

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Seventh Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE122: Instrumentation In Iron and Steel Industries

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Steel Making is a process of _____.
 - a) Selective Oxidation of Impurities
 - b) Selective reduction of Impurities
 - c) Generalized reduction reaction
 - d) Generalized Metamorphism
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 the general constructional features of the Blast Furnace and its process (12)
with a neat sketch indicating the different regions.
- (OR)**
- b) (i) List the conventional process of steel making. (2)
- (ii) Explain the process of Steel Making by using Electric Arc Furnace with neat (12)
sketch.

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

(OR)

b) Explain the cold rolling process and finishing

23. a) (i) Explain RTDs and compare its types. (7)

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

(OR)

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

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

(OR)

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

25. a) Explain data logging with an example.

(OR)

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