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|  German University in Cairo | <h1>EDPT 601</h1> <h2>Materials Manufacturing Technology</h2> |  |
| <h3>Assignment 6</h3> <h3>Welding</h3> | | |
| Student Name _____ _____ Semester _____ Student ID _____ Group _____ | | Date ____/____/____ dd / mm / yy |
| <i>(For instructor use only)</i> <h3 style="text-align: center;">Evaluation</h3> | | |
| Grade | | |
| <u>Comments</u> | | |

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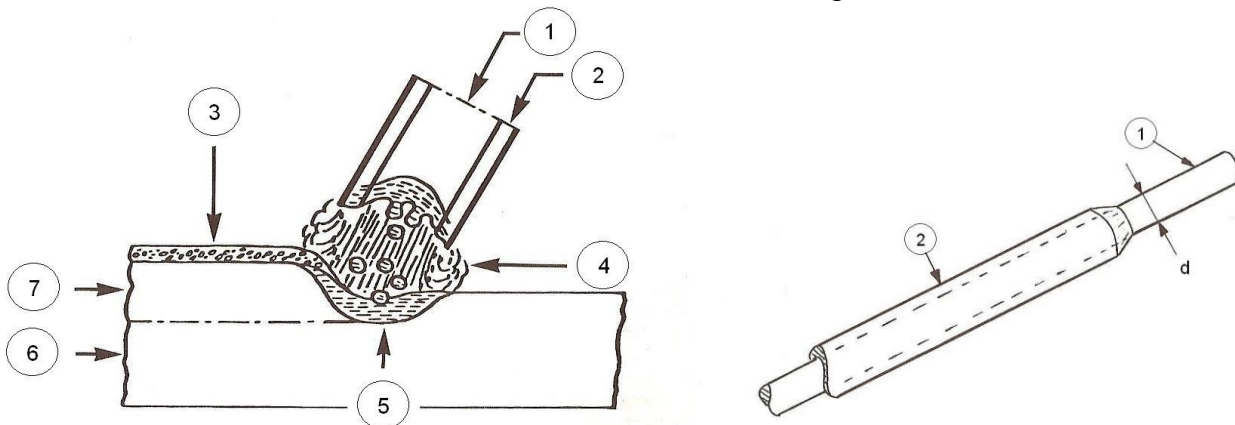
Eng. Mohamed Magdy

Part 1: Shield Metal Arc Welding (SMAW)

Question 1:

A] Show using net sketch, the arc welding basic circuit and discuss the operation theory.

B] The following figure shows the coated electrode, during the fusion in a SMAW process; identify the main components of the following.



| Number | Name |
|--------|------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |

C] Sketch the joint used in the experiment and the edge preparation

D] What are the functions of the wire electrode coating? (Write 6 items at least)

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E] What are the main applications (alloys, thicknesses, joints) of SMAW?

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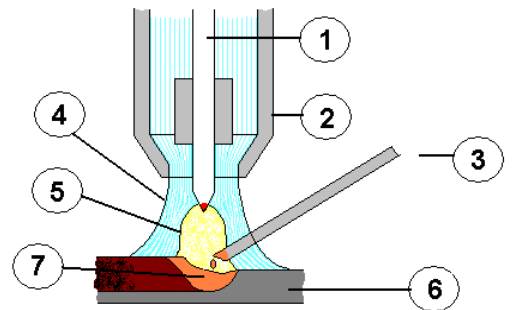
Part 2: Gas Tungsten Arc Welding (GTAW) *Previously called: Tungsten Inert Gas (TIG)*

Question 2:

A] With the help of a schematic drawing, show the main components of the GTAW equipment. (Write down the name of each component you draw)

B] Complete the following:

| No | Description |
|----|-------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |



Part 3: Plasma Cutting

Question 3:

A] With the help of a schematic drawing, show the main components of the Plasma Cutting process. (Write down the name of each component you draw)

B] What are the gases used in plasma cutting?

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C] Mention other thermal processes used for cutting and compare with plasma technique

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Part 4: Resistance Spot Welding (RSW)

Question 4:

A] With the help of a schematic diagram, show the main components of the RSW equipment. (Write down the name of each component you draw)

B] Draw the current, pressure variation in a welding cycle

C] What are the conditions, main applications and types of joints of the RSW.

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D] Mention other types of resistance welding

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