

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2021 - 22 Examination



Semester: 8
Subject Code: 203112451
Subject Name: Instrumentation Systems

Date: 30/03/2022
Time: 10:30am to 01:00pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (All are compulsory) (Each of one mark) (15)

1. The second name of P&ID is:
(a) Mechanical flow sheet (b) Both of the above
(c) PFD (d) None of the above
2. What is the full name of IP protection?
3. In the TAG description of any instrument if "T" is present at succeeding letter than it represents it is for Temperature. TRUE/FALSE
4.  is the symbol of:
(a) Control valve (b) Heat exchanger
(c) Ventilator (d) Pump
5. What is calibration?
6. PFD shows the Minor information of plants. TRUE/FALSE
7. Which methods are used to make the instrument or equipment explosion proof?
8. Another name of Air to Close valve is _____.
(a) Fail close (b) Fail reopen
(c) Fail open (d) Fail reclose
9. Draw the symbol of electronic line signal.
10. Which material is used in ionization smoke detector to make the air ionized?
11. Which are the two types of Photoelectric smoke detectors?
12. I/P converter can convert the:
(a) Current to Pressure (b) Pressure to light intensity
(c) Pressure to Current (d) Light intensity to Pressure
13. To use the zener diode as a voltage regulator it should be in forward bias.
TRUE/FALSE
14. What is Intrinsic safety?
15.  This is the symbol of:
(a) Butterfly valve (b) Globe valve
(c) Gate valve (d) Three way valve

Q.2 Answer the following questions. (Attempt any three) (15)

- A) What is the full name of SIL? What it signify ?
- B) Give full name of LRC, P&ID and TIC
- C) Differentiate Safety and Security in your terms.
- D) Describe about STANDARD IEC 61508 and SIL.

- Q.3** A) What do you understand by wiring diagram? Explain wiring diagram in home. (07)
B) Describe process flow diagram in detail with necessary diagram (08)

OR

- B) Illustrate the Instrumentation Air system with all labels. (08)
Q.4 A) List out different types of instrumentation diagrams and explain any one in detail. (07)

OR

- A) Give example of Hazard Severity Level and draw risk tolerability diagram. (07)
B) Discuss about F&G System in detail. (08)