

University of Mumbai
Examination 2020- Inter Cluster

Program: BE Instrumentation Engineering

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VIII

Course Code and Course Name: ISC 801 - Instrumentation Project Documentation & Execution

Specimen questionnaire

Note to the students: -

1. All Questions are compulsory and carry equal marks.
2. These are only **Sample questions** on entire syllabus for practice purpose.

Module 1	
Q1.	Predictability helps in
Option A:	Identifying the project flow or how the project is executed
Option B:	Listing the most common project types
Option C:	Flagging potential problems and devising ways to reduce the financial and physical risks inherent in the project
Option D:	Listing deliverables that are typical for an I&C design project
Q2.	Select the IEC International Standard for HazOp
Option A:	61882
Option B:	S 5.1
Option C:	S 88
Option D:	6882
Q3.	Select the one which is not a Project Deliverable of a Typical I&C project
Option A:	Site and Floor Plans
Option B:	Instrument database
Option C:	Survey of land fill
Option D:	Equipment Specifications
Q4.	Every project is a _____ driven activity.
Option A:	Time
Option B:	Budget
Option C:	Manpower
Option D:	Idea
Q5.	The constructor is an _____ of several entities or disciplines or groups with different skills.
Option A:	Mismatch
Option B:	Separation
Option C:	Division
Option D:	Amalgamation

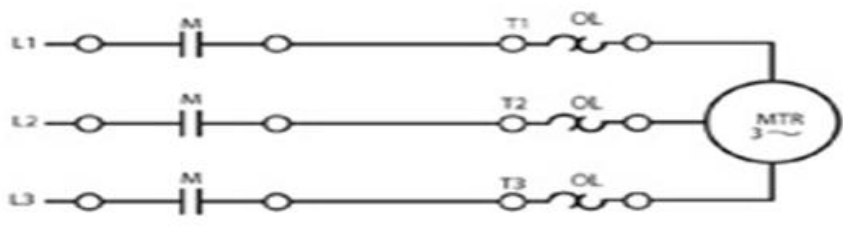
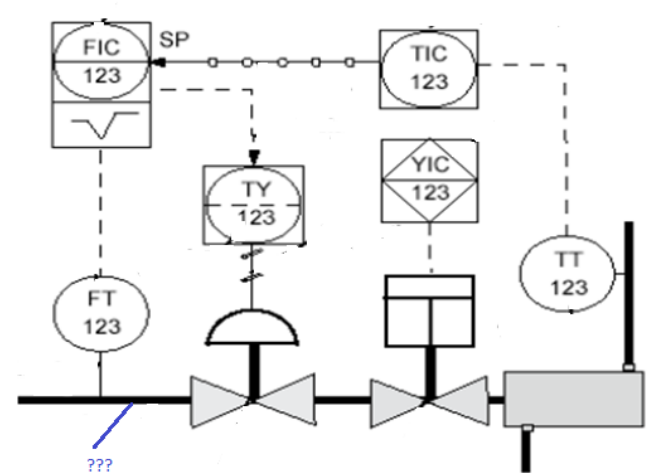
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Q6.	Select the role of engineer/consultant in commissioning task of an EPC project
Option A:	Raising plant requirement
Option B:	Purging , Visual inspection, Punch listing, etc
Option C:	Long-Lead Procurement
Option D:	Control System design
Q7.	In project scheduling, bar charts are suitable for
Option A:	Moderate works
Option B:	Major works
Option C:	Minor works
Option D:	Large works
Q8.	A monitoring techniques, that is closely related to network diagram is
Option A:	Pi-chart
Option B:	Gantt Chart
Option C:	Bar chart
Option D:	Histogram
Q9.	Project scheduling is important in project because of
Option A:	Complex task division
Option B:	Complex competitions
Option C:	Complex decision making
Option D:	Complex coordination
Q10.	A description of a task that defines all the work required to accomplish it, including inputs and desired outputs, is also known as
Option A:	Work statement
Option B:	Problem statement
Option C:	Work Definition
Option D:	Problem Definition
Q11.	The designer is an _____ of several entities or disciplines or groups with different skills.
Option A:	Separation
Option B:	Amalgamation
Option C:	Division
Option D:	Mishmash
Q12.	HazOp guide words (such as More, Less, After) are identified at the
Option A:	Examination Phase
Option B:	Follow-up Phase
Option C:	Investigation and execution Phase
Option D:	Initiation Phase

