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Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, NOVEMBER 2018

Third Semester

Faculty of Science

Branch II : Physics (A)–Pure Physics

Elective : Bunch A–Electronics

PH3EA1—INTEGRATED ELECTRONICS AND DIGITAL SIGNAL PROCESSING

(2012 Admission onwards)

Time : Three Hours

Maximum Weight : 30

Part A

Answer any **six** *questions.*
Each question carries 1 *weight.*

1. Explain epitaxial growth process.
2. Narrate the monolithic resistor formation in IC.
3. Differentiate between LSI and VLSI.
4. State convolution theorems.
5. Differentiate between CT and DT signals.
6. Explain briefly a noncasual system.
7. Give the properties of Z-transform regional convergence.
8. What are the basics of Gibbs phenomena ?
9. What are digital filters ? Explain.
10. Bringout the differences between FIR and IIR filters.

(6 × 1 = 6)

Part B

Answer any **four** *questions.*
Each question carries 2 *weight.*

11. Obtain the IC technology for transistor formation.
12. Describe the classification and representation of signals for FT.

Turn over

13. Illustrate the Fourier analysis of an aperiodic continuous time signal.

14. Bringout the poles and zeros of a system function.

15. Discuss the properties of DFT.

16. Discuss the finite word length effects in digital signal processing.

(4 × 2 = 8)

Part C

Answer **all** *questions.*
Each question carries 4 *weight.*

17. (a) Discuss in detail the fabrication of an integrated circuit.

Or

(b) (i) Give an account on metal semiconductor contact .

(ii) Describe diffusion of impurities for IC fabrication.

18. (a) Discuss the DFT with properties.

Or

(b) Obtain the proof of convolution theorems. Give applications.

19. (a) Discuss the classification of FFT algorithms.

Or

(b) Discuss the decimination in time and frequency FFT algorithms.

20. (a) Discuss the IIR filter design technique with illustration.

Or

(b) Discuss the direct form and cascade form realization of FIR systems.

(4 × 4 = 16)