3055 BA SANGAM COLLEGE

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LESSON NOTES

School: Ba Sangam College **Year/Level: 12** **Name:**

Subject: Applied technology **Worksheet 17** **Year:**

Strand	Welding and Fabrication
Sub Strand	Cutting and Forming Process
Content Learning Outcome	Differentiate between fusion and solid state welding

In a fusion weld, the metal is melted.
In a solid state weld, the metal is not melted

1. Faying surfaces of the base metals are fused to form coalescence during welding. Filler metal, if used, is also fused.	1. No melting takes place in solid state welding. However, base metals may be heated to an elevated temperature without melting.
2. Application of heat during welding is necessary. Heat can be applied by various means such as electric arc, fuel-gas flame, resistance heating, laser beam, etc.	2. No such heat source is usually required, but pressure may be applied externally for welding.
3. Filler material can be applied easily.	3. Usually no filler is applied.
4. Noticeable heat affected zone (HAZ) exists surrounding the weld bead.	4. HAZ is usually not noticeable. A narrow HAZ may exist in certain cases.
5. Mechanical properties of the parent materials are severely affected because of intense heating.	5. Mechanical properties usually remain unaltered in solid state welding. Sometimes minor changes may occur.
6. Level of distortion is very high owing to excessive heat input per unit area.	6. Solid state welding produces minimal distortion.
7. Examples: arc welding, gas welding, resistance welding, intense energy beam welding processes.	7. Examples: roll welding, pressure welding, friction welding, diffusion welding, etc.

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Review question (5 marks)

1. Define Fusion weld and Solid state weld?

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(2 marks)

2. Which type of welding needs heat for welding?

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(1 mark)

3. Give two examples of Fusion welding?

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(1 mark)

4. Give two examples of Solid state welding?

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(1 mark)