SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT

OF

ELECTRONICS AND INSTRUMENTATION ENGINEERING

QUESTION BANK

II SEMESTER

M.E. CONTROL AND INSTRUMENTATION

1913212- INDUSTRIAL DATA NETWORKS

Regulation – 2019

Academic Year 2019 – 2020

Prepared by

Ms. V.MANGAIYARKARASI, Assistant Professor/EIE

SRM VALLIAMMAI ENGINEERING COLLEGE
SRM Nagar, Kattankulathur – 603 203.

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

QUESTION BANK

SUBJECT : 1913212- INDUSTRIAL DATA NETWORKS

SEM / YEAR: II /I

UNIT I - DATA NETWORK FUNDAMENTALS			
EIA 232 / EIA 485/ EIA 422 interface standard – ISO/OSI Reference model – Data link control protocol – Media access protocol:-Command/response, Token passing and CSMA/CD - TCP/IP – Bridges – Routers – Gateways –Standard ETHERNET Configuration .			
PART – A			
Q.No	**Questions**	**BT Level**	**Competence**
1.	List out the limitations of EIA 232.	**BTL 1**	Remember
2.	Give the four wire network configuration of EIA-485 network.	**BTL 1**	Remember
3.	Examine the applications of EIA-422 network.	**BTL 1**	Remember
4.	Compare EIA 232 with EIA 485 communication standard.	**BTL 4**	Analyze
5.	Define protocol.	**BTL 1**	Remember
6.	What are the main functions of presentation layer?	**BTL 1**	Remember
7.	Access the main function of data link layer.	**BTL 5**	Evaluate
8.	Express topology. What are the different types of topologies?	**BTL 2**	Understand
9.	Classify the types of data link protocol.	**BTL 2**	Understand
10.	Mention the modes in HDLC data link control protocol.	**BTL 4**	Analyze
11.	Examine How the three HDLC frame types differ from one another.	**BTL 3**	Apply
12.	Classify the different cabling in Ethernet communication	**BTL 3**	Apply
13.	Examine CSMA/CD protocol.	**BTL 3**	Apply
14.	Distinguish between Token Bus and Token Ring.	**BTL 2**	Understand
15.	Define the term router and repeater.	**BTL 1**	Remember
16.	Mention the function of gateways.	**BTL 4**	Analyze
17.	Summarize different types of bridges.	**BTL 2**	Understand
18.	Enlist the difference between Fast Ethernet and Gigabit Ethernet.	**BTL 6**	Create
19.	Enlist the benefits of token passing protocol for media access.	**BTL 6**	Create
20.	Assess the main reasons for collision on an Ethernet network.	**BTL 5**	Evaluate

PART B				
1.	Illustrate the EIA -232 interface standard and major elements of EIA -232 with the help of neat diagram .**(13)**		**BTL 3**	Apply
2.	Tabulate the difference between the EIA 232 , EIA 485 and EIA 422 standard.**(13)**		**BTL 2**	Understand
3.	Discuss about the, EIA 485 standard Configuration with neat diagram.**(13)**		**BTL 2**	Understand
4.	**i.**	Describe about the EIA 422 standard Configuration with neat diagram.**(9)**	**BTL 1**	Remember
	ii.	Summarize the limitations of EIA 422 standard Configuration.**(4)**		
5.	Illustrate in detail about ISO-OSI reference model with neat diagram.**(13)**		**BTL 3**	Apply
6.	**i.**	Describe in detail about the token passing protocol.**(6)**	**BTL 4**	Analyze
	ii.	Infer about medium access control mechanism(MAC).**(7)**		
7.	**i.**	Examine HDLC in terms of frame format and frame contents.**(7)**	**BTL 4**	Analyze
	ii.	Analyze the functions of Data link control protocol .**(6)**		
8.	Describe the functions of TCP/IP Protocol suite with neat diagram.**(13)**		**BTL 1**	Remember
9.	Write short notes on TCP/IP layer protocol. Also compare TCP/IP with OSI.**(13)**		**BTL 1**	Remember
10.	**i.**	Discuss about operation of open system bridge configuration.**(6)**	**BTL 2**	Understand
	ii.	Discuss the operation of different types of bridge configuration.**(7)**		
11.	**i.**	Examine the various functions of open system with routers configuration.**(6)**	**BTL-4**	Analyze
	ii.	Analyze various routing concepts in routers configuration.**(7)**		
12.	Enlist the connectionless gateway configuration and develop the process of transmitting a datagram from network to network.**(13)**		**BTL 6**	Create
13.	Elaborate the different types of Ethernet standard configuration for networks.**(13)**		**BTL 5**	Evaluate
14.	Describe in detail about project 802 standard with neat diagram.**(13)**		**BTL 1**	Remember

