

**R18**

Code No: 154BH

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech II Year II Semester Examinations, July/August - 2021**

**LINEAR IC APPLICATIONS**

(Common to ECE, EIE)

**Time: 3 Hours**

**Max. Marks: 75**

**Answer any five questions  
All questions carry equal marks**

- 1.a) Compare and contrast the characterization of an ideal OP-AMP and practical OP-AMP.  
b) Explain the function of various building blocks of an Op-amp and draw the pin diagram of IC741. [6+9]
- 2.a) Discuss the differences between the inverting and non inverting terminal Operations in OP-AMP.  
b) Describe the types of OP-AMP based multipliers. Write how a multiplier can be used to double the incoming frequency. [7+8]
- 3.a) Explain the operation of instrumentation amplifier and obtain the expression for its output voltage  $V_0$  with its equations.  
b) Write about the design of voltage regulator and mention the method for boosting the current of a three terminal voltage regulator. [7+8]
- 4.a) Differentiate between active filters over passive filters and mention their advantages.  
b) Explain the functional operation and derive the expression for frequency of oscillation of a RC phase shift oscillator. [6+9]
- 5.a) Explain the generation of square wave generations with suitable circuit.  
b) Discuss the design process of a mono-stable multi-vibrator using 555 timer. [7+8]
- 6.a) Mention about the PLL AM detector and explain its operation.  
b) Write a short note on the individual blocks of 565. [8+7]
- 7.a) Compare different A/D converters for their merits and demerits.  
b) Explain the schematic and operation of a successive approximation type A/D converter. [7+8]
8. Write a short note on the following in brief:  
a) Schmitt Trigger  
b) DC characteristics of op-Amp. [7+8]

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