Sanjay Ghodawat University, Kolhapur

2020-21

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/00

Year and Program: TY B. Tech	**School of Technology**	**Department: Electronics**
Course Code: ECE302	**Course Title: Mechatronics**	**Semester : VI**
Day and Date:	**End Semester Examination**	**Time:2 Hrs.** **Max Marks:50**

Instructions: 1) All Questions are compulsory.
2) Assume data wherever necessary.

Q.1		**Answer the following (any Two)**	**Marks**	**Bloom's Level**	**CO**
	a)	Illustrate conversion of a four stroke engine to a mechatronics system.	8	L3	CO1
	b)	Discuss in brief the closed loop control system with an example.	8	L1	CO1
	c)	Describe working principle of DC motor with neat schematic diagrams.	8	L2	CO2
Q.2		**Answer the following (any two)**			
	a)	A controller has an output of a 4-20 mA signal for controlling the speed of a motor from 500 to 1500 rpm. Calculate the value of controller output at 900 rpm in percent of control output.	8	L5	CO3
	b)	Illustrate PI controller with neat schematic and an example.	8	L2	CO3
	c)	Design and describe using a block diagram a PLC based bottle sorting machine based on any one parameter: Height or Weight or length.	8	L4	CO4
Q.3		**Answer the following (any two)**			
	a)	Compare and Contrast between Conventional system, NC systems and CNC systems.	9	L3	CO5
	b)	Describe the following case study with neat schematic /block diagram – Autopilot for ships/boats	9	L3	CO5
	c)	Design and illustrate an Antilock-brake system for a vehicle.	9	L4	CO6

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