

## JET-2022 Instrumentation Sample Construct

- **Domain**

1. Which of the following device can be used with both AC and DC?
 

a) PMMC	c) Moving Coil type
b) Moving Iron type	d) Induction type
2. On what principle does thermocouple works
 

a) Peltier effect	c) Thomson effect
b) Seebeck effect	d) None
3. What is the terminology used for actual value of the process parameter\_\_\_\_\_
 

a) SetPoint	c) Both
b) Process Variable	d) None
4. Where cold junction compensation is done?
 

a) Sensing side	c) Both a and b
b) Measuring side.	d) None
5. The power supply for a two-wire transmitter is
 

a) 20 V DC	c) 28 V DC
b) 24 V DC	d) 30 V DC
6. The output of the strain gauge is
 

a) Resistance	c) Inductance
b) Capacitance	d) All
7. For magnetic flowmeter to work, the fluid must be
 

a) Inductive	c) Conductive
b) Resistive	d) Capacitive
8. Flow rate is proportional to \_\_\_\_\_ of DP.
 

a) Square	c) Cube
b) Square root	d) Cube root
9. Swamping resistance is a resistance made up of
 

a) An alloy of manganin and copper	c) An alloy of nickel and cobalt
b) An alloy of aluminium and copper	d) Alloy of manganin and aluminium
10. Which one of the following is an indirect type level measurement method?
 

a) Bob sling method	c) Ultrasonic level detectors
b) Float method	d) None
11. Capacitive transducers are normally employed for\_\_\_\_\_ measurements
 

a) Static	c) Transient
b) Dynamic	d) Both static and dynamic
12. Photoconductive cell consists of a thin film of
 

a) Quartz	c) Barium titanate
b) Lithium sulfate	d) Selenium
13. To measure a very high resistance, we should use
 

a) Kelvin's double bridge	c) Meggar
b) Wheat stone bridge	d) none of the above
14. The best device to measure the true open circuit e.m.f. of a battery is
 

a) D.C. voltmeter	c) D.C. potentiometer
b) Ammeter and a known resistance	d) none of the above

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15. The thermocouple ammeter scale is
  - a) Linear
  - b) Cramped at the low end and open at the high end
  - c) Open at the low end and cramped at the high end
  - d) Cramped at the middle
16. The high torque to weight ratio in an analog indicating instrument indicates
  - a) low friction loss
  - b) high friction loss
  - c) nothing related to friction loss
  - d) none of these
17. A negative gain margin expressed in decibels means a/an \_\_\_\_\_ system.
  - a) stable
  - b) unstable
  - c) none of these
  - d) critically damped
18. Load cells are used for the measurement of
  - a) Velocity
  - b) Weight
  - c) Stress
  - d) Strain
19. Desired value of a process is known as \_\_\_\_\_
  - a) SetPoint
  - b) Process Variable
  - c) Both
  - d) None
20. What is output of I/P ?
  - a) 0-10 psi
  - b) 3-15 psi
  - c) 0-15 psi
  - d) None
21. In an electrodynamic instrument, the number of control springs present is/are
  - a) Two
  - b) One
  - c) Four
  - d) Zero
22. The restoring torque in a spring controlled indicating instrument is
  - a) Directly proportional to the angle of deflection of the moving system
  - b) Directly proportional to the sine of the angle of deflection of the moving system
  - c) Inversely proportional to the angle of deflection of the moving system
  - d) Directly proportional to the square of the angle of deflection of the moving system
23. The magnitude of the f environment-induced variation from the specified calibration condition is quantified by
  - a) Sensitivity drift
  - b) Zero drift
  - c) Backlash
  - d) Both (1) & (2)
24. The systematic errors of an instrument can be reduced by making
  - a) The sensitivity of the instrument to environmental input is as low as possible
  - b) The sensitivity of the instrument to environmental input is as high as possible
  - c) Systematic errors do not depend on the sensitivity of the instrument
  - d) None of these
25. During load test on 3 phase induction motor, the readings of the two wattmeters are -5.5 kW and +12.5 kW respectively. If the line voltage is 420 V then the line current will be
  - a) 38.91 A
  - b) 41.02 A
  - c) 42.10 A
  - d) 43.94 A
26. The full-scale current of a galvanometer with an internal resistance of 800 ohms is 8 A. what will be the multiplying power of 80-ohm shunt with this galvanometer?
  - a) 8
  - b) 9
  - c) 10
  - d) 11
27. In induction watt-hour meter, due to shunt magnet the torque is not zero power factor. It can be compensated by using
  - a) Shading ring
  - b) Power factor compensator
  - c) Drilling holes in the disc on a diameter
  - d) Both (a) and (b)