PART C			
1.	Design the Half-duplex operational sequence of EIA -232 with neat flow sketch between DTE and DCE over public switched telephone network. **(15)**	**BTL 6**	Create
2.	Assess the various functions of IEEE 802.3 MAC frame format with neat diagram.**(15)**	**BTL 5**	Evaluate
3.	Assess how media is accessed and collision is detected in CSMA/CD with neat flow diagram. **(15)**	**BTL 5**	Evaluate
4.	Assess the various functions of the layers in OSI model with neat diagram.**(15)**	**BTL 5**	Evaluate

UNIT II -PLC, PLC PROGRAMMING&SCADA				
Evolutions of PLCs – Programmable Controllers – Architecture – Comparative study of Industrial PLCs. –PLC Programming:- Ladder logic, Functional block programming, Sequential function chart, Instruction list and Structured text programming – SCADA:- Remote terminal units, Master station, Communication architectures and Open SCADA protocols.				
PART – A				
Q.No		**Questions**	**BT Level**	**Competence**
1.		Define PLC.	**BTL 1**	Remember
2.		Compare advantages of PLC over conventional relays.	**BTL 4**	Analyze
3.		List any four PLC input devices.	**BTL 1**	Remember
4.		Draw the PLC ladder diagram for NAND gate.	**BTL 3**	Apply
5.		Sketch the PLC ladder diagram for Ex-NOR gate.	**BTL 3**	Apply
6.		Express functional block diagram?	**BTL 2**	Understand
7.		Point out the applications of PLC.	**BTL 2**	Understand
8.		Draw the flow chart for Sequential function chart.	**BTL 3**	Apply
9.		Define Instruction list.	**BTL 1**	Remember
10.		Mention the uses of Structured text programming.	**BTL 4**	Analyze
11.		Develop a program that will cause output D to go to when switch A and switch B are closed or when switch C is closed.	**BTL 6**	Create
12.		Develop a ladder diagram that will cause the output pilot light PL_2 to be turned ON when the selector switch SS_2 is closed, push button PB_4 is closed and limit switch LS_3 is OPEN.	**BTL 6**	Create
13.		Define supervisory control.	**BTL 1**	Remember
14.		Identify the hardware elements of SCADA.	**BTL 2**	Understand
15.		Mention the communication architecture for SCADA.	**BTL 4**	Analyze
16.		Point out the applications of RTU.	**BTL 2**	Understand
17.		Evaluate the necessity of master station architecture of SCADA.	**BTL 5**	Evaluate
18.		Assess the necessity of communication protocols used in SCADA.	**BTL 5**	Evaluate
19.		Define RTU.	**BTL 1**	Remember
20.		List out the different levels of SCADA.	**BTL 1**	Remember
PART B				
1.	**i.**	Describe how PLC is categorized depending on its size and also discuss the applications? **(6)**	**BTL 1**	Remember
	ii.	Differentiate PLC and Conventional relay based logic system. **(7)**		
2.	Discuss about hardware components of PLC with neat diagram**. (13)**		**BTL 2**	Understand
3.	Discuss about architecture of PLC with neat diagram. **(13)**		**BTL 2**	Understand
4.	**i.**	Analyze the different types of PLC programming with neat diagram. **(5)**	**BTL 4**	Analyze
	ii.	Analyze the comparative study of Industrial PLCs with neat diagram. **(8)**		

