

Subject: Manufacturing Science

Subject code: ME24109

Time: 2 Hours

Max.Marks: 50

Note: Draw sketches wherever necessary. Each question carries equal marks.

Q.No	Questions	Marks
1	<p>Describe the essential tools used in a carpentry workshop, their functions, and the common defects in timber, including how these defects can impact the quality of the finished product.</p> <p style="text-align: center;"><i>OR</i></p> <p>Explain the different types of joints used in carpentry, detailing their construction, applications, and advantages. List the tools required for making each type of joint and describe their specific roles. Additionally, provide a schematic diagram for each joint to illustrate its structure.</p>	10
2	<p>Define welding and explain how it differs from other metal joining processes such as soldering and brazing. Additionally, describe the purpose of an electrode in welding and discuss the different types of electrodes and their applications.</p> <p style="text-align: center;"><i>OR</i></p> <p>Describe the composition of the coating material applied to welding electrodes and explain its functions during the welding process. Additionally, discuss the various defects that can occur in welding, their causes, and possible remedies.</p>	10
3	<p>Explain the casting process, the elements of a sand mould, and the role of a tapered sprue and riser, including how to determine a riser's size, shape, and location. Also, outline the types of moulds used in foundry operations.</p> <p style="text-align: center;"><i>OR</i></p> <p>Discuss the materials commonly used for making patterns in industrial applications. What are the key criteria for selecting materials for pattern making, and what types of allowances are typically provided in patterns? Assume to make a soap case and write and draw the steps for the same.</p>	10
4	<p>Describe the procedure for filing a workpiece, including the types of files used in a fitting workshop, and explain the role of templates and jigs in ensuring consistency during fitting operations. Additionally, list and briefly explain the functions of various tools commonly used in a fitting shop.</p> <p style="text-align: center;"><i>OR</i></p>	10

	<p>Justify the significance of marking and measuring tools in fitting operations. Why are they essential for achieving precision and accuracy?</p> <ul style="list-style-type: none"> • Name at least three marking and measuring tools commonly used in the fitting shop and explain their uses. • Identify at least five common safety measures that should be followed while working in a fitting shop and explain their importance. 	
5	<p>How do carpentry, casting, fitting, and welding processes interrelate and complement each other in the production of a complete product? Explain the role of each process in achieving the final assembly, providing a suitable example.</p> <p style="text-align: center;">OR</p> <p>How are tools used in carpentry and fitting classified? Provide a detailed classification of tools based on their functions and applications. Choose any one trade of your preference and list all the tools commonly used in that trade, along with their specific purposes.</p>	10