NETTUR TECHNICAL TRAINING FOUNDATION

DIPLOMA IN MECHATRONICS ENGINEERING & SMART FACTORY-CP15

V SEMESTER SUPPLEMENTARY EXAMINATION-JUNE 2023

Subject: Product Design & Development **Total Time: 2 Hr.**
Subject Code: CP15505T **Total Marks: 50 Marks**

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

1.1 What is the prototype in designing?
1.2 Why do we do prototyping in design thinking?
1.3 What is design review?
1.4 List out few examples of pre- launch control plan
1.5 What is an actuators and what are its types?
1.6 Why in empathize methods - asking What- How-Why is implemented?
1.7 What is the 5W Tool in design thinking?
1.8 What is APQP? List out the 3 phases of APQP?
1.9 What is the purpose of PFMEA?
1.10 Define Product planning

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

2.1 In the designing process, what is the role of “Refine the design "?
2.2 What are some pros and cons about taking online classes?
2.3 Explain the various factors in brainstorming
2.4 Explain the historical warranty and quality information.
2.5 Tabulate the checklist of DFMEA
2.6 When we called it as significant production run?
2.7 Draw production - Consumption cycle
2.8 What is the difference between Mechatronics systems and Conventional systems?

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

3.1 What are the benefits of simulation? Explain the process of simulation
3.2 Interpret the Customer journey map with 5W tool with the checklist.
3.3 Write a short note on the following:
1. Voice of the customer .2.Marketing strategy 3. Process benchmark data
3.4 Write a short note on TTM with examples
3.5 What are the 12 step in design process?
3.6 Draw neat block diagram of mechatronics key elements

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DIPLOMA IN MECHATRONICS-CP15

V SEMESTER SUPPLEMENTARY EXAMINATION-JUNE 2023

Subject: Mechatronics System Design **Total Time: 2 Hr.**

Subject Code: CP15 05 03 **Total Marks: 50**

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING **2*8=16**

1.1 Brief about Top-down approach.
1.2 Write about the analogies diagram.
1.3 Define On- line Quality monitoring.
1.4 Brief the term potentiometer.
1.5 List out the benefits of Mechatronics. (Any 2)
1.6 State concurrent engineering.
1.7 List out the model categories.
1.8 Define E-manufacturing.
1.9 Define Real-Time interfacing.
1.10 List the basic building blocks of mechanical system.

2.0 ANSWER ANY SIX OF THE FOLLOWING **3*6=18**

2.1 Explain about conventional product and mechatronics product.
2.2 Give short note on mechanical rotational system.
2.3 Explain Optimization in mechatronics.
2.4 Explain the integrated design issues in mechatronics.
2.5 Mention two benefits of simulation.
2.6 List the challenges before R & D in mechatronics.
2.7 List various degrees of validity and explain any two of them.
2.8 Draw the block diagram of MEMS package.

3.0 ANSWER ANY FOUR OF THE FOLLOWING **4*4=16**

3.1 Write about ANN, how we can implement ANN?
3.2 Explain electrical system building blocks.
3.3 Explain the Fuzzy Logic Application in Mechatronics.
3.4 Discuss in detail about Potential (PV) and Flow (FV) variables?
3.5 Explain Supervisory Control in Manufacturing Inspection with neat diagram
3.6 Briefly explain the mechatronics design process.