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Question Paper Code : 42447

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Fourth Semester

Electronics and Communication Engineering

EC2254 – LINEAR INTEGRATED CIRCUITS

(Regulations 2008)

(Common to PTEC2254 – Linear Integrated Circuits for B.E. (Part – Time)

Third Semester – ECE – Regulations 2009)

Time : Three Hours

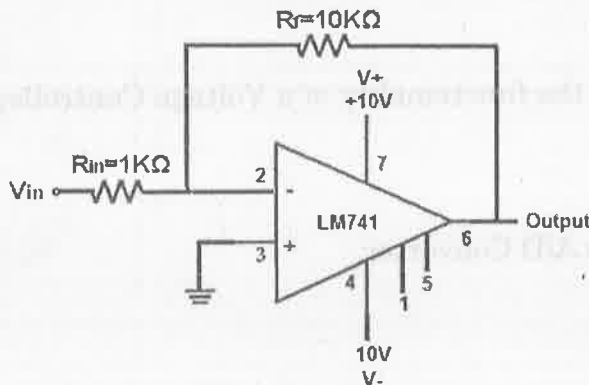
Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. State two properties of SiO_2 .
2. Define Slew rate. How is it measured ?
3. Estimate the output voltage (V_o) of a following circuit when $V_{in} = 0.2 \text{ V}$.



4. What is lossy integrator ?
5. Define capture range of a PLL.
6. State the functional elements of a PLL.
7. Mention few demerits of a weighted resistance Digital to Analog Converter.
8. Estimate the output voltage of a D/A converter whose output range is 0 – 10V for a 4-bit binary input number – 0110.
9. What are the applications of opto couplers ?
10. State Barkhausen criterion for sustained oscillation.



11. a) Write short notes on :
- Oxidation process. (5)
 - Photolithography. (6)
 - Ion Implantation. (5)
- (OR)
- b) i) Discuss the effect of input bias current in an operational amplifier. How input bias current can be compensated ? (10)
- ii) How dominant-pole perform the frequency compensation ? (6)
12. a) What are the features of Instrumentation amplifier ? With relevant circuit diagrams, explain the function of Instrumentation amplifier. (16)
- (OR)
- b) i) Derive the transfer function of a second order low pass filter. (10)
- ii) Design a second order Butterworth High pass filter having lower cut off frequency 2KHz. (6)
13. a) Describe the function of an analog multiplier IC. How an analog multiplier can be used as a divider ? (16)
- (OR)
- b) With necessary diagrams, explain the functionality of a Voltage Controlled Oscillator. (16)
14. a) Write short notes on :
- Successive Approximation type A/D Converter. (8)
 - Dual Slope A/D Converter. (8)
- (OR)
- b) Explain in detail about the R-2R ladder method of D/A conversion and how its drawbacks are rectified ? (16)
15. a) i) With necessary circuit diagram, expressions explain the operation of R-C Phase Shift oscillator. (10)
- ii) Design a phase shift oscillator to oscillate at 100 Hz. (6)
- (OR)
- b) i) Design a 1KHz square waveform generator using IC555 for duty cycle $D = 0.25$. (8)
- ii) Briefly discuss the current limit protection present in IC 723 general purpose voltage Regulator. (8)