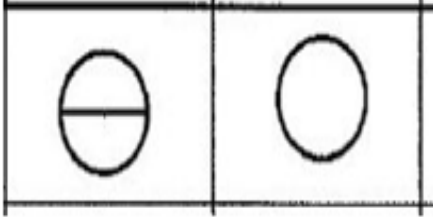
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Q13.	Which of these is not one of the constraints of a project?
Option A:	Scope
Option B:	Resources
Option C:	Team
Option D:	Budget
Q14.	Select the role of engineer/consultant in procurement task of an EPC project
Option A:	Preparing logic diagram
Option B:	Installation of instruments
Option C:	Interlock checking
Option D:	Inspect the instruments at vendor works
Q15.	Select the one which is not a Project Deliverable of a Typical I&C project
Option A:	Piping and Instrumentation Diagram (P&ID)
Option B:	Process Flow Diagram
Option C:	Pump Specifications
Option D:	Plant infrastructure costing estimation
Q16.	Expand the following acronym: FEED
Option A:	Front End Engineering Design
Option B:	Front Engineering Equipment Design
Option C:	Front Expansion Engineering Document
Option D:	Front End Equipment Data
Q17.	Select the element which is not part of Engineering project team
Option A:	Customer
Option B:	Designer
Option C:	Constructor
Option D:	Local government body
Q18.	The instrument foreman
Option A:	Installs each instrument according to installation details
Option B:	Supervises installation of conduit, wire pulls, and termination at the instrument
Option C:	Installs all inline devices such as control valves, magnetic flowmeters, on/off valves, and associated piping required for pressure gauges, pressure switches, and miscellaneous devices.
Option D:	Creates daily and weekly work plans and ensures proper installation procedures are followed by the instrument fitter and/or mechanic.
Q19.	Five dimensions that must be managed on a project
Option A:	Constraint, Quality, Cost, Schedule, Staff
Option B:	Features, Quality, Cost, Schedule, Staff
Option C:	Features, priority, Cost, Schedule, Staff
Option D:	Features, Quality, Cost, Schedule, customer
Module 2	
Q1.	The PFD will not have following details:

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Option A:	Major connecting stream connecting main equipment
Option B:	Major unit operations involved in process
Option C:	Tag number and stream numbers
Option D:	Instrumentation involved on equipment
Q2.	Another synonyms for PFD is
Option A:	Algorithm
Option B:	Process Flow Chart
Option C:	Symbolic diagram
Option D:	Piping and flow diagram
Q3.	Which standards are used to draw the wiring diagram?
	
Option A:	IEC
Option B:	NEMA
Option C:	NFPA
Option D:	IEEE
Q4.	Refer following P & ID, find field devices from following device symbols.
	
Option A:	FT 123 and TT123
Option B:	FT123 and FIC123
Option C:	FT123 and TY123
Option D:	TT123 and FIC123
Q5.	You can understand real time plant operation or data through following diagram.
Option A:	P&ID
Option B:	Mimic Diagram

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Option C:	PFD
Option D:	Index Sheet
Q6.	Which are following mounting general notation? 
Option A:	Panel mounted
Option B:	DCS operated and panel mounted
Option C:	Panel mounted and field mounted
Option D:	Auxiliary panel
Q7.	What is full form of P&T diagram?
Option A:	Process and Torque
Option B:	Process and Temperature
Option C:	Pressure and Torque
Option D:	Pressure and Temperature
Q8.	Heat and mass balance is a document produced by
Option A:	Mechanical Engineer
Option B:	Instrumentation Engineer
Option C:	Process design engineer
Option D:	Civil Engineer
Q9.	In instrument identification naming convention, third letter should be
Option A:	Condition
Option B:	Device/Condition
Option C:	Device
Option D:	Measurement
Q10.	In level transmitter specification sheet, transmitter output should be specified as
Option A:	2-wire 1-7 V DC
Option B:	3-wire 4-20 mA
Option C:	5-wire 4-20 mA
Option D:	2-wire 4-20 mA
Q11.	What is mean by connection on the element or well which is connected to the pipe or vessel?
Option A:	Mounting
Option B:	Process connection
Option C:	Insulation
Option D:	Piping connection
Q12.	What is TIC-101 in terms of ISA symbol?

