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Question Paper Code : 91448

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Fourth Semester

Electronics and Communication Engineering
EC 6404 – LINEAR INTEGRATED CIRCUITS

(Common to Medical Electronics/Robotics and Automation Engineering)
(Regulations 2013)

(Also Common to PTEC 6404 – Linear Integrated Circuits for B.E. (Part-Time) –
Third Semester – Electronics and Communications Engineering
(Regulations 2014))

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Mention the characteristics of an ideal op-amp.
2. What are the advantages of Wilson current source ?
3. List some of the nonlinear applications of op-amps.
4. State the limitations of the basic differentiator circuit ?
5. Name the three stages through which PLL operates ?
6. Why is a low pass filter used in PLL ?
7. Where is the successive approximation type ADC used ?
8. State the advantages of dual slope ADC.
9. What is the purpose of having input and output capacitors in three terminal IC regulators ?
10. Write the functions of an isolation amplifier.

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PART - B

(5×13=65 Marks)

11. a) Design a Widlar current source and obtain the expression for output current. Also prove that Widlar current source has better sensitivity than constant current source. (13)
(OR)
- b) Obtain the frequency response of an open-loop op-amp and discuss about the methods of frequency compensation. (13)
12. a) Explain the operation of the Regenerative comparator. (13)
(OR)
- b) Discuss in detail the operation of Monostable multivibrator using op-amp. (13)
13. a) With a neat diagram explain the variable transconductance technique in analog multiplier and give its output equation. (13)
(OR)
- b) What are important building block of Phase Locked Loop (PLL) ? Explain its working principle. Derive the expression for lock range and capture range. (13)
14. a) Which is the fastest ADC and why ? Explain the working of such ADC with necessary diagram. (13)
(OR)
- b) List the various types of digital to analog converters. Explain any two in detail. (13)
15. a) What are the modes of operation of a timer ? Draw the functional diagram of a square wave generator using timer and derive its duty cycle. (13)
(OR)
- b) Explain the working principle of switched capacitor filter. (13)

PART - C

(1×15=15 Marks)

16. a) Draw the functional diagram of IC 723 regulator. Explain how it can be used as a high voltage regulator. (15)
(OR)
- b) Discuss on the current fold back characteristics of IC 723 with necessary circuit diagrams and graphical outputs. (15)