BE/INST/SEM-VIII. CHOICE BASED/

91042

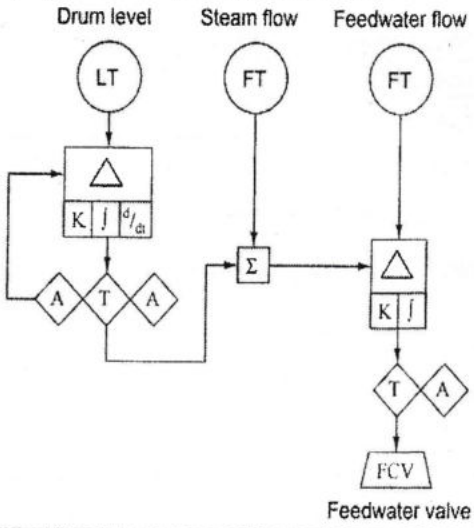
University of Mumbai

Examinations Summer 2022

Examination: BE Semester VIII

Course Code: ISC801 and Course Name: Instrumentation Project Documentation & Execution

Time: 2 hour30 minutesMax. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	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
2.	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
3.	Identify type of document notations- 
Option A:	P & ID
Option B:	PFD
Option C:	SAMA
Option D:	Loop diagram
4.	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)

5.	Instrument index shall
Option A:	Be created after final execution of the project.
Option B:	Not be revised if there is any plant or system modification.
Option C:	Contain list of instrument devices within a plant.
Option D:	Not include fire and gas related tag numbers.
6.	For instrument specification sheet, which reference documentis required
Option A:	Logic diagrams
Option B:	P & ID
Option C:	Loop diagrams
Option D:	Loop number
7.	For vapor services, drain 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
8.	Why a 250 ohm resistor is connected across terminals in junction box at control Centre?
Option A:	For protection against noise or impulse.
Option B:	It is used as a part of loop wiring diagram
Option C:	Transmission is by current, reception by voltage, so for I to V conversion it needs the shunt.
Option D:	Junction box enclosure earthing is provided using a 250 ohm resistor.
9.	Which statement is not correct regarding bill of material?
Option A:	Can be used for cost estimation
Option B:	Helps to make inventory list.
Option C:	It provides process data.
Option D:	Correct purchasing done.
10.	What is correct sequence followed for procurement process? I. Quotation II. Evaluation III. Purchase Requisition Note IV. Purchase order
Option A:	I,II,III,IV
Option B:	II,III,I,IV
Option C:	III,I,II,IV
Option D:	III,IV,I,II

Q2(20 Marks)	**Solve any Four5 marks each**
A.	Draw and explain Instrument location plan.
B.	Describe junction box scheduling.
C.	Explain FAT and its importance.
D.	Draw 5 SAMA and their corresponding ISA symbols.

E.	What are advantages of using software for documentation?
F.	Draw electronic loop wiring diagram for temperature control loop.

Q3 (20 Marks)	**Solve any Two** **10 marks each**
A	Draw and explain the P&ID for a temperature control loop. Prepare instrument index sheet for the same and write specification sheet for one of the instruments in the loop.
B	Draw hookup diagram for Differential Pressure transmitter.
C.	Illustrate checkout procedure for a control valve.

Q4 (20 Marks)	**Solve any Two** **10 marks each**
A	What are the main tasks of a system integrator? Discuss CFC and SFC in detail with suitable example.
B	Explain the components of a SIS. Give a detailed explanation of the Safety Integrity Levels.
C.	Explain what is engineering procurement procedure and methods. Also, explain the purchase order format.

BE / ~~INST~~ / Sem-VIII / Choice Based / Instrument & System Design

University of Mumbai

Examination Summer 2022

Program: B.E(Instrumentation Engineering)(SEMVIII)(Choice Base Credit Grading System)(R2016)

