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Name.....

Reg. No.....

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]