

# National Institute of Technology Hamirpur

End Semester Examination

Course Name : Product Design and Development (Open Elective)  
Course Code : ME 371

Time: 10 AM-12 PM  
Max. Marks: 40

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**Instructions:**

1. Write your answers in your **own handwriting**
2. Clearly mention the question number against each answer
3. **Each student shall write Name, Roll No, Subject Code on top of the first sheet**
4. **Put Signature with Date at the bottom of each page of the answer sheet**
5. Scan and Upload the answer sheet (**PDF FORMAT**)
6. **Draw hand sketch wherever required**

- Q.1. Design a water dispenser system or kiosk on a platform at railway station, which fulfills the objective of Physical ergonomics or Human Factors consideration. Select any four criteria for the Human Factors consideration. **10**
- Q.2. Mr. XYZ has lost his arm in an accident. He is very fond of wristwatches, unfortunately he is not able to put wristwatch easily due to the loss of one of the vital limbs from his body. A design solution is needed which can provide him the ease to wear a wristwatch. For that solution create a need-matric relationship matrix for the center house of Quality function deployment (QFD). Specify the hand (right or left) you are designing for? **10**
- Q.3. In a survey conducted by ABC Company, a basic customer requirement is identified which is to have wired earphones that do not tangle while usage. Follow proper scheme/steps to generate a concept to solve the aforementioned problem. Explain the product architecture by physical and functional decomposition of the designed concept. Plot a contradiction table for the required features and undesired results. In addition, map the entire FRs with DPs. **20**