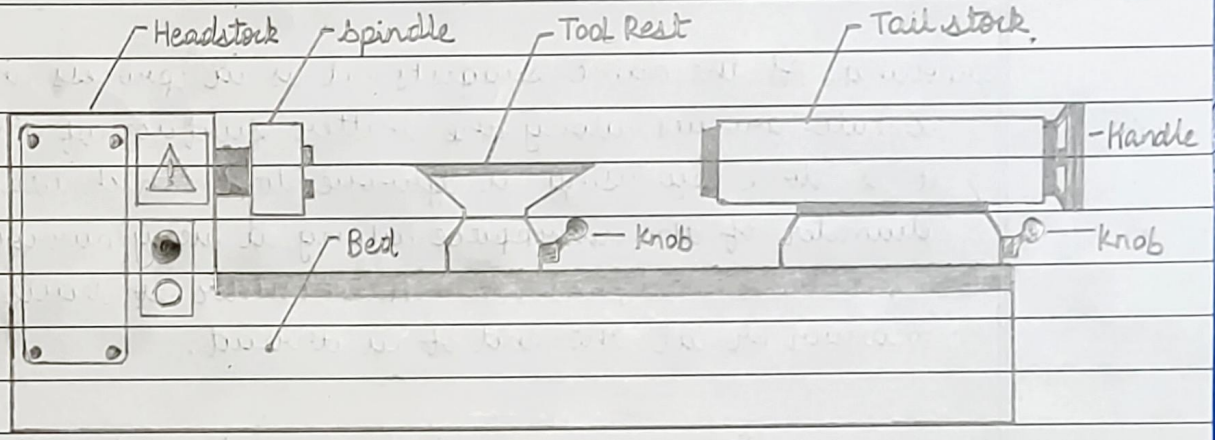
Name: Pargat Singh
Roll no: 16010121045
Batch: A2

Assignment 1

Machine shop

Q1) Draw a neat sketch of Lathe machine & label its parts.

Ans)



Q2) Give brief information of lathe operations.

Ans) Facing: During machining, the length of workpeices is slightly longer than the final finished product. Facing is a common machine process which involves the use of lathe or milling machine to remove material from the ends or shoulder of a workpeice. The tool moves along the radius of the workpeice to produced the desired part length & the smooth face surface is obtain by removing a thin layer of material.

Drilling: The operation removes the material from the inside of the workpeice. The radius of the hole is equal to the ½ size of drill bit piece used to drill the hole. The drill bits are usually positioned either on a tailstock or tool rest.

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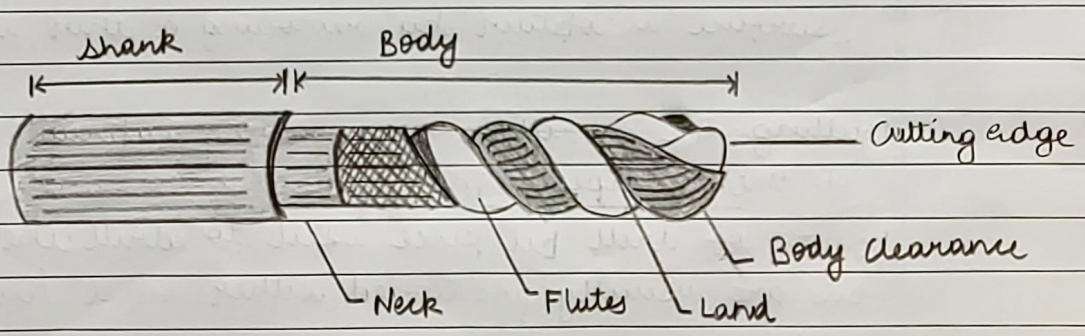
Turning: Turning is a machine process where in we remove the excess metal from the outter diameter of a rotating cylindrical workpeice. It is generally used to reduce the diameter of the workpiece, usually to a specified dimension & to get the final smooth finishing.

Grooving: As the name suggests, it is a process in which we create grooves along the outter surface of the workpeice. It is done by using a groove tool which reduces the diameter of the workpiece along a very narrow surface. Often done adjacent to a shoulder to leave a small margin or at the end of a thread.

Chamfering: The process in which we get a bevelled surface at the edge of cylinder workpeice. This operation is done in case of bolt end & shaft ends. Chamfering helps to avoid damage to the sharp edges. Chamfering of bolts helps it to fit easily in the nut, it also protects the worksmith from getting hurt while working on the workpiece.

Q3) Draw a neat sketch of twist drill and show its parts.



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Q4) List the machines available in our college workshop.

Ans) The machines in our college machine shops are:

1. Kirloskar mark lathe machines
2. Parmer Marke Lathe machines
3. Pedestle grinder (10" size)
4. Bench grinder (6" wheel size)
5. Shapping m/c (18" stroke & 24" stroke)
6. Universal milling m/c (with & without vertical attachment)
7. Pillar type drilling m/c
8. Sensitive drilling m/c
9. Tool & cutter grinder
10. Power saw (12" blade)
11. Single spindle lathe
12. Surface grinder.
13. Bench vice (6" size)

Q5) Write down the safety precautions while working in machine shop.

Ans) The precautions are as follows:-

- Always wear proper safety equipment like glasses, face shields, gloves, aprons and other measures before working on any machine.
- Maintain a proper discipline, do not fool or run around the shop.
- Maintain a safe distance from the machines you are not working on.
- Always tie your hair.
- Do not wear loose fitting clothes or jewellry.

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- Check the tools for any defects or maulfunctioning before using them.
- Never work alone, always work under the supervision of an instructor.
- Do not rest against a machine.
- Keep your surrounding clean, neat and organised.
- Always return the tools to thier orignal place after completion of work to avoid any mishaps.
- Always switch off or unplug the machine after the completion of work.

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