

Total Pages: 1

Reg No.: _____

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017**

Course Code: EE208

Course Name: MEASUREMENTS AND INSTRUMENTATION (EE)

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions. Each carries 5 marks.

- 1 What are the different dynamic characteristics of measuring instruments. (5)
- 2 Explain the measurement of insulation resistance by loss of charge method. (5)
- 3 Write short notes on phasor measurement unit. (5)
- 4 Explain the measurement of flux in a ring specimen. (5)
- 5 Explain the working of a Vernier potentiometer with figure. (5)
- 6 Explain the applications of CRO. (5)
- 7 Explain about the analog data acquisition system. (5)
- 8 Explain the flow measurement using ultrasonic transducer. (5)

PART B

Answer any two questions. Each carries 10 marks.

- 9 With neat sketch, describe the constructional details of PMMC type instruments. (10)
- 10 a) Explain the general requirements for ammeter shunts. (5)
- b) Explain any two errors that occur in electro-dynamometer type wattmeter and its compensation. (5)
- 11 Explain the construction, theory and working of induction type energy meter. (10)

PART C

Answer any two questions. Each carries 10 marks.

- 12 Draw the phasor diagram of a current transformer. Derive the expressions for ratio and phase angle errors. (10)
- 13 a) Explain the effect of the following on various errors of current transformer (5)
 - i) Power factor of secondary winding burden
 - ii) Change of primary winding current.
- b) Explain the measurement of rotational speed using proximity sensors. (5)
- 14 a) Explain any one method for the determination of hysteresis loop. (6)
- b) Write short note on iron loss in a magnetic material. (4)

PART D

Answer any two questions. Each carries 10 marks.

- 15 Explain in detail the block diagram of a general purpose CRO. (10)
- 16 a) Explain how frequency can be measured using Wien's bridge. (5)
- b) Explain the measurement of any non-electrical quantity employing load cell. (5)
- 17 a) Explain the working principle of strain gauge. (5)
- b) Explain the measurement of velocity using transducers. (5)