Curriculum Scheme: Rev2016 CBCGS

Paper Code: 93305

Examination: BE Semester: VIII

Program No.: 1T01328, Subject (Paper Code): 53252,

Course Name: Instrument and System Design

Time: 2 hour 30 minutes

Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	It is the ability of the sensor to indicate the same output over a period of time for a constant input
Option A:	Stability
Option B:	Error
Option C:	Impedance
Option D:	Resolution
2.	When does the thermocouple require reference junction compensation?
Option A:	Thermocouple is installed in very hot conditions
Option B:	Reference terminal may not be held at 0°C
Option C:	Ambient temperature is not stable
Option D:	If reference compensation not done, it will give zero reading for all temperature measurements
3.	What is the significance of piping geometry factor in valve sizing equation?
Option A:	To calculate effect of non-standard pipe run on valve coefficient
Option B:	To calculate valve noise
Option C:	To calculate flashing
Option D:	To calculate effect of cavitation
4.	Cavitation prediction with the following condition of incipient, critical and actual pressure drop values $\Delta P_i = 6.4\ psia$ $\Delta P_c = 9.0\ psia$ $\Delta P_{actual} = 9.0\ psia$
Option A:	Incipient cavitation condition
Option B:	Critical cavitation condition
Option C:	Heavy cavitation condition
Option D:	No cavitation condition
5.	Relative valve capacity Cd depends on
Option A:	Type of fluid
Option B:	Cavitation
Option C:	Pipe diameter

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Option D:	Valve trim design
6.	What is choked flow?
Option A:	flow rate changes linearly
Option B:	flow rate is minimum
Option C:	flow rate does not increase despite of increase in pressure drop
Option D:	flow rate is linearly reduced
7.	The preparation of target specification from wish specification is done in_____ phase.
Option A:	Prestudy
Option B:	Study
Option C:	Design
Option D:	Engineering
8.	Ergonomic study in design engineering is all about_____
Option A:	Human and machine inspection
Option B:	Human and machine comfort
Option C:	Human and machine maintenance
Option D:	Human and machine testing
9.	Pressurised panels are used in
Option A:	safe area
Option B:	hazardous area
Option C:	dust environment
Option D:	control Room
10.	What is the significance of feedback in the process of System Engineering?
Option A:	It is to depict that the system is very lengthy
Option B:	It is used to skip certain steps in system engineering
Option C:	It demonstrates the iterative nature of system engineering
Option D:	It shows that system engineering is not a good perspective of Design

Q2	**Solve any Two Questions out of Three 10 marks each (20marks)**
A	Find valve size for the following conditions Fluid - Benzene with fine non abrasive solids G = 0.88 q = 450 gpm p_1 = 80 psia p_2 = 71 psia T_1 = 528° R D = 6 inch schedule 40 Valve is characterized ball with C_d=25.
B	What is IP classification? Give its significance with few examples.
C	What is calibration? List methods of thermocouple calibration and explain the Two wire

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	method of thermocouple calibration.

Q3	**Solve any Two Questions out of Three 10 marks each** **(20 Marks)**
A	Explain with diagram Control room layout design criteria.
B	3" Butterfly valve is to operate at the following conditions- Fluid- Water at flow rate 330gpm P_v = 0.4 psia, P_1 = 24psia, P_2 = 15psia d=3.068" State whether the valve will cavitate or not, and if it cavitates, to what extent?
C	Explain ergonomics for product design.

Q4	**Solve any Two Questions out of Three 10 marks each** **(20 Marks)**
A	Size a valve to pass 6000 lb/hr of dry saturated steam flowing in a 4-inch pipe. The upstream pressure 50 psig and downstream pressure is 41 psig. The valve selected globe style with C_d = 13, X_T = 0.75. Also correct the X_T for valve reducer.
B	What are methods of noise reduction of control valves
C	Explain Bath tub curve with its significance related to reliability of products.

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BE/INST/Sem-VIII/Choice Based/Power Plant Instoumentation

University of Mumbai

Examinations Summer 2022

Time: 2 hour 30 minutes

Paper Code: 93712

Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Economizer is used to heat
Option A:	air
Option B:	flue gases
Option C:	steam
Option D:	feed water
2.	Which of the following is a high head turbine
Option A:	Pelton turbine
Option B:	Kaplan turbine
Option C:	Francis turbine
Option D:	Propeller turbine
3.	Moderator in nuclear plants is used to
Option A:	reduce temperature
Option B:	extract heat from nuclear reaction
Option C:	control the reaction
Option D:	cause collision with the fast moving neutrons to reduce their speed
4.	Which of the following is a non-renewable energy resource?
Option A:	solar
Option B:	methane
Option C:	Hydroelectric
Option D:	coal
5.	A solar cell converts light energy into
Option A:	Electrical energy
Option B:	Thermal energy
Option C:	Sound energy
Option D:	Heat energy
6.	What type of energy is derived from heated groundwater?
Option A:	solar energy
Option B:	geothermal energy
Option C:	hydroelectric energy
Option D:	nuclear energy
7.	The most nuclear fuel used in the world is_____
Option A:	Thorium – 232
Option B:	Uranium – 238
Option C:	Uranium – 235
Option D:	Plutonium – 239
8.	The blades in wind turbines are connected to_____
Option A:	Nacelle
Option B:	Tower

