

F.Y.B.SC. (COMPUTER SCIENCE) SEM -II (2014 COURSE) :
SUMMER - 2018

SUBJECT : LINEAR ELECTRONICS - II

Day : Monday
Date : 23/04/2018

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

S-2018-0840

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]

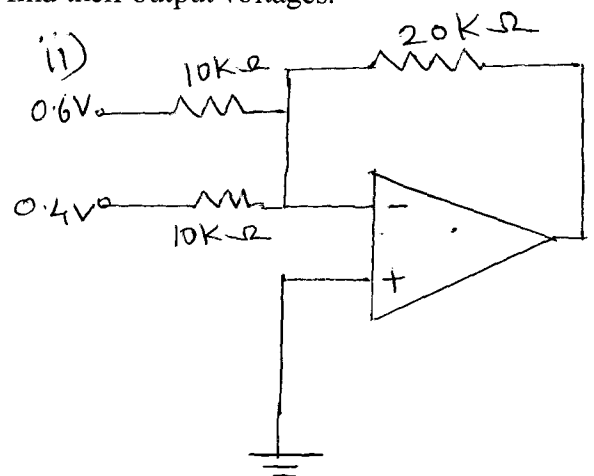
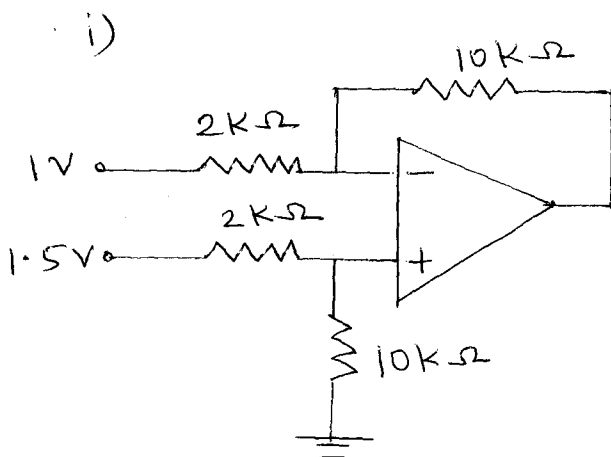
- a) Draw well labelled circuit diagram of non-inverting amplifier using OP-AMP. Derive an expression for its output voltage.
- b) Draw the block diagram of On-Line UPS. Explain it.
- c) Explain the Barkhausen criteria for sustained oscillations.

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

- a) With neat diagram explain the working of OP-AMP as differentiator. Also draw output waveform for it, if the input applied is square wave.
- b) Explain the working of OP-AMP as comparator.
- c) With neat diagram explain the working of Phase shift oscillator. Also state equation for its frequency.

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

- a) With neat diagram explain the action of double ended input single ended output differential amplifier.
- b) i) Draw well labelled block diagram of SMPS.
ii) State any two applications of SMPS.
- c) Identify the OP-AMP configurations and find their output voltages.



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

- a) Define any two parameters of OP-AMP.
- b) Draw neat circuit diagram for Wein bridge oscillator.
- c) Draw block diagram of OP-AMP.
- d) In a Colpitt's oscillator circuit, if $L = 0.5\text{mH}$ and $C = 0.01\mu\text{F}$. Find the frequency of oscillation.
- e) Explain the following terms for power supply :i) Ripple factor ii) Line regulation
- f) Draw diagram for OP-AMP as unity gain amplifier.
- g) State any two applications of UPS.

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