



B.E/B.TECH DEGREE EXAMINATIONS: NOV 2015

(Regulation 2009)

Seventh Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE122: Instrumentation in Iron & Steel Industries

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The most common process is the use of a blast furnace to produce
 - a) Wrought Iron
 - b) White cast Iron
 - c) Pig Iron
 - d) Malleable cast Iron
2. The process which melts scrap steel
 - a) Basic oxygen furnace
 - b) Electric furnace
 - c) Blast furnace
 - d) Open hearth process
3. The recrystallization temperature of primary and cold rolling are
 - a) Above and below
 - b) Below and above
 - c) Both above
 - d) Both below
4. Casting is the process which uses
 - a) Solid material
 - b) Liquid material
 - c) Colloidal material
 - d) Both liquid and solid
5. Spectral response of pyrometer for metal processing industry is
 - a) 0.2-0.3
 - b) 0.623
 - c) 0.6-1.0
 - d) 4.42
6. Concept behind the use of 4-20ma or 3-15 psi
 - a) Dead zero
 - b) Live zero
 - c) Fault method
 - d) Trial and error
7. The blast air inside the stove is heated
 - a) Above 1000°C
 - b) Below 1000°C
 - c) 3000-3500 °C
 - d) 1500-2500 °C

8. The productivity factor of stove combustion control is
 - a) 1.2-1.3
 - b) 1.3-1.5
 - c) 1.2-1.4
 - d) 1.3-1.4
9. Annealing process is also called as
 - a) Sub critical
 - b) Full
 - c) Normalization
 - d) Short cycle
10. Optical type of mill instrumentation is generally used to measure
 - a) Mill force
 - b) Mill pressure
 - c) Mill volume
 - d) Mill size

PART B (10 x 2 = 20 Marks)

11. List out the differences between Basic Oxygen Furnace and Electric Furnace?
12. Describe the burden charger in a Blast furnace?
13. List the operations of different zones in Steel plant.
14. Define Annealing process?
15. List the advantages of using graphic display and alarms in Iron and Steel Industries.
16. Give the merits of weight flow rate.
17. Give the reason for designing control system in Iron and steel industries.
18. Draw a block diagram for supervision and control system in Blast furnace.
19. List the important configuration of computer system in central utility?
20. What is the need of Automation system in process industries.

PART C (5 x 14 = 70 Marks)

21. a) Describe the different scheme of operation in Iron making blast furnace.
(OR)
b) Explain the various management procedures and production planning functions involved in steel plant and list the reason for the management procedures.
22. a) i) Differentiate primary rolling and cold rolling in steel industry. (7)
ii) What are the different stages in casting of steel? (7)
(OR)
b) Explain in detail about primary and cold rolling in Steel Industry?
23. a) Describe in detail about different types level measurement in Iron and Steel Industries.
(OR)

- b) Draw the instrumentation diagram for measurement of Pressure in a blast furnace.
24. a) Explain the principle and operation of sand casting mould control system.
(OR)
b) Explain the operation of stove combustion control system in blast furnace.
25. a) With a suitable diagram, explain the computer application in rolling mill.
(OR)
b) With a suitable diagram, explain the computer application of annealing process.
