

**Federal University of Technology, Minna**  
**School of Science and Technology Education**  
**Industrial and Technology Education Department**  
**Second Semester Examination, 2021/2022 Session**

**Course Code/Title:** ITE 382 Foundry Processes

**Instruction:** Answer Four (4) Questions Only

**Time:** 2 hours

**Credits:** 2

**Question 1.**

- 1a. Comprehensively differentiate between, Casting, Machining and Fabrication stating the advantages and disadvantages of each.
- 1b. Identify four types of casting processes and critically discuss each.

**Question 2.**

- 2a. Discuss safety precaution in the foundry shop, taking in consideration, Dust, Fire, Gases, Furnes, Noise e.t.c.
- 2b. Identify and discuss various classes of fire and how they can be controlled when there is occurrence.

**Question 3.**

- 3a. In constructing a pattern, certain considerations are crucial, list such considerations and discuss in detail each.
- 3b. Write brief notes on each.
  - (i). Patterns, (ii). Mould, (iii). Core, (iv). Cope & Drag and (v). Foundry tools.

**Question 4.**

- 4a. The quality of foundry sand is often the greatest factor in determining the quality of casting. Comprehensively discuss, sand preparation, controlling and handling of moulding sand.
- 4b. Discuss six moulding sand properties in foundry.

**Question 5.**

- 5a. Identify with the aid of sketch and clear explanation the four general sand grain shapes in foundry.
- 5b. Sand testing in foundry is considered crucial. Discuss five important properties of moulding sand that needs to be conducted before any casting exercise.

**Question 6.**

- 6a. The following are problems usually associated with sand casting. Explain what they are, their causes and probable remedies. (a). Shrinkages (b). Porosity (c). Misruns and cold shuts (d). Excessive grain size and (e). Inclusions.