

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**B.Tech. Summer 2018 - 19 Examination**

**Semester: 8****Subject Code: 03112451****Subject Name: Instrumentation systems****Date: 01/05/2019****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. In Ingressive protection the first digit will indicate.....
 

A) Protection against Solid object	B) Protection against Air
C) Protection against Liquid object	D) None of the above
2. 12 PSI signal value which has range of 3-15 PSI is equivalent to ..... ma in electronic 4-20 ma range?
 

A) 12ma	B) 13ma
C) 16ma	D) 16ma
3. Intrinsic safety is related with.....
 

A) Electrical Spark	B) Air loss
C) Instrument failure	D) Smoke detection
4. Which controller will always improve the stability of the system?
 

A) P controller	B) D controller
C) I controller	D) None of the above
5. Which component can we use before to pass the air in pneumatic systems?
 

A) Air filter	B) Air regulator
C) Air dryer	D) All of the above
6. What is the full name of FI?
7. Which equipment is used to convert the electrical signal into pneumatic signal?
8. The manipulating variables are.....variables. (Input/Output)
9. .... shape on the instrument symbol will indicate the shared display type instrument. (Square/Circle)
10. Standard Pneumatic signal range is..... PSI.
11. PFD will show the..... details of the process. (Major/Minor)
12. What is the full name of SIL?
13. What is the full name of TIC?
14. Which type of gases used in the Purging process?
15. Give the name of material used in the Ionization smoke detector to produce ionized gas.

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

- A) Discuss about the safety switches with necessary figure.
- B) Draw the symbols for different control valves and process lines.
- C) Draw the P & ID diagram for any system and explain it.
- D) What is the difference between interlock and trip system? Explain it with an example.

**Q.3 A) Explain the Single acting positive displacement type compressor with neat sketch.****(07)**

- B) Write down a short note on classification of hazardous area.

**(08)****OR**

- B) Write down the Intrinsic safety approaches in detail.

**(08)****Q.4 A) Discuss the loop wiring diagram in detail with an example.****(07)****OR**

- A) Discuss about the P to I converter with the necessary diagram.

**(07)**

- B) Explain about the Instrumentation Air system with necessary figure.

**(08)**