

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2013

MINING DEPARTMENT

V SEMESTER (REGULATIONS 2008)

**EE 9361 Instrumentation Engineering**

Time: 3 hours

Max Marks: 100

Answer ALL Questions

**PART-A**

10 x 2 = 20

1. What are the advantages of Digital instruments over electromechanical instruments?
2. What is virtual Instrumentation?
3. What are transducers? Give examples.
4. What is the function of a McLeod gauge and mention its advantages.
5. What is the unit of flow measurement? And How it is measured?
6. What is the purpose of rotating disc meter and how it is working?
7. What is the necessity of measuring vibration?
8. What is the function of dew cell and define dew point?
9. Define pH and how it is measured?
10. What is smoke and what are the various causes of smoke?

**PART-B**

5 x 16 = 80

- 11.(i) Draw the internal structure of a CRT and explain its various parts and its functions. (8)
- (ii) With a neat diagram explain the construction and working of a galvanometer type recorder. (8)

12(a). Mention the different types of a strain gauge and explain the working of any two types.

[OR]

12 (b). With a necessary diagram explain the thermal conductivity gauge and Ionisation gauge.

13(a). Write the working of an orifice plate flow meter and describe its type with a suitable diagram.

[OR]

13(b). In detail explain the different type of mass flow meters.

14(a). With a neat diagram explain the working and construction of a saybolt viscometer.

[OR]

14(b) Explain the working principle of electrolysis type hygrometer and give its limitations.

15(a). Describe the working of a turbidity meter.

[OR]

15(b). Write a brief note on CO and CO<sub>2</sub> monitors.