Scheme – I

Sample Question Paper

Program Name   : **Production Technology Program Group**

Program Code   : **PT/PG**

Semester   : **Third**

Course Title   : **Machining Processes**

Marks   : **70**

22338

Time: 3 Hrs.

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.   **10 Marks**

    a) Define turning operation.

    b) State the methods of taper turning.

    c) Define counter-boring operation.

    d) List the elements of plain milling cutter.

    e) Define grinding wheel designation.

    f) List the methods of indexing.

    g) Name the various types of HBM.

Q.2) Attempt any THREE of the following.   **12 Marks**

    a) A plain surface 60 mm wide and 240 mm long is to be milled on a horizontal milling machine with cutter diameter 80 mm and cutting speed 40m/min. Take feed per tooth as 0.10 mm and number of teeth on cutter as 12. Calculate machining time.

    b) State the difference between rough and precision grinding.

    c) It is required to divide the periphery of a job in to 60 equal divisions. Find the crank moment. (Given Plate No. 1:15,16,17,18,19,20 Plate No. 2: 21,23,27,29,31,33 Plate No.3:37,39,41,43,47,49)

    d) A hole of 20 mm diameter and 60 mm depth is to be drilled. Consider feed as 1.2.mm/rev and cutting speed as 50 m/min. Assuming suitable tool approach and lover travel calculate machining time.

Q.3) Attempt any THREE of the following.   **12 Marks**

    a) Differentiate between counter-boring and counter-sinking operation (any two points).

    b) Describe the selection criteria for grinding wheel.

    c) Describe gear shaving with a neat sketch.

    d) Index an angle 19^0 40' by angular indexing

Q.4) Attempt any THREE of the following.   **12 Marks**
    a) Explain drilling operation performed on drilling machine with a neat sketch.
    b) Set the dividing head to mill 30 teeth on a spur wheel blank.
    c) Explain the working of a jig borer with sketch.
    d) With the help of sketch describe the working of surface broaching.
    e) An Engineering work-shop gets batches of cylinder blocks of old bikes for enlarging bores suggest the machine for the same and describe the process.

Q.5) Attempt any TWO of the following.   **12 Marks**
    a) Find the time required for one complete cut on a piece of work 350mm long and 50mm diameter. The cutting speed is 35m/min and the feed is 0.5mm/rev.
    b) Describe with neat sketch the following operations performed on milling machine.
        i.   Slab milling
        ii.   End milling
        iii.   Face milling

    c) Recommend the grinding wheels for grinding:
        i.   High tensile strength materials
        ii. Low tensile strength materials
       iii. Hard and brittle materials

Q.6) Attempt any TWO of the following.   **12 Marks**
    a) Explain the various elements of a single point cutting tool with the help of sketches.
    b) A batch of circular plates with moderate thickness is to be converted in to hexagonal shapes, suggest and describe the suitable milling process.
    c) Suggest and describe the typical grinding process for grinding of piston pins on large scale.

Scheme – I

Sample Test Paper - I

Program Name	: **Production Technology Program Group**
Program Code	: **PT / PG**
Semester	: **Third**
Course Title	: **Machining Processes**
Marks	: **20**

$$\boxed{\textbf{22338}}$$

Time: 1 Hour

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FOUR of the following.   **08 Marks**

     a) Define facing operation.

     b) List the various types of lathe.

     c) Define spot facing operation.

     d) Define boring operation

     e) Define end milling operation.

     f) List any four elements of plain milling cutter.

Q.2) Attempt any THREE of the following.   **12 Marks**

     a) Explain the methods of metal cutting with sketch.

     b) Let D=90mm, d=80mm and l=100mm. Find the angle of taper.

     c) Explain reaming operation performed on drilling machine with neat sketch.

     d) Compute the time taken for a high speed steel (HSS) drill 10 mm diameter to penetrate a 18 mm thick steel plate. Assume a feed of 0.2 mm/revolution for the 12 mm size drill and cutting speed for steel as 20 m/ min.

     e) Differentiate between up milling and down milling.

     f) Index 89 divisions by compound indexing.

       (Given Plate No. 1:15,16,17,18,19,20 Plate No. 2: 21,23,27,29,31,33

       Plate No.3:37,39,41,43,47,49)

Scheme – I

Sample Test Paper - II

Program Name	**: Production Technology Program Group**	
Program Code	**: PT / PG**	
Semester	**: Third**	**22338**
Course Title	**: Machining Processes**	
Marks	**: 20**	**Time: 1 Hour**

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FOUR of the following.   **08 Marks**

    a) Define grinding wheel balancing.

    b) Define grinding operation.

    c) State the need of gear finishing.

    d) Define gear burnishing.

    e) List the types of boring tool.

    f) Define broaching operation

Q.2) Attempt any THREE of the following.   **12 Marks**

    a) State the significance of the grinding in modern production.

    b) Suggest and describe the typical grinding process for grinding of rollers of roller bearings.

    c) Differentiate between gear shaping and gear hobbing.

    d) Index 83 divisions by compound indexing.

      (Given Plate No.1:15,16,17,18,19,20 Plate No. 2: 21,23,27,29,31,33 Plate No.3:37,39,41,43,47,49)

    e) State the advantages, limitations and applications of broaching machine.

    f) Suggest a type of broaching machine for following parts.

      i. Key way in a gear

     ii. Involute teeth on a gear blank

    iii. Top of an engine cylinder.