Program: BE Instrumentation Engineering

Curriculum Scheme: Revised 2012

Examination: Final Year Semester VII

Course Code: ISC 704, Course Name: Process Automation

Time: 1hour Max. Marks: 50

**Note to the students: -** All Questions are compulsory and carry equal marks.

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| Q1.  | To manufacture variety of products and varying product design requirements following is used |
| Option A: | Fixed automation |
| Option B: | Programmable automation |
| Option C: | Integrated automation |
| Option D:  | Flexible automation |
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| Q2. | Opto isolator in discrete input module is required to  |
| Option A: | drop voltage to logic level |
| Option B: | convert optical signal to digital signal |
| Option C: | Prevent voltage transients from damaging processor |
| Option D: | Rectification of signal |
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| Q3. | In DCS, Critical control I/Os are connected to  |
| Option A: | Local control unit |
| Option B: | Local console |
| Option C: | Multiplexers |
| Option D: | Dedicated card controller |
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| Q4. | For achieving greater control and visibility for managing product lifecycle, following is used.  |
| Option A: | Enterprise Resource planning |
| Option B: | distributed control system |
| Option C: | Manufacturing Execution system |
| Option D: | system application and products |
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| Q5. | In a current sinking DC input module |
| Option A: | The current flows out of the input field device |
| Option B: | The current flows out of the input module |
| Option C: | AC sources be used with mechanical switches |
| Option D:  | Currents can flow in either direction at the input module |
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| Q6. | For SIL 1, Probability of failure on demand is between  |
| Option A: | 0.001-0.0001 |
| Option B: | 0.1-0.01 |
| Option C: | 0.1-0.001 |
| Option D:  | 0.0001-0.00001 |
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| Q7.  | In PLC programming, a retentive function is one that: |
| Option A: | Comes last in the program |
| Option B: | Defaults to the “off” state |
| Option C: | Cannot be edited or deleted |
| Option D:  | Is not reset after a power cycle |
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| Q8.  | Supervisory controllers are at \_\_\_\_\_\_\_ of industrial control system |
| Option A: | Level 1 |
| Option B: | Level 2A |
| Option C: | Level 3 |
| Option D:  | Level 3B |
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| Q9. | Following are graphical programming languages |
| Option A: | Instruction list and structured text |
| Option B: | Ladder diagram and Function block diagram |
| Option C: | Instruction list and Ladder Diagram |
| Option D:  | structured list and function block diagram |
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| Q10.  | SCADA systems are used for |
| Option A: | factory automation control |
| Option B: | discrete and analog process control |
| Option C: | Long distance monitoring and control |
| Option D:  | chemical process control |
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| Q11.  | Function blocks are building blocks for |
| Option A: | continuous and discrete algorithms |
| Option B: | calculating parameters |
| Option C: | signal communication |
| Option D:  | sequential algorithms |
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| Q12.  | Relief devices are under following Protection layer  |
| Option A: | basic process control |
| Option B: | physical protection |
| Option C: | community  |
| Option D: | safety instrumented system |
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| Q13. | Supervisory control is intended for following |
| Option A: | Calculation of yield and efficiency |
| Option B: | discrete I/O control |
| Option C: | Analog I/O control |
| Option D:  | detailed display |
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| Q14.  | For 20,000 bits to move @data rate of 1200 bps with 40 % communication Efficiency, SCAN Interval is  |
| Option A: | 896 seconds |
| Option B: | 17 seconds |
| Option C: | 1.7 seconds |
| Option D:  | 42.5 seconds |
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| Q15. | PLC processor senses process information status through |
| Option A: | Input Module |
| Option B: | Output module |
| Option C: | Input image table |
| Option D:  | output image table  |
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| Q16.  | The signal that Leave the RTU are |
| Option A: | Analog setting instructions |
| Option B: | 0-24 V Equipment status |
| Option C: | pulse train meter signals |
| Option D:  | pulse train stepping motor control |
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| Q17. | Detailed display represents |
| Option A: | Portion of a process |
| Option B: | single loop control function |
| Option C: | Multiple loop control functions |
| Option D: | Chart records |
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| Q18. | PLC is used for following |
| Option A: | Discrete I/O control |
| Option B: | Analog I/O control |
| Option C: | Discrete as well as Analog I/O control |
| Option D:  | single loop control |
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| Q19.  | When process is distributed over several sites, following communication system is used |
| Option A: | wide area network |
| Option B: | Local area Network |
| Option C: | Radio Transmission |
| Option D:  | cable transmission |
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| Q20. | For scanning purpose following memory is used |
| Option A: | Data memory |
| Option B: | Executive memory |
| Option C: | system memory |
| Option D: | I/O status memory |
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| Q21. | Typical SCADA system hardware consist of  |
| Option A: | MTU , RTU , Field devices, communication subsystem |
| Option B: | MTU, LCU, Data Highway |
| Option C: | DDC,SLC,DCS |
| Option D:  | HMI, PT, PSU. |
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| Q22.  | Field instruments are connected to DCS at  |
| Option A: | Console |
| Option B: | Processor Card |
| Option C: | Power supply card |
| Option D:  | Marshalling cabinet |
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| Q23. | In TIMER block for Time base of 0.1 second and Preset setting of 100, Time delay is |
| Option A: | 10 seconds |
| Option B: | 100 seconds |
| Option C: | 0.1 seconds |
| Option D:  | 1 second |
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| Q24.  | Following devices are controlled by PLC |
| Option A: | Push button and selector switch |
| Option B: | Relay and solenoid |
| Option C: | Proximity sensor and photoelectric sensor |
| Option D:  | contactor and fiber optic sensor |
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| Q25. | To trigger the counting action, counters usually use  |
| Option A: | Low to High transition from an Input |
| Option B: | High to Low transmission from an input |
| Option C: | Low to high transition from Done bit  |
| Option D:  | High to Low transition from output  |