F.Y.B.SC. (COMPUTER SCIENCE) SEM –II (2014 COURSE) :
WINTER - 2017
SUBJECT : LINEAR ELECTRONICS – II

Day : **Friday**
Date : **03/11/2017**

W-2017-0740

Time : **03.00 PM TO 05.00 PM**
Max. Marks : 40

N.B.:

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Use of Scientific calculator is **ALLOWED.**

Q.1 Answer **ANY TWO** of the following: **[10]**

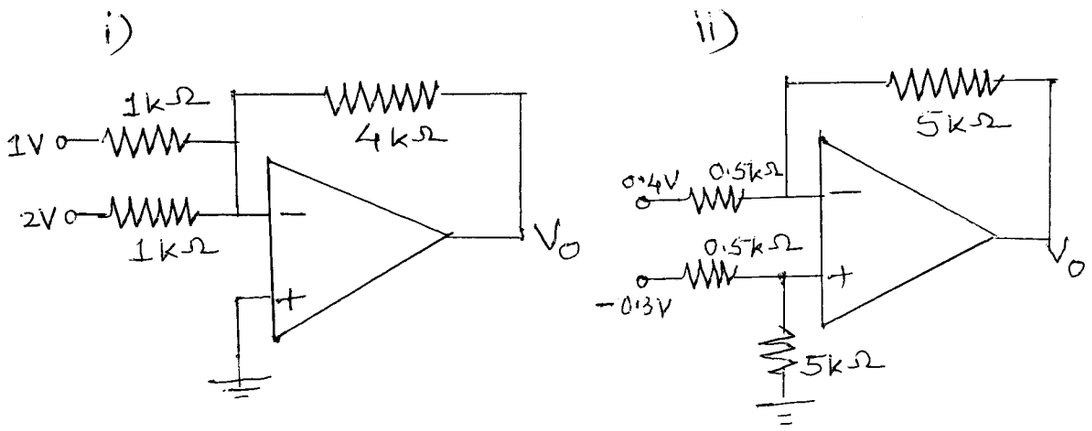
a) Explain the working of on-line UPS with necessary block diagram.
b) With neat diagram explain the working of Hartley oscillator. Also state the formula for its frequency.
c) Explain the action of OP-AMP as adder with neat diagram.

Q.2 Answer **ANY TWO** of the following: **[10]**

a) Explain Wein bridge oscillator with necessary diagram. State equation for its output frequency.
b) Define the following parameters for OP-AMP:
i) Slew rate **iii)** Output offset voltage **v)** CMRR
ii) Input bias current **iv)** Input impedance
c) Draw well labelled diagram for double ended input double ended output differential amplifier with constant current source. Explain it.

Q.3 Answer **ANY TWO** of the following: **[10]**

a) Draw block diagram for SMPS. Explain the function of each block.
b) Explain the Barkhausen criteria for sustained oscillations.
c) Identify the following circuits and find the output:



Q.4 Answer **ANY FIVE** of the following: **[10]**

a) Define the terms related to UPS:
i) Transition time **ii)** Back up time.
b) Draw the block diagram of regulated power supply.
c) Explain the concept of virtual ground.
d) State any four characteristics of an ideal OP-AMP.
e) Find the frequency of oscillation for phase shift oscillator if R = 10kΩ and C = 0.01μF.
f) Define the following term for power supply:
i) Load regulation **ii)** Line regulation
g) State two points of difference between RC and LC oscillators.

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