<table>
<tr><td>5.</td><td colspan="2">Assess the various operation of Ladder logic with suitable example.(13)</td><td>BTL-5</td><td>Evaluate</td></tr>
<tr><td>6.</td><td colspan="2">Analyze the basic operation of Sequential function chart with suitable example.(13)</td><td>BTL 4</td><td>Analyze</td></tr>
<tr><td rowspan="2">7.</td><td>i.</td><td>Describe the operation of Functional block programming.(7)</td><td rowspan="2">BTL 1</td><td rowspan="2">Remember</td></tr>
<tr><td>ii.</td><td>Describe the operation of Instruction list and Structured text programming.(6)</td></tr>
<tr><td>8.</td><td colspan="2">Develop the ladder diagram for the following function table. Inputs – I_I, 1_2 Outputs – Q_I, Q_2, Q_3, Q_4 .
<table>
<tr><th>I_I</th><th>I_2</th><th>Q_1</th><th>Q_2</th><th>Q_3</th><th>Q_4</th></tr>
<tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr>
</table>
(13)</td><td>BTL 6</td><td>Create</td></tr>
<tr><td rowspan="2">9.</td><td>i.</td><td>Describe the functions of Open SCADA protocols. (7)</td><td rowspan="2">BTL 1</td><td rowspan="2">Remember</td></tr>
<tr><td>ii.</td><td>Write short notes on communication architectures in SCADA. (6)</td></tr>
<tr><td rowspan="2">10.</td><td>i.</td><td>Illustrate in detail about different levels of SCADA system.(6)</td><td rowspan="2">BTL 3</td><td rowspan="2">Apply</td></tr>
<tr><td>ii.</td><td>Illustrate the different components of SCADA system with neat diagram.(7)</td></tr>
<tr><td>11.</td><td colspan="2">Analyze the various architecture of SCADA with neat diagrams. (13)</td><td>BTL 4</td><td>Analyze</td></tr>
<tr><td rowspan="2">12.</td><td>i.</td><td>With neat block diagram, explain the basic operation of SCADA system. (7)</td><td rowspan="2">BTL 2</td><td rowspan="2">Understand</td></tr>
<tr><td>ii.</td><td>Discuss about SCADA system development cycle with neat diagram.(6)</td></tr>
<tr><td>13.</td><td colspan="2">Illustrate the hardware and software architecture of SCADA. (13)</td><td>BTL 3</td><td>Apply</td></tr>
<tr><td>14.</td><td colspan="2">Describe the function of RTU and master station in SCADA system.(13)</td><td>BTL 1</td><td>Remember</td></tr>
</table>

PART C			
1.	Develop the logic gates operations with the help of Functional block programming, Sequential function chart, Instruction list and Structured text programming.**(15)**	**BTL 6**	Create
2.	Evaluate the comparative study of Industrial PLCs with neat diagram. **(15)**	**BTL 5**	Evaluate
3.	compose the various components and architecture development of SCADA.**(15)**	**BTL 6**	Create
4.	Estimate the basic operation of SCADA and its applications. **(15)**	**BTL 5**	Evaluate

UNIT III -DISTRIBUTED CONTROL SYSTEM& HART			
Evolution - Different architectures - Local control unit - Operator Interface – Displays - Engineering interface - Factors to be considered in selecting DCS – Case studies in DCS. HART- Introduction- Evolution of signal standard – HART communication protocol – Communication modes – HART Networks – HART commands – HART applications – MODBUS protocol structure – Function codes.			
PART – A			
Q.No.	**Questions**	**BT Level**	**Competence**
1.	Define Distributed Control System (DCS) with an example.	**BTL 1**	Remember
2.	What do you mean by Local Control Unit?	**BTL 1**	Remember
3.	What are the different functions performed by DCS?	**BTL 1**	Remember
4.	What are the different types of display hierarchy used in DCS system?	**BTL 1**	Remember
5.	Assess the different types of operator display.	**BTL 5**	Evaluate
6.	Show the function of engineering interface.	**BTL 3**	Apply
7.	What is plant level in display hierarchy?	**BTL 2**	Understand
8.	Distinguish between low level and high level engineering interface.	**BTL 4**	Analyze
9.	Express the features provided in operator interfaces.	**BTL 2**	Understand
10.	Generalize any four factors to be considered in selecting DCS.	**BTL 4**	Analyze
11.	State the significance of HART Protocol.	**BTL 3**	Apply
12.	Generalize the different HART networks.	**BTL 4**	Analyze
13.	Discuss the two types of frame formats in HART protocol.	**BTL 3**	Apply
14.	Express about a typical HART signal.	**BTL 2**	Understand
15.	Define the message format in HART protocol.	**BTL 1**	Remember
16.	Summarize the advantages of HART protocol.	**BTL 2**	Understand
17.	List the HART commands.	**BTL 1**	Remember
18.	Compose different modes of digital transmission of data used by HART protocol.	**BTL 6**	Create
19.	Specify the transmission modes in which data is exchanged using MODBUS communication Protocol.	**BTL 6**	Create
20.	Assess the features of MODBUS communications.	**BTL 5**	Evaluate
PART B			
1.	**i.** Describe the evolution process of DCS with neat table. **(6)**	**BTL 1**	Remember
	ii. List out the basic requirements of Local Control Unit (LCU). **(7)**		
2.	Describe the different hierarchy of DCS with neat diagram. **(13)**	**BTL 1**	Remember
3.	Analyze the various architectures user for Local Control Unit (LCU). **(13)**	**BTL 4**	Analyze
4.	Analyze the functional requirements of operator interfaces in monitoring process control and process record keeping. **(13)**	**BTL 4**	Analyze

