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Reg. No.....

Name.....

M.Sc. DEGREE (C.S.S.) EXAMINATION, MAY 2020

Fourth Semester

Faculty of Science

Branch II–Physics–A–Pure Physics—Elective : Branch A—Electronics

PH 4E A3—INSTRUMENTATION AND COMMUNICATION ELECTRONICS

(2012 Admission onwards)

Time : Three Hours Maximum Weight : 30

Part A

Answer any **six** *questions.*
Weight 1 *each.*

1. Give the working principle of a differential voltmeter.
2. Define digital codes.
3. How are digital transducers useful ?
4. State the application of pH meter.
5. What are magnetic recorders ?
6. Write down the importance of space waves.
7. Why is scanning important for monochrome Reception ?
8. Give the advantages of multiplexing.
9. Why is modulation important ?
10. What is a digital multimeter ?

(6 × 1 = 6)

Part B

Answer any **four** *questions.*
Weight 2 *each.*

11. Differentiate between LCD and LED TV.
12. What are digital transducers and electro chemical transducers ?
13. Explain RF measurement techniques.

Turn over

14. A resistance strain gauge with a gauge factor of 4 is cemented to a steel member which is subjected to a strain 10^{-8}. Calculate the change in resistance if original resistance is $150\,\Omega$.

15. Write down the principle and working of a photovoltaic cell.

16. Write about deflection circuits in colour television.

$(4 \times 2 = 8)$

Part C

Answer **all** *questions.*
Weight 4 *each.*

17. (a) Explain voltage to frequency conversion in detail.

Or

(b) Explain mechanical transducers and semi conductor photo diode in detail.

18. (a) Discuss in detail AC voltmeters using rectifiers.

Or

(b) Explain digital data recording and magnetic recorders.

19. (a) Explain in detail SSB technique and space wave propagation.

Or

(b) Detail about monochrome transmission.

20. (a) Explain about PAM, PCM and PPM.

Or

(b) Differentiate between GSM, TDMA and CDMA.

$(4 \times 4 = 16)$