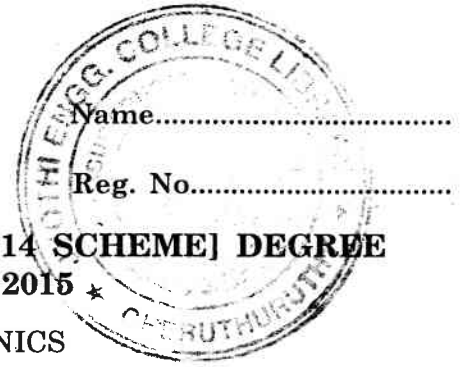


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**THIRD SEMESTER B.TECH. (ENGINEERING) [14 SCHEME] DEGREE
EXAMINATION, NOVEMBER 2015 ***

EE 14 305—ANALOG ELECTRONICS

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions.

1. How the ripple factor plays a role in rectifier circuits ?
2. What is meant by bias stability and thermal runaway ?
3. Mention the characteristics of JFET ?
4. What are the considerations to be carried in cascading transistor amplifier ?
5. List the advantages of negative feedback.
6. When can an Op-Amp become ideal ?
7. How an inverting amplifier can be used as a voltage follower ?
8. Classify the filters based on their frequency range.
9. Draw the circuit for triangle wave generator and write its equations ?
10. What are the building blocks of PLL ?

(8 × 5 = 40 marks)

Part B

Answer all the questions.

11. (i) Derive the voltage regulation and rectifier efficiency for the half and full wave rectifier circuits. (9 marks)
 - (ii) Explain the concept clippers and clampers. (6 marks)
- Or*
12. With the help of common emitter configuration, derive the amplifier gain, h -parameter and calculate the impedance. Also give the AC equivalent circuit.
 13. (i) With a neat diagram, explain the construction and characteristics of MOSFET. (10 marks)
 - (ii) How the CS amplifier differs from CD amplifier ? (5 marks)

Or

Turn over

14. (i) What are the types of power amplifiers ? Explain. (6 marks)
(ii) Discuss the concept of practical feedback circuit with necessary examples. (9 marks)
15. (i) Analyse the Op-Amp circuit using ideal model. (8 marks)
(ii) Op-Amp can be used as Differentiator-Discuss ? (7 marks)

Or

16. (i) State and explain the Barkhausen's Criterion. (5 marks)
(ii) With relevant circuit diagram, explain Wein Bridge and Crystal oscillators ? (10 marks)
17. (i) What are the operating modes in 555 timer ? Elaborate with necessary circuits and wave forms. (8 marks)
(ii) How a ramp wave can be generated using Op-Amp. Also derive its equations. (7 marks)

Or

18. (i) What do you know about cut-off frequency ? Explain the design procedure for first order filter. (10 marks)
(ii) Explain the concept frequency multiplication using PLL. (5 marks)

[4 × 15 = 60 marks]