5.	**i.**	Examine the structure of typical display hierarchy of industrial control systems with suitable diagram. **(7)**	**BTL 5**	Evaluate
	ii.	Asses the various factors to be considered in selecting a DCS for a process. **(6)**		
6.	Analyze the functions and features incorporated in the engineering interface at low and high level applications with an suitable example. **(13)**		**BTL 4**	Analyze
7.	Describe the general building blocks of LCU with neat diagram. **(13)**		**BTL 1**	Remember
8.	**i.**	Describe the various communication modes of HART. **(7)**	**BTL 1**	Remember
	ii.	Describe the structure and elements of HART communication systems. **(6)**		
9.	Illustrate the importance of operator display used in any of the process industry**. (13)**		**BTL 3**	Apply
10.	**i.**	Discuss about Physical layer of the HART protocol in detail.**(8)**	**BTL 2**	Understand
	ii.	Discuss about Data link layer of the HART protocol in detail.**(5)**		
11.	**i.**	Illustrate the command instruction formats and reference model of HART communication.**(8)**	**BTL 3**	Apply
	ii.	Illustrate the typical application for HART communication protocol.**(5)**		
12.	Discuss about Common MODBUS function code and Read coil code**.(13)**		**BTL 2**	Understand
13.	Discuss about the MODBUS protocol with neat diagram.**(13)**		**BTL 2**	Understand
14.	Develop the model for HART protocol implementation of OSI-OSI layer .**(13)**		**BTL 6**	Create
	PART C			
1.	**i.**	Evaluate the three classes of HART command set and list 6 commands in each.**(11)**	**BTL 5**	Evaluate
	ii.	Assess the two possible configurations in which HART device can operate.**(4)**		
2.	Create the automation strategy of thermal power plant used in DCS. **(15)**		**BTL 6**	Create
3.	Develop a industrial case study of your choice and explain the role of DCS. **(15)**		**BTL 6**	Create
4.	Create the automation strategy of water treatment plant used in DCS. **(15)**		**BTL 6**	Create

