K16P 1299

Reg. No. : .....

Name : .....

First Semester M.Sc. Degree (Reg./Suppl./Imp.) Examination, November 2016
(2014 Admission Onwards)
PHYSICS
PHY1C04 : Electronics

Time : 3 Hours

Max. Marks : 60

SECTION – A

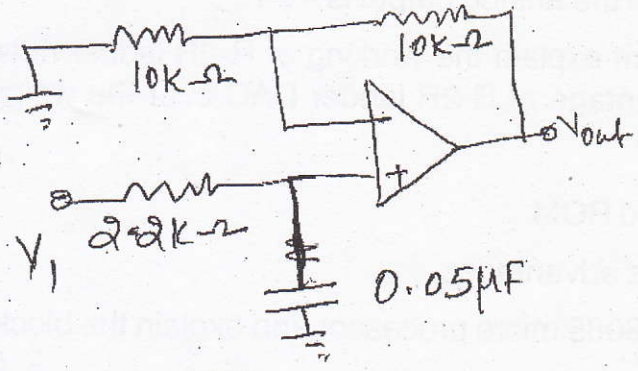
Answer **both** questions (Either **a)** or **b)**). **Each** question carries **12** marks.

1. a) Draw the basic differential amplifier circuit using transistors and explain. Derive expressions for the AC voltage gain in the single ended and double ended configuration.

OR

b) Distinguish between combinational sequential logic circuits. Draw the circuit diagram of a master slave JK flip flop and explain its working using a truth table. How is it different from edge triggering ?

2. a) What are active filters ? How are various types of filters classified ? Explain the working of a first order low pass Butter worth filter. Give the frequency response. Calculate the cutoff frequency of a first order low pass filter, given below.



OR

b) What are the advantages and disadvantages of ripple counters ? Explain the construction and working of amod-8 ripple counter. What is problem of lock out ? How is it eliminated.

(2×12=24)

P.T.O.

SECTION – B

Answer **any four** questions. **1** mark for Part **a)**, **3** marks for Part **b)**, **5** marks for Part **c)** :

3. a) What is slew rate of an O pamp ?
   b) Obtain the slew rate equation.
   c) Explain the causes and significance of slew rate in applications. How does slew rate differ from transient response ?

4. a) What are waveform generators ?
   b) Explain the construction and working of a triangular wave generator.
   c) Derive the expression for the frequency of oscillation.

5. a) What is a flip flop ? Give its applications.
   b) Distinguish between synchronous and asynchronous latches.
   c) Convert a J-K flip flop into a D- flip flop.

6. a) Explain Universal shift register.
   b) Distinguish between static and dynamic shift registers.
   c) Explain with diagram the working of serial- IN, serial- out shift register. Give the applications of shift registers.

7. a) What is DIA conversion ?
   b) The logic levels used in an 8- bit R-2R ladder DAC are O=OV and 1 = 5V. What is the binary input when the analog output is 4V ?
   c) With the help of neat diagram explain the working of R-2R ladder network type DAC. What is the advantage of R-2R ladder DAC over the weighted resistor type DAC ?

8. a) Distinguish between RAM and ROM.
   b) What is an EPROM ? Give its advantages.
   c) Draw the functional block of 8085 micro processor and explain the blocks.

(4×9=36)