Option C:	Foundations
Option D:	String
9.	The most simple and clean plant is.....
Option A:	Nuclear power plant
Option B:	Steam power plant
Option C:	Hydro-electric power plant
Option D:	Diesel power plant
10.	Reheat cycle in steam power plant is used to
Option A:	utilize heat of flue gases
Option B:	increase thermal efficiency
Option C:	improve condenser performance
Option D:	reduce loss of heat

Q2.	**Solve any Two Questions out of Three** **10 marks each**
A	Give classification of energy sources in detail.
B	Classify various types of Boilers. Explain Fire Tube Boiler in detail.
C	Draw the layout of Diesel power plant and discuss its operation.

Q3.	**Solve any Two Questions out of Three** **10 marks each**
A	Explain (PWR) Pressurized Water Reactor with neat diagram. State advantages and limitations.
B	Explain wind turbine aerodynamics using Betz model. Find maximum power extracted.
C	Give classification of Solar Collectors. Explain flat plate collector with neat diagram.

Q4.	**Solve any Two Questions out of Three** **10 marks each**
A	Give comparison of Thermal , Nuclear and Hydroelectric power plants.
B	Explain the energy extraction process from Tidal and Geothermal energy
C	What is Hydrology? Explain the factors to be considered for selection of site of Hydroelectric power plant.

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BE/ETRX/CMPN/INST/EXTC/sem-VIII-choice based

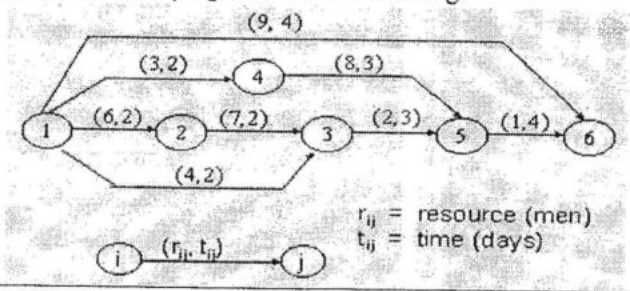
University of Mumbai Project Management

Examinations Summer 2022

Time: 2 hour 30 minutes Paper Code-93987 Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Which is an example of Triple Constraint?
Option A:	Scope, Human Resource, Time
Option B:	Quality, Scope, Human Resource
Option C:	Cost, Human Resource, Time
Option D:	Scope, Cost, Time
2.	You are responsible for a project with high risks particularly during the early phases - your sponsor has asked for performance reports on a monthly basis. At the end of the first month you report a CPI greater than 1 and also the SPI greater than 1. What would this mean?
Option A:	The project is behind schedule and over budget
Option B:	The project is ahead of schedule and under budget
Option C:	The project is ahead of schedule but over budget
Option D:	The project is behind schedule but under budget
3.	Why does activities on critical path of a CPM network are called critical
Option A:	They represent maximum project completion time
Option B:	They cannot tolerate any delay in completion
Option C:	They consume maximum resources
Option D:	These are most complex activities on project
4.	A risk is known as Positive risk or opportunity if-
Option A:	Impact is negative which you want to lessen its impact
Option B:	Impact is positive which you want to lessen its impact
Option C:	Impact is negative which you may want to actualize
Option D:	Impact is positive which you may want to actualize
5.	The lowest element in the hierarchical breakdown of the WBS is
Option A:	Deliverable
Option B:	Work package
Option C:	Responsibility matrix
Option D:	Bottoms up budget
6.	When many activities are planned to start at the same time in project schedule, the project is likely to be following
Option A:	Concurrent Engineering
Option B:	Research and Development Project
Option C:	Goldratt's Critical Chain
Option D:	laddering approach
7.	The payback period for a project
Option A:	is the internal rate of return that is the discount rate that equates the present values of the two sets of flows.
Option B:	is the discounted cash flow method determines the net present value of all cash flows by discounting them by the required rate of return
Option C:	is the initial fixed investment in the project divided by the estimated annual net cash

