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JAYA GROUP OF INSTITUTIONS – Thirunirnavur.
4th Semester – B.E/B.Tech

INTERNAL ASSESSMENT - I (MODEL EXAMINATION – I)

Sub Title : **Linear Integrated Circuits**
Sub Code: **EC6404**
Duration : **180 Minutes**

Date: **31.1.15**
Branch: **ECE**
Max Marks: **100**

PART-A (10x2=20) Answer all Questions

1. List the characteristics of an ideal op-amp.
2. Define Common Mode Rejection Ratio (CMRR).
3. What is practical op-amp?
4. Define Slew rate (SR).
5. Why open-loop op-amp configurations are not used in linear applications?
6. Why are integrators prepared over differentiators?
7. What is peak detector?
8. Mention the application of Comparator.
9. Why the integrator circuit is called lossy integrator?
10. Define pass band and stop band of a filter.

PART-B (16x5=80) Answer the Questions per the choice:

11. a) Explain the following terms.

(i) Block diagram of op-amp (General op-amp stages). (2)

(ii) The ideal operational amplifier. (4)

(iii) The Inverting and Non-Inverting Amplifier. (10)

OR

b). Explain the working of BJT emitter coupled differential amplifier with active load and draw the relevant circuit diagram. (16)

12.a) (i) With a neat circuit diagram and explain the concept of Widlar current source and Wilson current source. (12)

(ii) Design Widlar current source for generating a constant current $I_o = 10\mu A$. Assume $V_{CC} = 10V$, $V_{BE} = 0.7V$, $\beta = 125$, Use $V_T = 0.25mV$. (4)

OR

- b) Discuss input offset current and input offset voltage of op-amp. (16)
13. a) Explain the frequency response of op-amp characteristics. (16)

OR

- b) Explain the operation of the following op-amp applications.
- (i) Scale changer (2)
- (ii) Voltage follower (2)
- (iii) Non-Inverting adder (6)
- (iv) Integrator. (6)
14. a) Explain how log and antilog amplifier computations are performed using IC741. (16)

OR

- b) Explain the construction and working of op-amp based instrumentation amplifier. (16)
15. a) Explain in detail Precision rectifier and application of Precision diode. (16)

OR

- b) Discuss the working of a Low pass filter with neat diagram. (16)