Register Number: ……..

**B.E., DEGREE EXAMINATIONS: NOV/DEC 2012**

Seventh Semester

**ELECTRONICS AND INSTRUMENTATION ENGINEERING**

EIE 122**:** Instrumentation in Iron & Steel Industries

**Time: Three Hours** **Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. The Foundation of Blast Furnace is made up of _____.
   a) Iron reinforced with lead
   b) Massive steel reinforced concrete
   c) Brick lined with steel plates
   d) Aluminum lined with steel
2. _____ are used as electrodes in Electric Arc Furnace.
   a) Graphite
   b) Carbon Rods
   c) Silicon Strips
   d) Gun Metal
3. _____ is a process of casting metal to a form close to that required for the finished product.
   a) Near net shape casting
   b) Strip casting
   c) Continuous casting
   d) Thin slab casting
4. _____ is the process of heating the metal above its sub-critical temperature and then cooling it.
   a) Annealing
   b) Pickling
   c) Rust removal
   d) Electro heating
5. _____ is used as feedback elements for pneumatic controllers.
   a) Bourdon gauge
   b) Diaphragm
   c) Capsule
   d) Bellows
6. The Change in heat content when a quantity of charge (1 Coulomb) crosses the junction is defined as _____.
   a) See beck Effect
   b) Peltier Effect
   c) Thomson Effect
   d) Joule Thomson Effect.
7. In blast furnace stove combustion control system, the maximum amount of heat is introduced _____.
   a) at the start of the firing cycle
   b) in the middle of the firing cycle
   c) at the end of the firing cycle
   d) both (a) and (b)

8. The ability of the sand to maintain its shape is called _____.

a) Permeability b) strength

c) collapsibility d) rigidity

9. _____ is the collection of data over a period of time which is used in scientific experiments.

a) Data Logging b) Data Manipulation

c) Literature survey d) Data Interpretation

10. Rolling is classified according to _____ of the metal rolled.

a) Temperature b) Texture

c) Density d) Specific Gravity

**PART B (10 x 2 = 20 Marks)**

11. List the raw materials required for Iron making.
12. Write the chemical reaction that takes place inside the blast furnace process.
13. What is meant by casting of steel?
14. Write short notes on Continuous annealing Process.
15. List the different types of electromechanical level measurement and detection systems
16. Write short notes on graphic displays and alarms.
17. What is meant by clamping in sand casting process?
18. What is the function of stoves in blast furnace system?
19. What is meant by logging period?
20. List the classification of rolling mills based on the products produced.

**PART C (5 x 14 = 70 Marks)**

21. a) (i) Mention few Iron & Steel Making Industries in India. (2)

(ii) Explain in detail about the general constructional features of the Blast Furnace and its process with a neat sketch indicating the different regions. (12)

**(OR)**

b) (i) List the conventional process of steel making. (2)

(ii) Explain briefly about the process of Steel Making by using Electric Arc Furnace with neat sketch. (12)

22. a) Explain in detail about the casting of steel with necessary diagram.

**(OR)**

b) Explain in detail about the cold rolling process and finishing

23. a) (i) Explain in detail about Platinum RTDs and its types. (7)

(ii) Explain in detail about the level detection of liquids by using the principle of conductivity. (7)

**(OR)**

b) Explain in detail about the flow measurement using Orifice Plate with necessary diagram.

24. a) Explain in detail about the blast furnace stove combustion control system.

**(OR)**

b) Explain the process of sand casting and mould control in detail.

25. a) Explain in detail about data logging with an example.

**(OR)**

b) Explain in detail about the Rolling Mill Automation Control System (RACS) with necessary diagram.

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