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Option A:	Temperature Indicating controller with loop no.101
Option B:	Temperature Indicating controller with unit no.101
Option C:	Temperature Indicating controller with 101 instruments
Option D:	Temperature Indicating controller with 101 is number of device
Q13.	Interlock between devices is noted on P&IDs with
Option A:	Letter- 'In' in diamond
Option B:	Letter- 'C' in diamond
Option C:	Letter- 'Interlock' outside diamond shape
Option D:	Letter- 'I' in diamond shape
Q14.	ASME code is normally revised every
Option A:	3 years
Option B:	Every year
Option C:	Every 6 months
Option D:	5 years
Q15.	Project teams occur when a number of people have _____ and recognize that their personal success is dependent on the success of others.
Option A:	Similar jobs
Option B:	A shared work environment
Option C:	A common goal
Option D:	Lead manager
Q16.	Heat and mass balance sheet does not have following data for a process stream.
Option A:	Density
Option B:	Viscosity
Option C:	Flow rate
Option D:	Level capacity
Q17.	In ISA specification form of turbine flow meter, output range should be
Option A:	21-103kPA
Option B:	1-20 Ma
Option C:	20-25 psig
Option D:	4-30 mA
Q18.	As changes to a component or system are made, the drawings depicting the component or system must be redrafted and reissued, what it is called in P & ID?
Option A:	Tag number
Option B:	Title block
Option C:	Revision block
Option D:	P & ID number
Q19.	When a valve is installed in a process where the differential pressure (drop) across the valve decreases with increasing flow, the best trim characteristic to choose in specification sheet will be:

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Option A:	Ported
Option B:	Quick-opening
Option C:	Equal percentage
Option D:	Linear
Q20.	HazOP stands for
Option A:	Hazardous area classification
Option B:	Hazard and Operating Procedure
Option C:	Hazardous Procedure
Option D:	Hazard and fault finding
Q21.	What is 'Red line mark' in designed document?
Option A:	It indicates red color for hazard locations in drawing
Option B:	It reflects changes during actual installation of instrument.
Option C:	It shows deleted item from drawing
Option D:	Color may be used for simplification.
Q22.	During execution of project what is the best communicating media to provide details about design?
Option A:	Deliverables
Option B:	Telephonic information
Option C:	Reports
Option D:	O&M Manuals
Q23.	Find the correct stage for commissioning
Option A:	Initiation
Option B:	Investigation
Option C:	Execution
Option D:	Construction
Q24.	ANSI stands for _____?
Option A:	Asian Narcotics Standards Institute
Option B:	American National Standards Institute
Option C:	Asian National Standards Institute
Option D:	American Narcotics Standards Institute
Q25.	Instrument Specification sheet describes
Option A:	Specifications of product
Option B:	Specification of plant
Option C:	Specifications of instruments used
Option D:	Only process data
Q26.	Which document is used as reference document for instrument specification sheet?
Option A:	Logic diagrams
Option B:	Piping & Instrumentation Diagram
Option C:	Loop diagrams

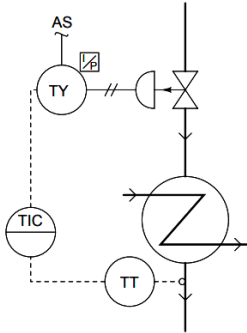
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Option D:	Loop number
Q27.	Which of the following is correct statement?
Option A:	Piping and Instrument Drawing (P&ID) includes less details than a PFD.
Option B:	Piping and Instrument Drawing (P&ID) includes more details than a PFD.
Option C:	PFD includes both major and minor details of the chemical process.
Option D:	P & ID is prepared before PFD.
Q28.	Out of following find the one which does not relate to task of Warehousing department.
Option A:	Inspection of received item
Option B:	Checking of received item
Option C:	Payment to vendor for received item
Option D:	Storing and disbursement of received item.
Module 3	
Q1.	In SAMA symbols, Automatic Signal Processing is represented with,
Option A:	Circle
Option B:	Rectangle
Option C:	Trapezoid
Option D:	Diamond
Q2.	Common prefix arrangement for KQL
Option A:	Quality Control Logic
Option B:	Time quantity light
Option C:	Flow Equalizer Low
Option D:	Flow Quality Low
Q3.	During production of the location plan drawing, following issue should not consider,
Option A:	Reliability study
Option B:	Hazardous area classifications
Option C:	Maintenance accessibility
Option D:	Operational accessibility
Q4.	Instrument Hook Up Diagram is the scope of work between Instrumentation departments and
Option A:	Electrical
Option B:	Mechanical
Option C:	Civil
Option D:	Production
Q5.	Main purpose of loop wiring diagram is,
Option A:	To show the complete electrical circuit.