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28. The scale of the induction wattmeter extends over
  - a) 70 degrees
  - b) 120 degrees
  - c) 180 degrees
  - d) 300 degrees
29. A typical example of a physical system with under damped characteristic is a
  - a) U-tube manometer
  - b) spring loaded diaphragm valve
  - c) thermocouple kept immersed in a liquid filled thermowell
  - d) CSTR with first order reaction
30. A system with a double pole at the origin is unstable since the corresponding term in the time domain
  - a) grows linearly with time
  - b) is a constant
  - c) decays linearly with time
  - d) grows exponentially with time
31. A controller that feeds forward to plant a proportion of actuating signal plus its derivative for purpose of improving transient response of close loop system is called
  - a) PI controller
  - b) PD controller
  - c) ID controller
  - d) P controller
32. A polar frequency response plot made for open-loop transfer function is called
  - a) block diagram
  - b) Nyquist diagram
  - c) Notch diagram
  - d) Symbolic diagram
33. Marginal stability is sometimes referred to as
  - a) positive stability
  - b) neutral stability
  - c) infinite stability
  - d) negative stability
34. Which of the following is characterized by feedback paths from the output?
  - a) Open-loop system
  - b) Closed-loop system
  - c) no feedback system
  - d) terminator
35. Null type recorders are
  - a) bridge recorders
  - b) LVDT recorders
  - c) potentiometric recorders
  - d) any one of the above
36. Unit of deflection sensitivity of a CRO is
  - a) V / mm.
  - b) meter / volt
  - c) mm per mV
  - d) mm / V
37. The power factor of a single-phase load can be calculated if the instruments available are
  - a) One voltmeter and one ammeter
  - b) One voltmeter, one ammeter and one wattmeter
  - c) One voltmeter, one ammeter and one energy meter
  - d) Any of the above
38. Which type of Quantum Transition takes place in Ultra Violet and Visible spectroscopy?
  - a) Rotation of molecules
  - b) Nuclear
  - c) Bonding electrons
  - d) Spin of nuclei in a magnetic field
39. Which of the following devices can be used with both AC and DC?
  - a) PMMC
  - b) Moving iron type
  - c) Moving coil type
  - d) Induction type
40. How many electrons are contributed in one coulomb electric charge?
  - a)  $6.242 \times 10^{18}$
  - b)  $6.242 \times 10^{19}$
  - c)  $6.242 \times 10^{20}$
  - d)  $6.242 \times 10^{20}$

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41. Which of the following unit is used to express the sensitivity of the analog voltmeter?
- |            |                  |
|------------|------------------|
| a) Ohms    | c) No unit       |
| b) Voltage | d) Ohms per volt |
42. In a CRO what is the purpose of the blanking circuit?
- |                                       |  |
|---------------------------------------|--|
| a) To increase visual quality         | c) To eliminate retrace of signals due to movement of spot |
| b) To increase the number of channels | d) None of mentioned                                       |

• **IoT**

43. What are the elements of Quality statements?
- |                      |                             |
|----------------------|-----------------------------|
| a) vision statement  | c) quality policy statement |
| b) mission statement | d) All of the above         |
44. A \_\_\_\_\_ is the safe, clean, and neat arrangement of a workplace where anybody can identify anything, anywhere at any time?
- |                     |                      |
|---------------------|----------------------|
| a) 5S               | c) Daily management  |
| b) Visual Workplace | d) Policy management |
45. What are the three types of Machine Learning?
- |                          |                           |
|--------------------------|---------------------------|
| a) Supervised Learning   | c) Reinforcement Learning |
| b) Unsupervised Learning | d) All of the above       |
46. Spam Detection is one of the classic examples of:
- |               |                         |
|---------------|-------------------------|
| a) Clustering | c) Association Analysis |
| b) Regression | d) Classification       |
47. Companies are using social media for?
- |                       |                            |
|-----------------------|----------------------------|
| a) Engaging Customers | c) Gaining market insights |
| b) Brand Building     | d) All of the above        |
48. What is the 6 design principles of Industry 4.0?
- |   |  |
|---|--|
| a) Interoperability, real-time capability, visualization, service orientation, decentralization, modularity | c) Interoperability, real-time capability, data, service orientation, decentralization, modularity |
| b) Interoperability, real-time capability, visualization, service orientation, decentralization, decisions  | d) Interoperability, real-time capability, visualization, prediction, decentralization, modularity |
49. How is the manufacturing industry facilitated with the advancement in technology?
- |                                |                                    |
|--------------------------------|------------------------------------|
| a) Product quality is improved | c) Manufacturing time is increased |
| b) Product cost is increased   | d) All of the above                |
50. What are the outcomes of a process-oriented business model?
- |                                   |                      |
|-----------------------------------|----------------------|
| a) Reduced downtimes              | c) Both (a) and (b)  |
| b) Increased machine availability | d) None of the above |

**Disclaimer:** The sample paper is for illustrative purposes alone. The actual jet exam may contain different numbers of total questions or duration.