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C20-BM–302

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DBME – THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS

Time : 3 Hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Classify amplifiers with type of feedback.

2. State the need of direct coupled amplifier.

3. State the input drive requirements of push-pull amplifier.

4. List the applications of power amplifiers.

5. List the limitations of transistor at RF.

6. State the need of neutralizing capacitor in RF tuned voltage amplifier.

7. Classify different negative feedback amplifiers.

8. Draw the transistor circuits with voltage feedback.

9. Define the terms 'rise time' and 'fall time'.

10. Draw the transfer characteristics of clipper circuit.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* Draw the h-parameter model of transistor in CE configuration and derive the expressions for voltage gain, current gain, input impedance and output impedance.

(OR)

(b) Explain the circuit of direct coupled amplifier with a diagram.

12. *(a)* Explain the working of class-A single ended transistor power amplifier with graphical analysis.

(OR)

(b) Derive the expression for efficiency and list the advantages of push-pull amplifier.

13. *(a)* Draw and explain the working of double tuned RF voltage amplifier with its frequency response.

(OR)

(b) Draw and explain the circuit of harmonic generator.

14. *(a)* Draw the block diagram of negative feedback amplifier and derive the voltage gain of the negative feedback amplifier in terms of gain of the same amplifier without feedback.

(OR)

(b) List any four advantages and dis-advantages of negative feedback amplifier than positive feedback amplifier.

15. *(a)* Draw and explain a high pass RC circuit for a step pulse and square wave input voltage.

(OR)

(b) Explain the operation of series, shunt biased clipper circuits with diagrams.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) The question carries **ten** marks.

(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Which is the better amplifier, either single stage RC coupled amplifier or double stage RC coupled amplifier? Justify your answer.

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