

FOURTH SEMESTER DIPLOMA EXAMINATION IN MECHANICAL
ENGINEERING — MARCH, 2015

PRODUCTION DRAWING

[Time : 3 hours

(Maximum marks : 100)

- [Note :—1. A₂ size drawing sheet will be supplied and both sides can be used.
2. Use of BIS tables and chart are permitted in the examination hall.
3. Theory portions of the questions will be answered in the answer book.]

Marks

PART—A

(Maximum marks : 20)

I Answer all questions. Each question carries 5 marks.

1. What are the elements of a production drawing ?
2. Draw the basic symbol used for indicating surface texture of a machined surface and indicate the following.
 - (a) Production method : turning
 - (b) Sampling length : 0.8 mm
 - (c) Direction of lay : circular
 - (d) Machining allowance : 1 mm
3. Determine the values of the following tolerance symbols from the tables.
 $\phi 45H8/f7$, $\phi 32H7/p6$
4. Briefly explain with sketch Unilateral system and Bilateral system of tolerances.

(4x5=20)

PART—B

(Maximum marks : 30)

II Answer *any two* of the following questions. Each question carries 15 marks.

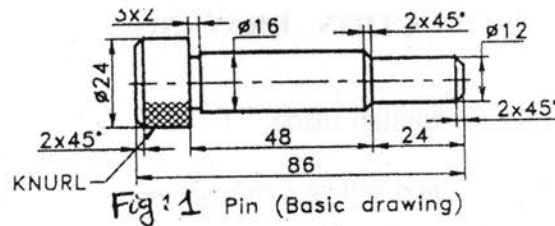
1. Dimensions of a hole and its mating shaft are given below, according to the hole basis system.

Hole	:	27.500 mm	Shaft	:	27.470 mm
	:	27.575 mm		:	27.445 mm

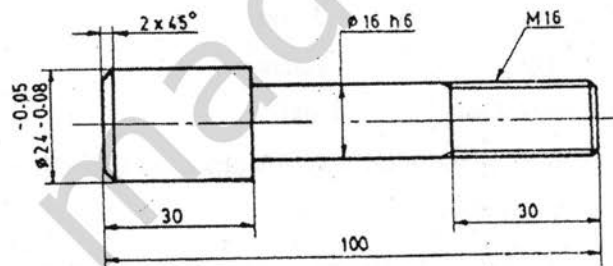
Find the values of the hole tolerances, shaft tolerances and clearances.

Represent the limit dimensions schematically. Check the calculated dimensions. 15

2. The basic drawing of a Pin is shown in figure 1. Convert it into Shopfloor drawing incorporating the following details.



- (a) Give -6 to -17 microns of tolerance to the diameter 16 and 0 to -11 microns tolerance to the diameter 12. For the remaining dimensions give a general tolerance of medium class.
- (b) Allow a coaxiality tolerance of 15 microns to diameter 12 refers to the axis of 16 dia cylinder.
- (c) Give a finish of 0.8 microns to 16 dia and 12 dia surfaces while 3.2 microns to the remaining surfaces.
3. A locating pin shown in figure 2 is to be manufactured in a machine shop. Prepare an operation chart incorporating the following details.



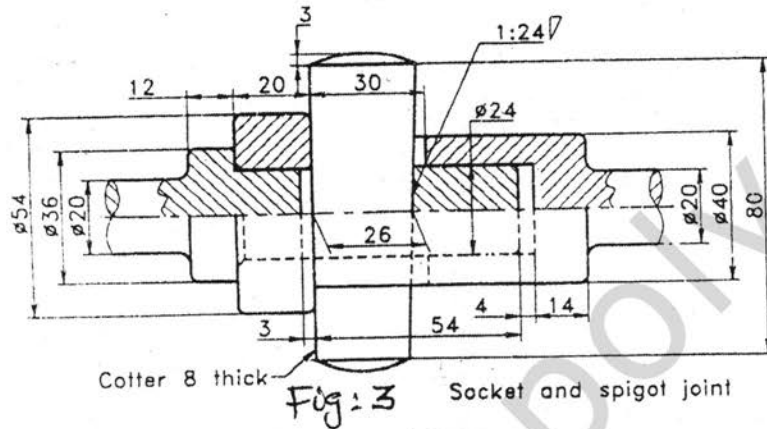
Part time	:	locating pin
Part Number	:	93 0031 08
Drawing No.	:	LP 0030 09
Equipment	:	Drill jig
Material	:	Steel
Specification	:	IS:666 PART - I
Qty. required	:	25 nos.

