

GOVT . POLYTECHNIC , BHADRAK
INTERNAL ASSESSEMENT -1
BRANCH – MECH ENGG 4TH SEM

SUB-MT

TIME- 1 HOUR

ANSWER ANY THREE QUESTIONS (Q.1 COMPULSORY)

1. **Answer all the questions.**

5*2=10

- (a)What is a production lathe ?
- (b)What is facing ?
- (c)Write the specification of shaper.?
- (d)List the types of slotter?
- (e)How a lathe machine is specified?.

Answer any two questions

2*5=10

2. Write down the difference between turret and capstan lathe?
3. Explain the principle of quick return mechanism.
4. Write the difference between vertical shaper and slotter?

INTERNAL ASSESSMENT



GOVT. POLYTECHNIC, BHADRAK


Session - 2022 - 23

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Branch: Mechanical Engg. SEMESTER 4th

SUBJECT : Manufacturing Technology

REGD. NO.: 122157004004


Signature of Invigilator

① ② Production lathe:

A lathe is a tool that rotates the workpiece on its axis to perform various operations such as cutting, sanding, knurling, drilling or deformation, facing, turning with tools that are applied to the workpiece to create an object with symmetry about an axis of rotation.

③ Facing:

(i) Facing is an operation which produces flat surfaces.

(ii) In this operation the tool is fed at right angles to the axis of the workpiece.

(iii) In this operation tool is brought into clean stock from the centre and fed outward, by hand and feed is given by cross side.

④ Specification of Shaper:

(i) maximum length of stroke

(ii) maximum horizontal travel of table

(iii) maximum vertical travel of table

(iv) Tool box, vertical adjustment

(v) Length and width of the table

(vi) Numbers and range speeds available

(vii) Numbers and range feeds available

⑤ Types of Slotter:

(i) puncher slotter

(ii) General production slotter

(iii) key seater slotter

(iv) precision tool room slotter

(e) Lathe machine specified:

- (i) maximum Swing over the bed.
- (ii) maximum Swing over the carriage.
- (iii) Height of centers over bed.
- (iv) width of bed.
- (v) size of tool post.
- (vi) ~~Plate diameter~~ weight of the machine and floor spaced required.

(2) Turret lathe

- (i) Its turret head is mounted on an auxiliary slide, which moves on the guide way provided on the saddle.
- (ii) For feeding the tool to the work, the saddle is fixed at convenient distance from the work.
- (iii) It is suitable for smaller size and lighter jobs. It is not suitable for heavy cutting condition.
- (iv) It is suitable to work for smaller bar upto 60 mm dia.
- (v) The turret head may be hexagonal or circular.
- (vi) It is smaller in size compared to turret lathe.
- (vii) The tool traverse is faster and offers less fatigue to the hands of the operator.

Capstan lathe

- (i) Its turret head is mounted directly on the saddle.
- (ii) For feeding the tool to the work the entire saddle is moved.
- (iii) It is suitable for long and heavy work and serves cutting condition.
- (iv) It is used to work for large size bar upto 200 mm dia.
- (v) ~~capstan head~~ capstan head is hexagonal.
- (vi) It is large in size as compared to capstan lathe.
- (vii) The tool feeding is relatively slower and provides more fatigue to operator hands.

Vertical Shaper

- (i) Shaper is commonly used to make flat surfaces.
- (ii) Cutting stroke is horizontal with slower than unused stroke.
- (iii) Cutting tool is move up or down to regulate depends of the cut.
- (iv) Cutting tool move horizontally up and down, through perform cutting process.
- (v) Distance of tool move is familiar through stroke adjusting screw.
- (vi) work piece is held on a fixed bed to be usually rectangular in shape.

Slotter

- (i) Slotter is use for cutting groove, key ways and slots on inside and outside surface.
- (ii) Cutting stroke is vertical with slower than the unused stroke.
- (iii) Cutting tool is move horizontally to regulate depends of cut.
- (iv) Cutting tool move vertically up and down through perform cutting process.
- (v) Distance of tool move is familiar through stroke adjusting screw.
- (vi) work piece is held on a fixed bed to be usually circular in shape.

MODEL ANSWER

Internal Assessment

Sub - MT

① Production Lathe:

⇒ A lathe is a tool head that rotates the workpiece on its axis to perform various operations such as cutting, sanding, whirling, drilling or deformation facing, turning with tools that are applied to the workpiece to create an object with symmetry about its axial rotation.

(b) Facing

(i) Facing is an operation which produces flat surfaces.

(ii) In this operation the tool is fed at right angles to the axis of the workpiece.

(iii) In this operation tool is brought in to clean stock from the centre and fed outwards.

By hand and feed is given by cross slide

(c) Specification of Shaper

- (i) Maximum length of stroke
- (ii) Maximum horizontal of table
- (iii) Maximum vertical travel of table
- (iv) Tool box - vertical adjustment.
- (v) Length and width of the table
- (vi) Number and range speed available.
- (vii) Number and range feeds available.

(d) Types of Slotter

- (i) Puncher slotter
- (ii) General production slotter
- (iii) Key seater slotter
- (iv) Precision tool room slotter.

(e) Lathe machine Specification

- (i) Maximum swing over the bed
- (ii) Maximum swing over the carriage
- (iii) Height of centre over bed
- (iv) width of bed
- (v) size of tool post.
- (vi) weight of the machine and floor space required.

slide (2) Turret Lathe

(i) Its turret head is mounted on auxiliary slide which moves on the guide way provided on the saddle.

(ii) For feeding the tool to the work, the saddle is fixed at convenient distance from the work.

(iii) It is suitable for smaller size and lighter jobs. It is not suitable for heavy cutting conditions.

(iv) It is suitable to work on smaller bar up to 60 mm dia.

(v) The turret head may be hexagonal or circular.

(vi) It is smaller in size compared to turret lathe.

Capstan Lathe

(i) Its turret head is mounted directly on the saddle.

(ii) For feeding the tool to the work the centre saddle unit is moved.

(iii) It is suitable for long and heavy work and severe cutting conditions.

(iv) It is used to work on large size bar up to 200 mm dia.

(v) Capstan head is hexagonal.

(vi) It is large in size as compared to capstan lathe.

(u)

Vertical Shaper

(i) Shaper is commonly used to make flat surfaces.

(ii) cutting stroke is horizontal with slower than unused stroke.

(iii) cutting tool move horizontal up and down through perform cutting process.

(iv) cutting tool move up or down to regulate depends of the cut

(v) work piece is held on a fixed bed to be usually rectangular in shape.

Slotter

(i) slotter is use for cutting groove keys ways and slots on inside and outside surfaces.

(ii) cutting stroke is vertical with slower than the unused stroke

(iii) cutting tool is move horizontally to regulate depends of cut.

(iv) cutting tool move vertically up and down through perform cutting process.

(v) work piece is held on a fixed bed to be usually circular in shape.