UNIT IV- PROFIBUS AND FF			
Fieldbus: - Introduction, General Fieldbus architecture, Basic requirements of Fieldbus standard, Fieldbus topology, Interoperability and Interchangeability Profibus:- Introduction, Profibus protocol stack, Profibus communication model, Communication objects, System operation and Troubleshooting – Foundation fieldbus versus Profibus.			
PART – A			
Q.No.	**Questions**	**BT Level**	**Competence**
1.	Classify the types of Profibus.	**BTL 2**	Understand
2.	Summarize the features of Profibus.	**BTL 2**	Understand
3.	Give the advantages of Foundation Field Bus.	**BTL 2**	Understand
4.	List the sub layers in the application layer of Foundation Field Bus.	**BTL 1**	Remember
5.	Draw the Profibus protocol stack.	**BTL 3**	Apply
6.	Write the applications of FMS, DP and PA Profibus.	**BTL 1**	Remember
7.	Define data transmission services in Profibus.	**BTL 1**	Remember
8.	Compose the various diagnostic tools available for troubleshooting in Profibus.	**BTL 6**	Create
9.	Evaluate the main task of lower layer interface in Profibus protocol.	**BTL 5**	Evaluate
10.	List the contents in the structure of object dictionary which is used as communication object in Profibus station.	**BTL 1**	Remember
11.	Compose the various functions of Fieldbus standards.	**BTL 6**	Create
12.	Examine briefly about the command “write polling address”.	**BTL 5**	Evaluate
13.	Distinguish between interchangeability and interoperability.	**BTL 2**	Understand
14.	Show the difference between Profibus and Field bus.	**BTL 3**	Apply
15.	Define Field bus standards.	**BTL 1**	Remember
16.	Analyze the drawbacks of Field bus.	**BTL 4**	Analyze
17.	Point out different types of the Field bus topology.	**BTL 3**	Apply
18.	Give the advantages of Field bus.	**BTL 1**	Remember
19.	Analyze the data transmission services defined in Profibus.	**BTL 4**	Analyze
20.	Analyze the operations of LAS.	**BTL 4**	Analyze
PART B			
1.	**i.** Discuss about the HSE in Field bus architecture with neat diagram.**(7)**	**BTL 2**	Understand
	ii. Summarize the special features of foundation Fieldbus.**(6)**		
2.	**i.** Analyze the Field bus technology that supports various topologies.**(7)**	**BTL 4**	Analyze
	ii. With neat sketch, analyze the different ways in which devices are connected to the Field bus.**(6)**		
3.	With neat sketch explain the architecture of foundation field bus in detail.**(13)**	**BTL 3**	Apply

4.	Discuss about the H1 and H2 network in Field bus with neat diagram.**(13)**		**BTL 2**	Understand
5.	Express the communication services in Field bus Message Specification and explain it.**(13)**		**BTL 4**	Analyze
6.	Infer the precautions taken during wiring and installation of field bus system.**(13)**		**BTL 4**	Analyze
7.	Sketch and explain the various components of Foundation Field bus.**(13)**		**BTL 3**	Apply
8.	Describe the various functions of FAS with neat diagram.**(13)**		**BTL 1**	Remember
9.	Describe the basic requirements of Foundation Field bus.**(13)**		**BTL 1**	Remember
10.	**i.**	Write short notes on classification of Profibus.**(6)**	**BTL 1**	Remember
	ii.	Describe in detail about troubleshooting tools helpful in identifying Profibus communication problems.**(7)**		
11.	**i.**	Compose the Profibus communication model depicting the structure of virtual field device with object dictionary.**(6)**	**BTL 6**	Create
	ii.	Develop the various communication model and profile of Profibus.**(7)**		
12.	With neat sketch discuss the architecture of Profibus protocol stack.**(13)**		**BTL 2**	Understand
13.	Evaluate the different types of layers in Profibus and explain each in detail.**(13)**		**BTL 5**	Evaluate
14.	**i.**	What is Profibus protocol stack? Explain with suitable diagram.**(7)**	**BTL 1**	Remember
	ii.	What is communication object? Explain in detail the system operation of Profibus.**(6)**		

		PART C		
1.	**i.**	Evaluate the token passing mechanism of Profibus standard.**(8)**	**BTL 5**	Evaluate
	ii.	List the three OSI layers used in data highway protocol. Evaluate the symbols ,type and description for full duplex type of same protocol.**(7)**		
2.	Create the general architecture and topologies used in fieldbus communication.**(15)**		**BTL 6**	Create
3.	Compose the system operation of Profibus and classification of Profibus.**(15)**		**BTL 6**	Create
4.	Evaluate the basic components and architecture of Foundation field bus with neat diagram.**(15)**		**BTL 5**	Evaluate