Also mention the details like departments, machines, tools, gauges, weight/ piece, total number of operations, setup and operation times etc.

PART—C
(Maximum marks : 50)

III Answer any one question from the following. Each question carries 50 marks.

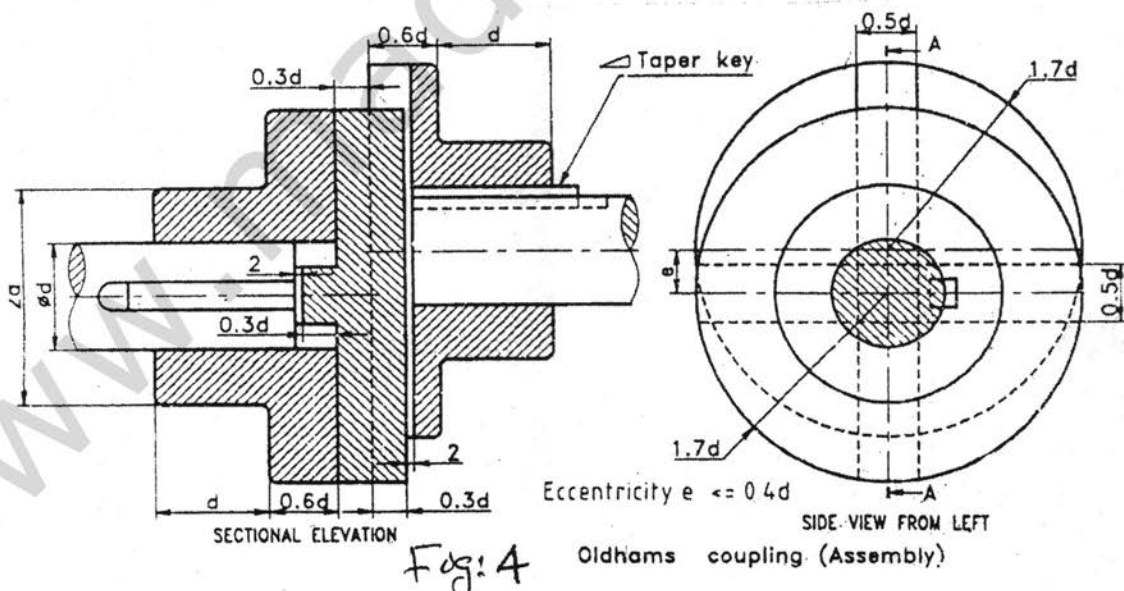
- Figure 3 shows the assembly drawing of a Socket and Spigot joint. Prepare a shopfloor drawing of the parts and mark suitable dimensional as well as geometrical tolerances to result easy running fit between socket and spigot. The cotter and the hole are to be toleranced for normal running fit. Give N7 finish to mating surfaces and N9 for the remaining. Prepare an item list and a standard Title block.



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OR

- Figure 4 shows the assembled view of an Oldhams coupling. Prepare a production drawing of the parts as per BIS by incorporating the following informations.



- Provide sliding and location fit between Disc and Flange.
 - Push fit between shaft and flange.
 - Light keying fit between shaft and key.
 - Provide perpendicularity tolerance of 50 microns for tongue on recess.
 - Give N7 finish for mating surfaces and N10 for the remaining.
- Take diameter of shaft (d) as 30mm.
Also prepare an item list and standard title block.

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