FEDERAL UNIVERSITY OF TECHNOLOGY MINNA, NIGER STATE
DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION
SCHOOL OF TECHNOLOGY EDUCATION
FIRST SEMESTER 2021/2022 EXAMINATION

ITE 372: MACHINE SHOP 1
TIME ALLOWED 2 HRS 30 MINS.
INSTRUCTIONS: ATTEMPT ANY 4 QUESTIONS (EACH QUESTION CARRIES 15 MARKS)
GOOD GRAMMATICAL EXPRESSIONS & NEAT SKETCHES SHALL BE REWARDED

Question I:

1a. Draw a cross sectional of a tail stock label the parts and explain its main functions.

1b. List five major parts of a lathe machine and discuss in details how they function and their purpose.

1c. Sketch five major operations that could be performed on the lathe.

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. Discuss with the aid of sketch and comprehensively explain the effect of tool position on tool angles.

Question III

3a. Show clearly how a long cylindrical job is mounted between centers for effective turning (label your sketch).

3b. Write detail notes 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 pillar, Radial and multi spindle drilling machines.

4b. Show clearly with the aid of sketch and explanations how a tapered shank drill is ejected from a drilling machine spindle.

4c. Identify five drill faults, causes and remedies.

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 IV

6a. Write short notes on the following work holding methods on the milling machine.

- **a.** Rotary milling table
- **b.** Mounting between centers
- **c.** Dividing head and chuck
- **d.** Using special fixtures
- **e.** Machine vice.

6b. Differentiate between cutters used on the vertical milling and horizontal milling machine.