 $V_{cc} = 12\text{v}$ **02 Credit Point**
- d) Design an astable multivibrator which will flash the electric bulb such that its on time will be 3 sec. and off time will be 1 second. **02 Credit Point**
- e) Design all pass filter with a phase shift -135 degree at a frequency of 2 KHz at the output. **01 Credit Point**
- f) Design three op-Amp instrumentation amplifier to vary a gain from 1 to 10000 **01 Credit Point**

Q3.

- a) Using suitable example explain the design procedure to built an adjustable positive voltage regulator using LM 317 **02 Credit Point**
- b) Design Summing Amplifier Using IC 741
 $V_0 = -5V_1 + 7V_2 - 9V_3 + 10V_4$ **02 Credit Point**
- c) Design Schmitt trigger circuit using Op- amp for $V_{ut} = 1V$ and $V_{lt} = -1V$ Assume $V_{cc} = 12V$ **02 Credit Point**
- d) Design PPI using IC 565 for VCO output frequency of 3KHZ. Also calculate lock range and capture range use $V_{cc} = 10v$. **02 Credit Point**
- e) Design 400 hz Active notch filter. **01 Credit Point**
- f) Enlist the important specification of temperature sensor LM35 and explain in short. **01 Credit Point**

Q4.

- a) Using 7805 voltage regulator IC, Design a constant current sources that will deliver 200ma Current to a 47 ohm load. Assume dropout voltage of regulator to be 2v. **02 Credit Point**
- b) Design Phase shift oscillator circuit that will oscillate at 200Hz. **02 Credit Point**
- c) Design a window detector circuit using IC 741 Op-amp to glow green LED if voltage i.e. input voltage is between 5.2 to 6.5v and Red LED when input voltage is outside the above mention range. **02 Credit Point**
- d) Design divided by 2 network using monostable multivibrator. **02 Credit Point**
- e) Write the procedure to design the filter. **01 Credit Point**
- f) Design temperature indicator using two op-amp **01 Credit Point**