

Federal University of Technology, Minna
Department of Industrial and Technology Education,
First Semester 2017/2018 Examination

Course Title: Machine Shop I
Course Code: MWT 312
Time Allowed: 2 hours 30 mins
Instructions: (i) Attempt Any Four (4) Questions (Each Question Carries 15 Marks)

Question I:

- 1a. Name five essential requirements of a standard lathe and discuss each succinctly.
- 1b. List five parts of the lathe discuss their functions
- 1c. Draw a cross section of the lathe tail stock (label your sketch)

Question II:

- 2a. Assuming you are invited to present a paper to JSS III basic technology students on safety precaution in the workshop, write not more than three pages what you think these children should know about safety precautions.
- 2b. Identify classes of fire and discuss each.

Question III:

- 3a. Show clearly how a long cylindrical job is mounted between centers for effective turning (label your sketch).
- 3b. Write detail note on the following:
 - (i) Lathe chucks (ii) Centers (iii) Lathe steadies (iv) driving plate (v) face plate (support your explanations with sketches).

Question IV:

- 4a. Differentiate between sensitive, pillar radial and multi-spindle drilling machines
- 4b. with the aid of a good sketch draw a tapered shank drill (comprehensively label your sketch)
- 4c. List ten essential hints that facilitate good drilling operation.

Question V:

- 5a. Differentiate between horizontal and vertical milling machine.
- 5b. Write short notes and backed with sketches the following (i) Milling cutting tools (ii) up cut and down cut milling (iii) Gang and straddle milling (iv) arbor and arbor support brackets (v) column and over arm.

Question VI:

- 6a. Write short notes on the following:
 - (i) Grinding wheel (ii) Abrasive (iii) Bond (iv) Grit and Grade (v) Wheel structure
- 6b. with the aid of sketch, draw the following and label them.
 - (i) Edges of abrasive grains ejecting from face of the wheel (ii) An already mounted Grinding wheel.