MANAV RACHNA vidyanatariksha

MANAV RACHNA UNIVERSITY
(FORMERLY MANAV RACHNA COLLEGE OF ENGINEERING
NAAC ACCREDITED 'A' GRADE INSTITUTION)
Declared as State Private University under section 2f of the UGC act, 1956

DEPARTMENT OF ELECTRONICS & COMMUNICATION

"T3 Examination, May-2018"

Semester:IV
Subject:Analog Integrated Circuit
Branch: ECE
Course Type:Core
Time: 3Hours
Max.Marks: 80

Date of Exam:21/05/2018
Subject Code:ECH 212-T
Session: II
Course Nature: Hard
Program: B.Tech
Signature: HOD/Associate HOD:

Note: All questions are compulsory from part A (2X10=20 marks). Attempt any 2 questions from part B (15 marks each). Attempt any 2 questions from part C (15 marks each).

Part A

Q1: (a) What is Barkhausen criterion for the feedback amplifiers. (2)
(b) Why is crysrtal oscillator used in transmitter? (2)
(c) Define the term stability. (2)
(d) What is the difference between current and voltage feedback? (2)
(e) Name the major applications of Log amplifier. (2)
(f) What is sample and hold circuit. How it can be formed and where is it used? (2)
(g) Which type of filter we get from integrator and differentiator? (2)
(h) What is the importance of capacitor in integrator? (2)
(i) What do you mean by average adder? (2)
(j) Draw the circuit diagram of Instrumentation Amplifier. (2)

Part B

Q2: (a) An inverting amplifier has R_F = 500 KΩ and R_1 = 5 KΩ. Determine the amplifier circuit voltage gain, input resistance and output resistance. Determine also the output voltage & input current if the input voltage is 0.1 V. Assume op-amp to be if deal one. (8)
(b) Derive the expression of voltage series closed loop op-amp. (7)

Q3: (a) Realize a circuit to obtain Vout = -2V1+3V2+4V3 using an operational amplifier. Use minimum value of resistance as 10 KΩ. (7)
(b) Explain the Logarithmic multiplier in detail. (8)

Q4: (a) An RC phase shift oscillator has to be designed to provide a sine wave of frequency 1 KHz. If the value of capacitance is 0.016 uF, calculate the value of the resistances. (8)
(b) Discuss the Wein Bridge Oscillator in detail. (7)

Part C

Q5: (a) Classify the power amplifiers with output stages & also explain them. (10)
(b) What is crossover distortion in class B amplifier? How it is remove? (5)

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Q6: (a) Explain High Pass Filter with the help of circuit diagram & frequency response curve. (9)

(b) Write short notes on: (6)

(i) Filter transmission

(ii) Band Pass Filter

Q7: (a) A power transitive working in class A operation has zero signal power dissipation of 10 watt. If the ac output power is 3 watt, find (5)

(i) Collector Efficiency

(ii) Power rating of transistor

(b) What are the advantages of Push Pull amplifier? (4)

(c) Explain the following terms: (6)

(i) Power Dissipation capability

(ii) Overall gain

(iii) Collector efficiency

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