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Option B:	To show major equipment's in process
Option C:	To indicate material balance sheet
Option D:	To indicate piping orthographics drawing
Q6.	For liquid service, vent hole of Orifice plate is located at the
Option A:	Top of Orifice plate
Option B:	Bottom of Orifice plate
Option C:	Left of Orifice plate
Option D:	Right of Orifice plate
Q7.	If the DP transmitter is mounted above the datum line,
Option A:	It gives span elevation
Option B:	It gives zero suppression
Option C:	It gives span suppression
Option D:	It gives zero elevation
Q8.	Electrical Installation depicts,
Option A:	Gasket and nut bolt connection
Option B:	Tubing and piping connection
Option C:	Cable and Conduit connections
Option D:	Junction box connection
Q9.	Instrument loop diagram represents end to end connections from
Option A:	The field instrument to Junction box (vice versa)
Option B:	The field instrument to Control room (vice versa)
Option C:	Junction box to Control Room (vice versa)
Option D:	Junction box to Control Room
Q10.	PSV valves are used on process vessel for the purpose of
Option A:	Monitoring pressure in line
Option B:	Releasing extra pressure through vent to protect vessel
Option C:	For indicating pressure in vessel
Option D:	It provides interlock in line pressure
Q11.	The Engineering Bill Of Material is often created by the product engineers based on
Option A:	CAD drawing
Option B:	Freehand drawing
Option C:	P & ID sheet
Option D:	Loop wiring diagram
Q12.	In Bill of Material, Parts which will not be assembled at all in one or more variants are typically marked as DNP, stands for
Option A:	Do not place
Option B:	Do not price
Option C:	Do not print
Option D:	Do not put

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Q13.	What is significance of loop wiring diagram?
Option A:	To provide piping and instrumentation data.
Option B:	To provide process data.
Option C:	To provide process flow
Option D:	To provide end to end connection information of elements involved in a loop
Q14.	What does the Hook Up diagram show?
Option A:	A drawing showing typical installation of an instrument.
Option B:	A drawing showing typical installation of Trays.
Option C:	A drawing showing typical installation of a Junction box.
Option D:	Wiring connection
Q15.	 <p>According to this diagram, the controller is _____, and it is located _____</p>
Option A:	Pneumatic, in the field (process) area
Option B:	Electronic, on the front of the main control panel
Option C:	Pneumatic, on the front of a secondary control panel
Option D:	Pneumatic, on the front of the main control panel
Q16.	Detailed drawing showing typical installation of an instrument in a correct manner is called as
Option A:	Process inter connection diagram.
Option B:	Hook Up Diagram.
Option C:	Process flow diagram.
Option D:	Process and Instrumentation diagram.
Q17.	A line diagram of a pipe system or items of equipment which includes miniature alarm lights or operating buttons for the relevant point or item in the system.
Option A:	HMI Mimic display.
Option B:	P &ID .
Option C:	PFD.
Option D:	Hook up diagram

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Module 4	
Q1.	From the following which is not a control panel type?
Option A:	Flat-face/straight
Option B:	Miniature
Option C:	Breakfront
Option D:	Console
Q2.	What is historian?
Option A:	It is just history of the company
Option B:	It is software utility that logs data
Option C:	It shows previous years hardware
Option D:	It is hardware of process
Q3.	Full form of HMI is
Option A:	Human Man Interface
Option B:	Human Machine Interface
Option C:	Human Machine Interchange
Option D:	Human Machine In charge
Q4.	A SIS is composed of a combination of _____, sensor(s), and final element(s).
Option A:	Constructor(s)
Option B:	logic solver(s)
Option C:	Designer(s)
Option D:	Manager(s)
Q5.	Which of the following is not a communication network interface applicable to HMI line?
Option A:	MODBUS
Option B:	RS232
Option C:	RS422
Option D:	RJ-45
Q6.	The control room is where operators perform plant operations using control systems every day, and a _____, comfortable, and functional environment helps operators to run the plant more efficiently.
Option A:	Safe
Option B:	unsafe
Option C:	defective
Option D:	extensive

