DHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : Mechatronics (18ME3019) **Course & Branch**: M. Tech –CAD&M

Year & Sem: II-M. Tech & I-Sem **Regulation:** R18

UNIT-I

1.	a	Outline the mechatronic design considerations?	6M
	b	Explain the term Mechatronics with suitable examples.	6M
2	a	Distinguish between intelligent machine and automatic machine?	6M
	b	Describe the overview of mechatronics products?	6M
3	a	Draw the basic elements of a mechatronics system block diagram and explain it?	6M
	b	What are the technologies are integrated in mechatronics system?	6M
4	a	What are the design considerations for mechatronics system?	6M
	b	What is intelligent machine?	6M
5	a	What is artificial intelligence and what are the goals?	6M
	b	Distinguish between intelligent machine and automatic machine on economic justifications?	6M
6	a	What are the mechatronics tradeoffs?	6M
	b	Define mechatronics definition with suitable block diagram?	6M
7	a	How autofocus camera works explain with block diagram?	6M
	b	What is latest research in mechatronics and its applications	6M
8	a	Write drawbacks of mechatronics system?	4M
	b	What is machine intelligence? List out basic concepts associated with intelligent machine?	8M
9		Differentiate between intelligent machine and automatic machine?	12M
10	a	What are the social justifications between IM and AM?	6M
	b	Explain evaluation of mechatronics system with diagram?	6M

UNIT-II

1	a	Discuss the mechanical drive system in mechatronics applications?	6M
	b	Elaborate the general aspects of the electrical actuators?	6M
2	a	Differentiate among Hydraulic Pneumatic and Electrical actuation systems.	6M
	b	What are the characteristics of mechanical actuators?	6M
3	a	What are the typical applications of actuators?	6M
	b	What is the purpose of motion control?	6M
4	a	What is motion control and list out types of controls?	6M
	b	What is actuators? List out different types of actuators	6M
5	a	Define s curve and explain s - curve analysis?	6M

	b	Elaborate mechanical configurations?	6M
6	a	What is mechanical actuation system and draw block diagram?	6M
	b	Explain electrical actuation system?	6M
7	a	What is actuation system and list out few actuators?	6M
	b	Elaborate hydraulic- pneumatic linear actuators?	6M
8	a	Draw popular control system configuration and explain it	8M
	b	What are the types of control systems and list out at least two examples each?	4M
9		Distinguish characteristics of mechanical and electrical products system?	12M
10		Distinguish between feed forward control system and control system with diagram?	12M

UNIT-III

1	a	Draw a block diagram of microcontroller and list out of terms used in microprocessor?	6M
	b	Differentiate between Microprocessor and Microcontroller.	6M
2	a	Which is promising alternative approach for control system design explain it?	6M
	b	Express feed forward control and its limitation?	6M
3	a	What are the different structures of the fuzzy logic controller?	6M
	b	With neat diagram explain programmable logic controller (PLC)?	6M
4	a	What are the stages in system design?	6M
	b	What does PLC Mean?	6M
5	a	Describe architecture of intelligent machine?	6M
	b	What are the Programmable logic control advantages and disadvantages ?	6M
6	a	Draw block diagram of Adaptive control system and explain it?	8M
	b	What are the features of microprocessor	4M
7	a	What Artificial intelligence can do?	6M
	b	How does microprocessor work list out terms used in microprocessor?	6M
8	a	With an example explain ladder logic used in PLC.?	6M
	b	What are the Motivations for Fuzzy Control Systems Theory?	6M
9		Elaborate architecture of intelligent machine (IMA)?	12M
10	a	What are the variety of product configurations that can be used for optically bonding electronic displays?	6M
	b	What are the classification of systems? Explain any one system?	6M

UNIT-IV

1	a	What are the main benefits of using a DBMS to manage data in applications involving extensive data access?	6M
	b	When would you store data in a DBMS instead of in operating system files and vice versa?	6M
2	a	Describe the structure of DBMS with neat diagram	6M
	b	What is cad cam database? Compare step pulley with cad cam database?	6M
3	a	What is graphic data base?	6M
	b	What are the object oriented concepts? describe any four concepts	6M
4	a	Define data manipulation, classifying, sorting, summarizing?	6M
	b	Identify the drawbacks of object orient concepts?	6M
-5	a	Name three popular DBMS and explain each DBMS?	6M

	b	Distinguish a data base oriented approach to data management advantages?	6M
6	a	What are the applications of Database technology?	6M
	b	Explain relational, Hierarchical, and Network DBMS?	6M
7	a	Distinguish between data base and file base management?	6M
	b	Explain abstraction, encapsulation and inheritance with examples?	6M
8	a	What are the potential benefits of object oriented concepts?	6M
	b	Difference between interface and abstract class?	6M
9		Briefly explain object oriented model language interface? Why interface is used?	12M
10		Outline the DBMS, CAD/CAM database, graphic database?	12M

UNIT-V

1	a	Elaborate sensor interfacing?	6M
	b	What is a Sensor and How does it Work? Define analog and digital sensor	6M
2	a	Explain interfacing of pressure sensor?	6M
	b	What is digital transducer and encoder	6M
3	a	What is sensor? give a classification of sensors	6M
	b	What does Human-Machine Interface (HMI) mean?	6M
4	a	Describe cognitive process in decision making and characteristics of decision making?	6M
	b	What is Machine Vision & Explain Feature & pattern recognition	6M
5	a	What are the influences in decision making?	6M
	b	What is over view of machine vision?	6M
6	a	What are the key features of M2M	4M
	b	Explain analog sensor for motion and list 4 motion transducers?	8M
7	a	What are the M2M applications and examples	6M
	b	What are the advantages of digital transducer?	6M
8		What is sensor interfacing and explain interfacing of pressure sensor?	12M
9		What is interfacing? Differentiate between M2M and HMI?	12M
10		What is cognition and perception? How they play in decision making?	12M