



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 4th Semester Examination, 2022

ELSACOR10T-ELECTRONICS (CC10)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.*

GROUP-A

1. Answer any **five** questions from the following: 2×5 = 10
- (a) Compare dual beam and dual trace CRO.
 - (b) Define responsivity and quantum efficiency of a photo diode.
 - (c) Write down one advantage and one limitation of an Anderson's bridge.
 - (d) Define the following terms in connection with measuring instruments.
(i) Fidelity (ii) Sensitivity
 - (e) What is curve fitting and how can it be used in measurements?
 - (f) How one can increase the resolution of a D.A converter?
 - (g) What is the function of delay line in CRO?
 - (h) "Capacitive transducer cannot be used as strain gauge" – Explain.

GROUP-B

Answer any six questions from the following

5×6 = 30

2. With appropriate diagram write a short note on Ramp type DvM. 5
3. (a) Discuss the mechanism of focussing of the electron beam in a CRT. 4
(b) What is the function of sweep signal in a CRO? 1
4. (a) Classify transducers based on their working mechanism. 3
(b) Write a short note on capacitive transducers. 2
5. Explain the mechanism of saw-tooth and square wave function generation in function generator. 5
6. (a) What is systematic errors in instruments? 3
(b) How to calculate the percentage error of an instrument? 2

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| 7. | Draw the circuit diagram of a successive approximation ADC and explain its operation. Mention one limitation of this circuit. | 4+1 |
| 8. | How to measure unknown self inductance of a high Q Coil using an ac-bridge? Find the expression of the unknown inductance. | 5 |
| 9. | How OP-AMP can be used as weighted resistor D/A converter? Explain its output voltage expression. | 5 |
| 10.(a) | Explain the operation of a variable plate area capacitive transducer. | 3 |
| (b) | Explain the function of a time base selector. | 2 |

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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