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Q7.	Safety Instrumented Systems (SIS) called by following names, excluding
Option A:	Safety Interlock Systems
Option B:	Safety Shutdown Systems (SSD)
Option C:	Basic Process Control System (BPCS)
Option D:	Emergency Shutdown Systems (ESD)
Q8.	Sequential Function Chart refer macrostep when execution of
Option A:	Inner loop or sequence before entering next step
Option B:	Outer loop
Option C:	Small step
Option D:	Any step is called macrostep
Q9.	_____ approach of control workstations and the layout of the control room should all contribute to achieving the performance objectives set for the control room.
Option A:	Ergonomic design
Option B:	Simple design
Option C:	Futuristic design
Option D:	Device based design
Q10.	What is correct statement about CFC?
Option A:	Contains a list of networks with each network containing a set of blocks
Option B:	The blocks are connected together by lines from the outputs to the inputs, defining the logic for the program
Option C:	The blocks are connected together by lines from the inputs to the outputs, defining the logic for the program.
Option D:	It adds the network and execution order restrictions.
Q11.	Which of the following is not advantage of the HMI?
Option A:	User-friendliness of the graphical interface
Option B:	Pictures and icons allow for fast recognition, easing the problems of illiteracy
Option C:	Reduce the cost of product manufacturing, and potentially increase profit margins
Option D:	does not allow kinesthetic computer/human interaction.
Q12.	An interface should provide the operator with the general following information, except
Option A:	After initiating an action within a system, the operator should be clearly informed of the result of their action
Option B:	The system should not inform to operator about any delay present in the system
Option C:	If an action is made in error then it should be possible to reverse such an action where it would not be detrimental to plant safety to do so
Option D:	The system should inform the operator of any deviations from safe operating levels
Q13.	Which of the following is not the I/O Interface form factor
Option A:	Hardware Physical Address
Option B:	Software Address
Option C:	I/O Map
Option D:	Device protocol

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Q14.	Panel boards provide a compact and convenient method of grouping _____ at some common point
Option A:	Circuit switching and Protective devices
Option B:	Protective devices only
Option C:	Circuit switching only
Option D:	Annunciating devices
Q15.	The process from design to installation and construction of a control room referring to ISO 1106 4 is as follows, excluding
Option A:	Conceptual Design
Option B:	Procurement
Option C:	Detailed design
Option D:	Installation and construction
Q16.	What is correct HW address format for LAN drop 02, Rack 1, Node 4, Slot 3 and Point 6?
Option A:	D02N04R01S03P06
Option B:	D02/N04/R01/S03/P06
Option C:	D02-N04-R01-S03-P06
Option D:	D02R01N04S03P06
Module 5	
Q1.	An account payable is posted to accounting upon creation of the following document-
Option A:	Purchase Requisition note
Option B:	Purchase Order
Option C:	Good Receipt
Option D:	Invoice
Q2.	Which of the following is acceptance test which is carried at actual site with site condition?
Option A:	Factory Acceptance Test
Option B:	Customer Acceptance Test
Option C:	Emergency Acceptance Test
Option D:	Product acceptance Test
Q3.	What is PO format?
Option A:	Performance Order
Option B:	Payment Order
Option C:	Purchase format
Option D:	An official order in terms of form completed by the buyer
Q4.	How do Bids work?

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Option A:	Starts with a predetermined opening bid amount
Option B:	Valuation of a property or good
Option C:	Fix price
Option D:	Pricing of a good
Q5.	How are bids evaluated?
Option A:	Valuation of property
Option B:	Price variation
Option C:	By the process that takes place after the tender submission deadline
Option D:	Tender submission
Q6.	What is the meaning of pre commissioning?
Option A:	The processes carried out before commissioning task
Option B:	The processes carried out after the final product is introduced
Option C:	The processes carried out after the product is sold
Option D:	The processes carried out before the product is sold
Q7.	What is purpose of inspection?
Option A:	To count the material
Option B:	To test the material
Option C:	To verify whether material is in proper condition and of the right quantity
Option D:	To check price of material
Q8.	What are the contents of PRN?
Option A:	It is list of items in project
Option B:	How to procure procedure
Option C:	What and when to procure
Option D:	Name of items to be procured, quantity, suppliers name
Q9.	SAT does not include the following tests
Option A:	Visual verification of the main components
Option B:	Checking of safety devices and interlocks
Option C:	Functionality of utilities and configuration verification
Option D:	Market feedback for component
Q10.	The breakdown of insulation of the cable can be avoided economically by the use of
Option A:	Earthling
Option B:	Vacuum insulation
Option C:	Inter-sheaths and armor shield
Option D:	Grounding
Q11.	The _____ specification describes, defines or specifies the goods / services to be supplied
Option A:	Technical
Option B:	Purchase
Option C:	Performance
Option D:	Bid

