PSG POLYTECHNIC COLLEGE, COIMBATORE-641004

DIPLOMA EVEN SEMESTER EXAMINATIONS-APRIL 2014

E12404 MEASURING INSTRUMENT AND INSTRUMENTATION

MODEL QUESTION PAPER

Time : 3 Hours **Max.Marks: 100**

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries two marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A **Marks: 10 x 3 = 30**

1. Define Secondary instrument. Give an example.
2. Define the terms sensitivity and precision.
3. What is the control system and damping system in instrument?
4. What are the errors in wattmeter reading?
5. What is meant by creeping?
6. What is meant by Instrument Transformer?
7. How is an ammeter calibrated?
8. What are the types of testing conducted in energy meter?
9. What is the difference between Kelvin's bridge and Wheatstone bridge?
10. What is meant by Transducer?
11. State the difference between Thermistor and Thermocouple.
12. What is a Limit Switch?
13. Mention the instrument used to measure pressure and speed.
14. What is meant by actuator?
15. What is the purpose of signal conditioning unit?

Group– B **Marks: 5 x 14 = 70**

16. a) i) Draw and explain Air friction Damping. (5)
    ii) Explain Dynamometer type Ammeter. (9)

    (OR)

    b) i) Draw and explain the PMMC instrument. (5)
    ii) Explain the methods to increase the range of an ammeter and voltmeter. (9)

17. a) i) Draw and explain an Induction type Wattmeter. (5)
    ii) How does Dynamometer type Wattmeter work? Explain in brief. (9)

    (OR)

    b) i) How does an induction type Energy meter work? Explain in brief. (5)
    ii) Draw and explain Maximum demand indicator. (9)

18. a) i) Draw and explain the Kelvin's bridge. (5)
ii) Explain Wheatstone bridge with a neat sketch (9)

(**OR)**

b) i) Draw and explain the Meggar. (5)
ii) Illustrate the working of X-Y Recorder with relevant diagrams. (9)

19. a) i) Draw and explain a Strain gauge. (5)
ii) Discuss the working of LVDT with necessary diagrams. (9)

(**OR)**

b) i) Draw and explain Thermocouple. (5)
ii) Discuss in brief about a Limit switch. (9)

20. a) i) Explain a method to measure pressure. (5)
ii) Draw and explain the method of measuring liquid level. (9)

(**OR)**

b) i) Draw and explain to measure the speed. (5)
ii) Explain to measure light intensity. (9)

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