

ADMISSION NUMBER											

School of Engineering
B.TECH Mechanical Engineering
Semester End Examination - Nov 2023

Duration : 180 Minutes
Max Marks : 100

Sem VII - BME033 - Advanced Welding Technology

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

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| 1) | Outline the main welding safety standards and regulations that govern welding operations, and relate how compliance with these standards ensures a safe working environment for welders and others involved in welding activities. | K1 (2) |
| 2) | Suppose you are tasked with improving the welding automation system in an industrial facility. Create a detailed plan outlining modifications, technological advancements, and process changes to optimize productivity and quality. | K2 (4) |
| 3) | List three common weld repair techniques used to rectify welding defects, and explain when and how they should be applied. | K2 (6) |
| 4) | Justify the selection of specialized welding materials and alloys based on their suitability for specific applications, considering factors such as strength, corrosion resistance, and weldability. | K3 (9) |
| 5) | Analyze the benefits and challenges of welding automation in the context of a specific industry, considering factors such as cost-effectiveness, productivity, quality, and safety. | K3 (9) |
| 6) | Interpret the importance and influence of proper joint design, welding parameters, and material selection on the occurrence and prevention of common welding defects, providing recommendations for minimizing defect rates. | K5 (10) |
| 7) | Suppose you are tasked with improving the welding automation system in an industrial facility. Create a detailed plan outlining modifications, technological advancements, and process changes to optimize productivity and quality. | K4 (12) |
| 8) | Explain the importance of safety in advanced welding operations, and list three potential hazards associated with advanced welding processes. | K5 (15) |
| 9) | Propose a design for a robotic welding cell that maximizes efficiency and minimizes cycle times, considering factors such as workpiece accessibility, tooling optimization, and safety measures. | K5 (15) |
| 10) | Formulate a comprehensive troubleshooting plan for identifying and solving complex welding defects, including a step-by-step procedure for root cause analysis and the implementation of corrective measures. | K6 (18) |