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FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE (2K SCHEME) EXAMINATION, MARCH 2013

EE 2K 404 – ELECTRONICS – II

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. (a) Obtain expression for gain of an amplifier with :
   (i) Negative feedback.
   (ii) Positive feedback.
   (b) Draw current series and voltage shunt topology with all parameters.
   (c) List the properties of ideal Op-Amp.
   (d) Draw an Op-Amp differentiator and give the output voltage expression. Sketch the output waveform for square wave input.
   (e) Define Slew rate. State the effect of slew rate on waveform generation.
   (f) Draw a multiplier circuit using log and antilog amplifier with expression.
   (g) Compare weighted resistor and R–2R DAC.
   (h) Explain analog switch circuit.

(8 × 5 = 40 marks)

Part B

2. (a) With expression, explain the effect of negative feedback on gain stability, bandwidth, input and output impedance, distortion of amplifier.

Or

   (b) Discuss the problem of stability in amplifiers and the various methods of compensation.

3. (a) Explain the following applications of Op-Amp with circuit and relevant expression.
   (i) Antilog amplifier.
   (ii) Practical Integrator.
   (iii) V to I converter with floating load.

(5 + 5 + 5 = 15 marks)

Or

   (b) (i) Explain the working of an Instrumentation amplifier and obtain expression for gain.

Turn over

(ii) What are its salient features and applications?

(10 + 5 = 15 marks)

4. (a) Construt a Regenerative comparator using Op-Amp and explain its application to generate ramp waveform.

Or

(b) Discuss the operation of PLL and explain any *two* applications of the same.

5. (a) Design and draw a 4^{th} order Butterworth Low Pass filter having cut-off frequency of 3 kHz.

Or

(b) (i) Explain the current switching DAC operation.

(ii) Discuss the operation of Tracking ADC.

(8 + 7 = 15 marks)

[4 × 15 = 60 marks]