	inflows from the project.
Option D:	is also known as the benefit–cost ratio
8.	A project is over budget when
Option A:	CPI > 1
Option B:	SPI > 1
Option C:	CPI and SPI > 1
Option D:	CPI less than 1
9.	Select the correct statement from the following
Option A:	There is always only one critical path in the network
Option B:	A path is called a critical path if it is the longest path in a project network
Option C:	Slack or float of dummy activity is always equal to zero
Option D:	Crashing cost linearly increases with no of days crashed
10.	Project closure when the project is completed as planned is
Option A:	Failed projects
Option B:	Premature closure
Option C:	Abnormal closure
Option D:	Normal closure

Q2	**Solve any Two Questions out of Three** **10 marks each**
A	Explain stages of team development and growth? What are advantages of and barriers to team effectiveness?
B	Explain Probability and impact matrix. What are the risk response strategies for negative risks (threats) and positive risks(opportunities)?
C	List and briefly describe the ways projects may be terminated. What are some non-technical reasons for project termination?
Q3	**Solve any Two Questions out of Three** **10 marks each**
A	Differentiate between the Functional, Pure Project and Matrix organizations.
B	What is crashing of the project? Explain with a small example the process of crashing
C	Draw resource loading diagram for the following project. Adjusting the activity floats, and level the resources to the best possible loading. How many men are required to complete this project in 11 days after carrying out resource levelling? 
Q4	**Solve any Two Questions out of Three** **10 marks each**
A	A project in its 26th week has an actual cost of Rs.270,000/-. It was scheduled to have spent Rs.260,000/-. For the work performed the budgeted value is Rs. 272,000/-. What are cost and schedule variances for the project? What is the SPI, CPI and CSI? Comment on the status of the project based on your earned value analysis.
B	Why negotiations are important in Project Management? Why Win-Win strategy is adopted in project management for negotiations
C	What does project audit tries to find out? How do project audit recommendations help the project? What are types of project audits based on the depth of audit?

BE | ETRX | INST | EXTC | sem - VIII - choicebased / Entrepreneurship Development & Management

University of Mumbai

Examinations summer 2022

Time: 2 hour 30 minutes

Paper code 93983

Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	The 'T' in a PESTLE analysis refers to,
Option A:	Technology
Option B:	Time
Option C:	Training
Option D:	Task
2.	BCG matrix is also referred as,
Option A:	Growth-sell matrix
Option B:	Business-cost matrix
Option C:	Growth-Share Matrix
Option D:	Business-share matrix
3.	The entrepreneur who has neither the will nor the desire to introduce and adopt new methods is called as,
Option A:	imitating entrepreneur
Option B:	adoptive entrepreneur
Option C:	fabian entrepreneur
Option D:	innovative entrepreneur
4.	Combining of two or more businesses to try and achieve synergy to achieve more overall gains is referred as,
Option A:	Merger Deal
Option B:	Team Building
Option C:	Franchise Setup
Option D:	Partnership Deal
5.	To convince a financial entity and an angel investor that the business can produce enough revenue to make a satisfactory profit and therefore attractive as an investment opportunity is called as,
Option A:	Future plan
Option B:	Profit-loss statement
Option C:	Balance statement
Option D:	Business plan
6.	The three pillars of sustainable development for the entrepreneurial ecosystem are
Option A:	Environment , Economy, Society
Option B:	Ecology, Economy, Society
Option C:	Environment , Ecology, Equity
Option D:	Equity, Environment , Society

