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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **12EI238** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **Instrumentation and control in Iron and Steel Industries** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | | | |  | **Marks** |
|  | | | **PART-A(10X1=10 MARKS)** | | | | |
| 1. | What is a flow diagram? | | | | | CO1 | (1) |
| 2. | Define a transducer. | | | | | CO1 | (1) |
| 3. | Mention two advantages of electric furnace. | | | | | CO1 | (1) |
| 4. | Mention the instrument used in cold rolling process. | | | | | CO1 | (1) |
| 5. | How does the raw steel weighed before rolling? | | | | | CO1 | (1) |
| 6. | What are the shape measurement techniques in steel industry? | | | | | CO1 | (1) |
| 7. | Give a note on ingot. | | | | | CO1 | (1) |
| 8. | Identify the level measurement in molten steel. | | | | | CO1 | (1) |
| 9. | Mention the controls in rolling mill. | | | | | CO1 | (1) |
| 10. | Specify the control mechanism followed in steel plants. | | | | | CO1 | (1) |
|  | | | | **PART B(5 X 3= 15 MARKS)** | | | |
| 11. | | Brief the functions of blast furnace. | | | | CO1 | (3) |
| 12. | | List the process involved in primary rolling in steel plant. | | | | CO1 | (3) |
| 13. | | What are the advantages of instrumentation in steel industry? | | | | CO1 | (3) |
| 14. | | Explain the feedback control in water control circuit in steel making? | | | | CO1 | (3) |
| 15. | | What is the mechanism used for recording the data for long period of time in steel industry? | | | | CO1 | (3) |
|  | | | **PART C(5 X 15= 75 MARKS)** | | | | |
| 16. | a. | | | | Illustrate with flow diagram the various process involved in steel making process. | CO1 | (15) |
| (OR) | | | | | | | |  | CO1 |
| 17. | a. | | | | Explain the working of blast furnace in detail. | CO1 | (10) |
| b. | | | | Mention the advantages of using blast furnace. | CO1 | (5) |
|  |  | | | |  |  |  |
| 18. | a. | | | | Explain the following process: Steel rolling | CO1 | (10) |
| b. | | | | Finishing process in steel industry. | CO1 | (5) |
|  | | | (OR) | | | | |  | CO1 |
| 19. | a. | | | | Explain the combustion control mechanism in furnace. | CO1 | (10) |
| b. | | | | Mention its advantages of control system. | CO1 | (5) |
|  |  | | | |  |  |  |
| 20. | a. | | | | With a suitable sketch explain the level measurement scheme in steel plant. | CO1 | (10) |
| b. | | | | Give brief notes on pressure transmitter. | CO1 | (5) |
|  | | | (OR) | | | | |  | CO1 |
| 21. | a. | | | | Explain the detailed working of thermocouple in instrumentation system. | CO1 | (10) |
| b. | | | | Write any two laws of thermocouple and explain. | CO1 | (5) |
|  | | | |  |  |  |
| 22. | a. | | | | Write notes on the following: Mould level sensor system, | CO1 | (10) |
| b. | | | | Load cell. | CO1 | (5) |
| (OR) | | | | | | | |  | CO1 |
| 23. | a. | | | | Elaborate the waste water treatment schemes in steel industry. | CO1 | (7) |
| b. | | | | How do the industrial waste affect the environment | CO1 | (4) |
| c. | | | | What the steps to be taken to prevent environmental pollution. | CO1 | (4) |
|  | | | |  |  |  |
| 24. | a. | | | | Explain the architecture of Distributed control system in steel mill. | CO1 | (10) |
| b. | | | | List the merits of automation in steel industry. | CO1 | (5) |
|  | | | |  |  |  |
|  | | | (OR) | | | | |
| 25. | a. | | | | Elaborate the functions of computers in steel plants. | CO1 | (10) |
| b. | | | | Explain few advantages of using computer based instrumentation methods. | CO1 | (5) |

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