UNIT V- AS – INTERFACE(AS-i),DEVICE NET AND INDUSTRIALETHERNET			
AS interface – Device net- Industrial Ethernet - Introduction to OLE for process control - WSN technology - IOT- IIOT.			
PART – A			
Q.No	**Questions**	**BT Level**	**Competence**
1.	Specify any four faults monitored by AS-i fault monitoring system.	**BTL 4**	Analyze
2.	What is Fast Ethernet? What are the different types of Ethernet?	**BTL 1**	Remember
3.	Point out the common standard Ethernet implementations.	**BTL 2**	Understand
4.	Evaluate the baud rate of the standard 10-Mbps Ethernet.	**BTL 5**	Evaluate
5.	State the purpose of ISA 100 committee.	**BTL 3**	Apply
6.	Examine the specifications of 10 Mbps and 100 Mbps Ethernet.	**BTL 5**	Evaluate
7.	What is meant by 10 Base T systems?	**BTL 1**	Remember
8.	Summarize the features of industrial Ethernet. And also list the different connectors used for industrial Ethernet.	**BTL 2**	Understand
9.	State the basic operation of OPC.	**BTL 3**	Apply
10.	Analyze how OPC allow reusing applications with different sets of process interface equipment.	**BTL 4**	Analyze
11.	Define WSN.	**BTL 1**	Remember
12.	What are the applications of WSN?	**BTL 1**	Remember
13.	Mention the main characteristics of a WSN.	**BTL 4**	Analyze
14.	Compose the main problems present in traditional layered approach.	**BTL 6**	Create
15.	What is mean by IOT?	**BTL 1**	Remember
16.	Summarize the different applications of IOT.	**BTL 2**	Understand
17.	Examine the characteristics of IOT.	**BTL 6**	Create
18.	Express the importance of IOT system architecture.	**BTL 2**	Understand
19.	Define IIOT.	**BTL 1**	Remember
20.	State the purpose of IIOT system architecture.	**BTL 3**	Apply

PART B				
1.	With neat diagram, explain the topology, media access and formats of Actuator sensor interface network solution.**(13)**		**BTL 3**	Apply
2.	Illustrate the working of physical layer and data link layer of AS-i interface, AS-i Master call up and slave response frame format.**(13)**		**BTL 3**	Apply
3.	Describe about the communication profile for Device net with necessary diagram.**(13)**		**BTL 1**	Remember
4.	**i.**	Describe 10 Base-2 and10BASE-T Ethernet in detail. **(7)**	**BTL 1**	Remember
	ii.	Describe about 10 Base-5 Ethernet system with neat diagram.**(6)**		

5.	Assess the various functions IEEE 802.2 Frame format for Ethernet. **(13)**		**BTL 5**	Evaluate
6.	Summarize the various cable media and transmission rate at 10 Mbps.**(13)**		**BTL 2**	Understand
7.	**i.**	Examine the cabling requirement of thin Ethernet.**(7)**	**BTL 4**	Analyze
	ii.	Compare the features of thin and thick Ethernet.**(6)**		
8.	**i.**	Describe 100 Mbps Ethernet with its specifications in brief.**(7)**	**BTL 1**	Remember
	ii.	Describe the various features of wireless LAN.**(6)**		
9.	**i.**	Distinguish between the IEEE 802.3 and Ethernet V2.**(7)**	**BTL 2**	Understand
	ii.	Discuss about the MAC Frame format in Ethernet .**(6)**		
10.	**i.**	Describe the OLE for process control applications**.(10)**	**BTL 1**	Remember
	ii.	What is the need and list the benefits of OPC.**(3)**		
11.	Compose the various characteristics and applications of Wireless sensor network.**(13)**		**BTL 6**	Create
12.	Analyze the recent trends and characteristics of IOT. **(13)**		**BTL 4**	Analyze
13.	**i.**	Discuss the architecture of Internet Of Things. **(7)**	**BTL 2**	Understand
	ii.	Summarize the various applications of IOT. **(6)**		
14.	Analyze the characteristics, architecture and various applications of IIOT.(**13)**		**BTL 4**	Analyze

PART C			
1.	Compose the various features of industrial Ethernet and comment on its superiority over standard Ethernet.**(15)**	**BTL 6**	Create
2.	Assess the various topology used in thick and thin Ethernet **(15)**	**BTL 5**	Evaluate
3.	Evaluate the various types of Connectors used in industrial Ethernet.**(15)**	**BTL 5**	Evaluate
4.	Create the current ongoing issues of Wireless sensor network**.(15)**	**BTL 6**	Create