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SUBJECT CODE NO:- B-2071
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. S.Y. (Sem-III) Examination Oct/Nov 2019
Electronics Paper-VII
Linear Integrated Circuits

[Time: 1.30 Hours] **[Max.Marks:50]**

Please check whether you have got the right question paper.

N.B 1)Attempt all questions
2) Illustrate yours answer with suitable labeled diagram.

Q.1 Draw a neat circuit diagram of difference amplifier having dual input and difference mode output. Explain its working to determine no signal value of collector current ICQ and collector to emitter voltage V_{CEQ}. 20

OR

Explain with circuit diagram and necessary waveforms how time IC555 is used in astable multivibrator mode.

Q.2 Draw a neat circuit diagram of voltage shunt feedback amplifier using OP Amp and derive the expression for gain with feedback. 20

OR

Write short notes on any four of the following
a) Characteristics of an ideal OP Amp
b) OPAmp differentiator
c) Timer IC555 as frequency divider
d) OPAmp comparator
e) Phase shift oscillator
f) OP Amp as dc low voltage dc voltmeter

Q.3 Attempt the following multiple choice questions 10

1) Cascade difference amplifier requires level translator because
a) Impedance matching b) Isolation of each stage c) dc shift d) ac shift

2) What is the scale of multiplier of an integrator
a) R/C b) C/R c) –RC d) -1/RC

3) What is Pin – 7 of timer IC555
a) Trigger b) Threshold c) Discharge d) Reset

4) What controls the output pulse width of a monostable multivibrator
a) The external clock frequency
b) The width of clock pulse
c) RL time constant
d) RC time constant

5) An oscillator requires
   a) + ve feedback b) –ve feedback
   c)No feedback d) Both +ve & -ve feedback

6) Condition for sustaintion of weinbridge oscillator is
   a) $(1 + Rf/R) = 3$ b) $(1 + Rf/R) = \infty$
   c) $(1 + Rf/R) = 6$ d)$(1 + Rf/R) = 29$

7) A current to voltage converter produces
   a) A constant output voltage for a variable input current
   b) Variable output voltage for a constant input current
   c) Proportional output voltage for a variable input current
   d) Proportional output current for a variable input current

8) If V_1 and V_2 are two input voltages of an ideal OPAmp then output voltage V_o is
   a) $V_1 - V_2$ b) $A \times (V_1 - V_2)$ c) $A \times (V_1 + V_2)$ d) $V_1 \times V_2$

9) What is the output voltage of inverting summing amplifier if
   $$R_1 = R_2 = R_3 = 100\Omega, R_f = 1\ K\ \Omega$$
   $$V_1 = V_2 = V_3 = 10mv$$
   a) 0.3 V b) -0.3V c) 3V d) -3V

10) In an LC oscillator the frequency of oscillations is ------ L or C
   a) Proportional to square root of b) Inversely proportional to square root of
   c) Proportional to square of d) Directly proportional