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Q12.	Which is not an element of procurement activity?
Option A:	Purchasing
Option B:	Expediting
Option C:	Acquisition
Option D:	Marketing
Q13.	Which of the following are inputs to the Source Selection Process?
Option A:	Evaluation criteria, Procurement documents
Option B:	Organizational policies
Option C:	Management reports
Option D:	Scope of work
Q14.	What do you mean tabulation of all of project items that have been found defective & must be corrected?
Option A:	Loop test
Option B:	Punch list
Option C:	Site test
Option D:	Product verification
Q15.	Which are not types of tender?
Option A:	Bidding tender
Option B:	Open tender
Option C:	Closed tender
Option D:	Single tender
Q16.	Production related procurement refers to the purchasing of
Option A:	Office supplies
Option B:	Furniture
Option C:	Information systems
Option D:	Raw materials
Q17.	Which of the following is acceptance test which is carried at actual site with site condition?
Option A:	Factory acceptance test
Option B:	Customer acceptance test
Option C:	Side acceptance test
Option D:	Product acceptance test
Q18.	The operations and maintenance manual will not have this common parts:
Option A:	Physical parameters
Option B:	Emergency procedures
Option C:	Operation procedures
Option D:	Maintenance procedure
Q19.	Planning and controlling the quality of products and services is a _____ type of decision.
Option A:	Control

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Option B:	Operating
Option C:	Strategic
Option D:	Organization
Q20.	The main objective/s of pre-commissioning check list is to-
Option A:	Supply a close, developed uniform verification system, inspection, testing and documentation preparation for the operation
Option B:	Purchase all the necessary requirement in pre-commissioning
Option C:	Block any purchase
Option D:	Take quotation for specific work
Q21.	Cable tray is nothing but the way or media through which-
Option A:	store faulty cables
Option B:	keep the repaired cables
Option C:	lay the field cables in plant
Option D:	Cable does not keep on the device
Q22.	Quality control is aimed at:
Option A:	Maintaining the desired quality
Option B:	Exceeding the desired quality
Option C:	Continuously improving the quality
Option D:	Following the quality
Q23.	The contractor (seller) accepts all liability for engineering errors, poor workmanship, and consequential damages under a(n) _____ contract.
Option A:	Incentive fee
Option B:	Cost-plus
Option C:	Fixed price
Option D:	Variable production
Q24.	A bilateral RFP is preferred to an invitation to bid when:
Option A:	Supplier and terms are specified
Option B:	The product or service is relatively low value and readily available
Option C:	The product or service has high value and is unique
Option D:	The product or service has high value, but is easy to obtain
Q25.	Which of the following are characteristics of a purchase order?
Option A:	A unilateral contract used when routine, standard costly items are required
Option B:	A bilateral contract used for low dollar items
Option C:	A bilateral contract used for high dollar, standard items
Option D:	A bilateral contract used for low rupees items
Module 6	
Q1.	What is not the benefit of documentation?
Option A:	Cost rise
Option B:	Easier Retrieval
Option C:	Better Backup and Disaster Recovery

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Option D:	Enhanced Security
Q2.	What is the use of Process data module in SPI software?
Option A:	Define process parameters
Option B:	Define Process conditions for active devices
Option C:	Define process fluids only
Option D:	Loads the process data required
Q3.	Which documents cannot be prepared in INTOOLS software?
Option A:	Process Flow Diagram
Option B:	Instrumentation Index Sheet
Option C:	Loop drawing
Option D:	Specification sheet
Q4.	What is SmartPlant P&ID?
Option A:	Process technique
Option B:	Is the next generation engineering environment
Option C:	Method in process industry
Option D:	Ordinary software
Q5.	What is SmartPlant electrical?
Option A:	That handles large amounts of electric power system data
Option B:	That handles large amounts of electric control system data
Option C:	That handles electricity requirements
Option D:	That controls electrical sources
Q6.	Text documents prepared in
Option A:	Autocad
Option B:	Matlab
Option C:	Ms-office
Option D:	Linex