7.	Which of the following is the responsibility of the government when it is in promotional role for encouraging entrepreneurship
Option A:	Build up and strengthen the necessary development infrastructures such as power, transport, finance, marketing, institutions for training and guidance.
Option B:	It should see to it that the national resources are directed to the right purpose.
Option C:	Set up State Owned Enterprises (SOEs)
Option D:	Encourage or Discourage certain activities through monetary and fiscal incentives and disincentives
8.	As per MSME, the investment in plant and machinery under manufacturing sector does not exceed ---- and in equipment under service sector does not exceed ----.
Option A:	5 Lakhs - 10 Lakhs
Option B:	10 Lakhs -15 Lakhs
Option C:	25 Lakhs - 10 Lakhs
Option D:	50 Lakhs - 10 Lakhs
9.	What is not the characteristics of PPP's
Option A:	Focuses of goods
Option B:	Resources
Option C:	Sharing
Option D:	Continuity
10.	Trademarks relate to _____.
Option A:	Practice and knowledge acquired through experience
Option B:	The protection of proprietary information of commercial value
Option C:	The right to reproduce one's own original work
Option D:	Brand identity

Q2.	**Attempt any Two out of Three** **(10 marks each)**
A	What do you mean by a business plan? Explain the issues to be addressed in a business plan?
B	Write a note on the various initiatives by GOI for women entrepreneurs.
C	Give the impact on the marketing aspects of a product by entrepreneur by the use of Digital Marketing

Q3.	**Attempt any Two out of Three** **(10 marks each)**
A	Explain the process of closing your business?
B	What are the functions of an entrepreneur in entrepreneurial development?
C	What are the Four types of firm level growth strategy?

Q4.	**Attempt any Two out of Three** **(10 marks each)**
A	Explain the steps on harvesting or closing small business.
B	Note on Capital and its importance to entrepreneur.
C	State the Importance of MSME's towards national growth.

BE/INST/Sem-VIII/Choice Based/Internet of Things

University of Mumbai

Paper Code: 90311

Curriculum Scheme: ~~Rev2019~~ R2016

Examination: ~~New~~ BE VIII

Course Code: **ISDLO8043** and Course Name: **Internet of Things(IOT)**

Time: Max. Marks: 80

Q1.	**Choose the correct option for following questions. All the Questions are compulsory and carry equal marks**
1.	Which of this is part of the Transport Layer
Option A:	TCP
Option B:	802.11
Option C:	MQTT
Option D:	6LowPAN
2.	Zigbee uses which Layers
Option A:	802.4.15
Option B:	802.15.4
Option C:	802.11
Option D:	803.13g
3.	Which protocol is storage Interface
Option A:	MMC
Option B:	SPI
Option C:	UART
Option D:	I2C
4.	MQTT is _____ oriented.
Option A:	Data
Option B:	Message
Option C:	Network
Option D:	Device
5.	ISM stands for
Option A:	Industry Standard Machine
Option B:	Industrial Software Machine
Option C:	Integrated Scientific Medical
Option D:	Industrial Scientific Medical
6.	PaaS Stands for
Option A:	Platform as a Server
Option B:	PANID as a Server
Option C:	Platform as a Software
Option D:	Peripheral as a Software
7.	Controller Service
Option A:	prcoess actuator and sensor data and have network elements
Option B:	links between IOT device application and database components
Option C:	stores the data
Option D:	runs on device and interacts with server

8.	Which statement is False for the below statements
Option A:	The channel is hardcoded in Zigbee software
Option B:	The device checks for the channel before transmitting
Option C:	Messsages are coded to improve the reliability of link
Option D:	Acknowledgements are used
9.	Which is Data Exchange Format
Option A:	XML
Option B:	XMPP
Option C:	MQTT
Option D:	YANG
10.	what is frequency on which 802.15.4 works
Option A:	2.1Ghz
Option B:	466Mhz
Option C:	5Ghz
Option D:	2.4Ghz

Q2 (20 Marks Each)	**Solve any Four out of Six** **5 marks each**
A	Explain what is a Gateway
B	Advantages of COAP over HTTP
C	Explain PAAS
D	Explain MODBUS protocol
E	Explain Topology that the Wifi Supports
F	Explain the ISM band used by 802.15.4

Q3 (20 Marks Each)	**Solve any Two Questions out of Three** **10 marks each**
A	Explain difference between End Node, PAN co-ordinator and Router in Zigbee
B	Explain in detail IOT Level 3 and IOT Level 4
C	Explain in detail the Definition and characterization of IOT

Q4 (20 Marks Each)	
A	Explain using the application of IOT for Environment Monitoring a. Purpose b. Data requirement c. Hardware deployment d. Software deployment
B	Explain GSM essential components
C	Explain the benefits, features, Stakeholders in Cloud Architecture

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