Register Number:……..

KUMARAGURU college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: APRIL /MAY 2024

(Regulation 2018)

Fourth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U18EIT4005: Ancillary Support Systems

COURSE OUTCOMES

CO1: Evaluate the basic principles of EMI/EMC problem identification, design, and prevention, Earthing and shielding principles, procedures and practices.

CO2: Evaluate the principles of power distribution systems and system components.

CO3: Develop a wiring diagram for a control panel.

CO4: Illustrate the operation of hydraulic and pneumatic systems.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

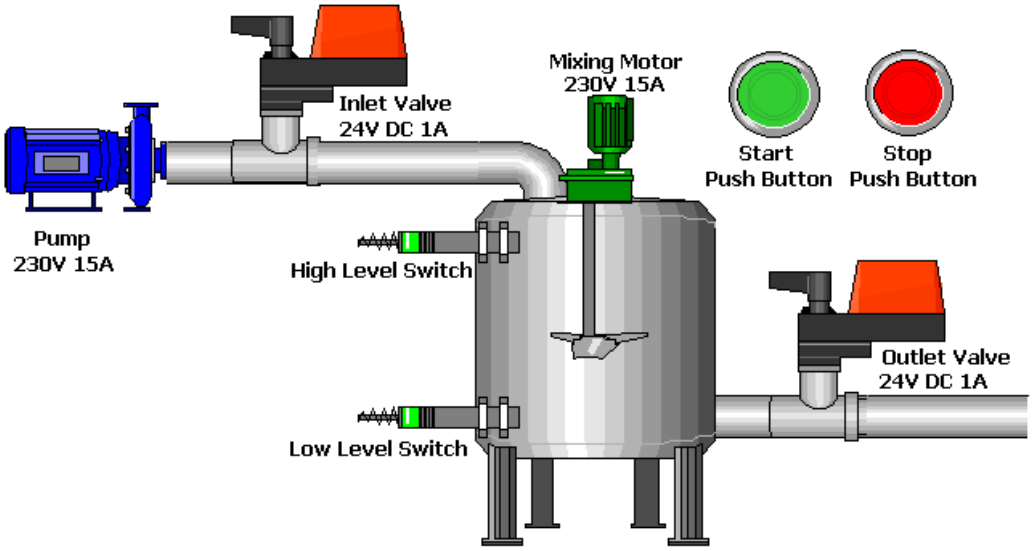
1.	Compare Relay and contactor.	CO3	[K_2]
2.	Short note on Fourier representation of EMI.	CO1	[K_2]
3.	Compare the function of circuit breaker and isolator	CO2	[K_4]
4.	Classify the insulation classes used in industries	CO2	[K_2]
5.	Summaries the safety and grounding technique used in electronics circuit.	CO1	[K_2]
6.	How do you calculate the internal resistance of a conductor?	CO2	[K_2]
7.	Why does most of the pressing machines operates with hydraulic system?	CO4	[K_4]
8.	State the selection procedure of variable frequency drive (VFD)	CO3	[K_2]
9.	What is the role of neutral and earth connection in the electrical circuit	CO2	[K_2]
10.	List the panel wiring accessories.	CO3	[K_2]

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

11.	a)	Explain the methodology used to detect EMI and analyze their performance and measures used to eliminates such problem	10	CO1	[K_4]
	b)	Analyze the power house safety and explain the protective methods	06	CO2	[K_2]

12.	a)	Develop and explain a suitable electrical connection for the power distribution circuit using Three Source Single Bus with Bus Coupler with mechanical interlock	10	CO2	[K_3]
	b)	Describe the effect of stray capacitance fault occurring in the electronics circuits	06	CO1	[K_2]
13.		Develop a Power and Control wiring for the following system  Start PB and Low Level Switch – ON – Inlet Valve ON Then Pump ON When the High Level Switch – ON – Inlet Valve and Pump OFF Then Mixing Motor ON after delay 20 sec Mixing Motor OFF and Outlet Valve – ON When the Low Level Switch – ON – Outlet Valve - OFF	16	CO3	[K_3]
14.	a)	List and describe the types of direction control valves are involved in hydraulic and pneumatic circuits	10	CO4	[K_3]
	b)	Explain the operation of soft starter and list the merits and demerits	06	CO3	[K_2]
15.	a)	Explain the different types of operation modes in variable frequency drive with suitable diagram	10	CO3	[K_2]
	b)	Build a suitable diagram and explain the hydraulic supply system	06	CO4	[K_2]
16.		Develop a electro-pneumatic circuit for the following condition Start PB – ON Cylinder 1 Move Forward When the cylinder 1 forward sensor – ON Cylinder 2 Move Forward When the cylinder 2 forward sensor – ON then delay 10Sec Both Cylinder move Reverse	16	CO4	[K_3]

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