



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

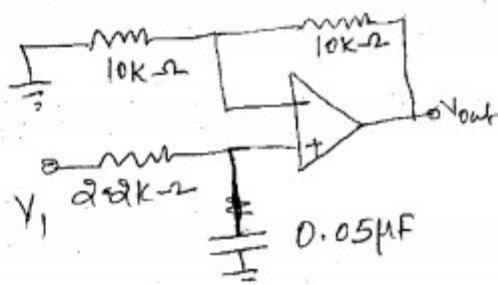
SECTION – A

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 a mod-8 ripple counter. What is problem of lock out ? How is it eliminated. (2×12=24)

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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 0=0V 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)