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B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019

Fourth Semester

EE16404 – ANALOG CIRCUITS*(Electrical and Electronics Engineering)***(Regulation 2016)****Time: Three Hours****Maximum : 100 Marks**Answer **ALL** questions**PART A - (10 X 2 = 20 Marks)**

	CO	RBT
1. CMRR of the amplifier is 100 dB, calculate the common mode gain, if differential mode gain is 1000.	1	AP
2. Write down the expression for closed loop gain for negative feedback amplifier.	1	U
3. Why do we use compensation (R_{comp}) resistor?	3	U
4. Design a non - inverting amplifier with a gain of 10.	3	AP
5. List out the applications of comparator?	3	U
6. Which is the fastest ADC? State reason.	3	U
7. What should be the gain of inverting amplifier in a phase shift oscillator? Give conditions.	2	AP
8. What is Window detector?	2	U
9. Mention some applications of 555 timer.	4	U
10. Give the drawbacks of Linear regulator.	4	U

PART B - (5 X16 = 80 Marks)

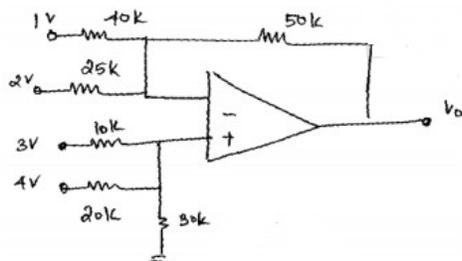
11. (a) Construct and explain the operation of Differential amplifier configurations. Derive the operating current and voltage using DC analysis. **(16)**

(OR)

- (b) Construct and discuss any two types of negative feedback amplifier. Derive the closed loop gain, input and output impedance for the same. **(16)**

12. (a) Explain the DC characteristics of Operational amplifier. (16) 3 U
 (OR)
 (b) Draw the neat circuit diagram and explain the inverting and non-inverting amplifier. Also derive the closed loop gain. (16) 3 U

13. (a) (i) Find out the output of following circuit (10) 3 AP



- (ii) Explain in detail the working of successive approximation type ADC. (6) 3 U

(OR)

- (b) (i) Design an op-amp differentiator that will differentiate the input signal with $f_{max}=100\text{Hz}$. (8) 3 AP
 (ii) Explain the operation of voltage to current converter. (8) 3 U

14. (a) With neat circuit diagram explain the working of Hartley and Colpitts oscillator. Draw the output waveforms and also derive the frequency of oscillations. (16) 2 AP

(OR)

- (b) (i) Describe the operation of op-amp based Astable multivibrator. (8) 2 U
 (ii) Explain the working of Schmitt trigger. (8) 2 U

15. (a) (i) Obtain the connections for monostable operation of NE 555 Timer and derive an expression for its frequency of oscillation. (10) 4 AP
 (ii) Design a monostable multivibrator using 555 timer to produce a pulse width of 100ms. (6) 4 AP

(OR)

- (b) (i) Mention the components of Phase locked loop and explain its functioning in detail. (10) 4 U
 (ii) Discuss about IC voltage regulators. (6) 4 U