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SIIS 188 B-2K13

B.Sc. IIIrd Semester Degree Examination

Electronics

(Electronics Circuits)

Paper - 3.3

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates

- 1) Answer **all** questions from Section 'A'.
- 2) Answer any '**Five**' questions from Section 'B'
- 3) Answer any **four** questions from Section 'C'.

Section - A

1. Choose the correct answer.

(1×5=5)

- i) For proper working of a clamper time constant of the ckt should be
 - a) Large
 - b) Small
 - c) Equal to signal time period
 - d) Greater than 5 times the signal time period.
- ii) A monostable multivibrator is frequently used.
 - a) In memory & timing ckts.
 - b) For producing triangular waves
 - c) In counting ckts.
 - d) For generation of distorted waves.
- iii) An ideal Op-Amp has
 - a) Infinite A_v
 - b) Infinite R_i
 - c) Zero R_o
 - d) All of these
- iv) An inverting amplifier has $R_f = 2m\Omega$ and $R_i = 2k$, its scale factor is
 - a) 1000
 - b) -1000
 - c) 10^{-3}
 - d) None of these

- v) LM 317 is a
- Fixed positive voltage regulator
 - Fixed negative voltage regulator
 - Adjustable positive voltage regulator
 - Adjustable negative voltage regulator.

2. Fill in the blanks.

(1×5=5)

- Clamping circuit adds _____ component to the signal.
- The value of feed back fraction is always _____.
- Open loop gain of an ideal Op-Amp is _____.
- An adder circuit provides an output voltage which is the _____ sum of two or more input voltages.
- Ic 7805 is a fixed _____ voltage regulator.

3. State True or False.

(1×5=5)

- A differentiating circuit is a simple RC series circuit with output taken across capacitor.
- Wein bridge oscillator uses both +ve and -ve feed back.
- An Op-Amp is a well known example of digital Ic.
- Schmitt trigger generates triangular waves.
- Ic 555 timer has 8 pins.

Section - B

4. What is clipper? Explain positive clipper.

(5×5=25)

5. What is feed back? Explain the effect of negative feed back on gain.

6. Define the terms

- Input off set voltage
- Input off set current
- CMRR
- Slew rate
- Output resistance.

7. What is Op-Amp? Explain adder circuit using op-Amp.
8. With a neat diagram, explain first order active low passfilter.
9. Design a low pass filter at a cut off frequency of 1K.Hz, with pass band gain of 2.
10. Explain in brief positive voltage regulator.

Section - C

11. a) Explain in brief linear and non linear wave shaping. (4+6)
b) With a neat diagram explain RL integrating Ckt.
 12. a) Explain Barkhusen criteria for sustained oscillations. (4+6)
b) With a neat diagram explain construction & working of crystal oscillator.
 13. a) With a neat diagram explain emitter coupled differential amplifier. (6+4)
b) List the Applications of Op-Amp.
 14. Obtain an expression for closed loop gain of inverting and non-inverting Op-Amp. (10)
 15. a) What is comparator?
b) Explain astable multivibrator using Op-Amp. (10)
 16. a) Draw the DIP structure of Ic 555 timer.
b) Explain working of schmitte trigger using Ic 555. (10)
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