

TED (15) - 4026
(REVISION - 2015)

Reg. No.
Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

PRODUCTION DRAWING

[Time : 3 hours

(Maximum marks : 100)

- [Note :- 1. Use of BIS tables and charts are permitted.
2. Sketches accompanied.]

PART — A

(Maximum marks : 20)

Marks

I Answer all questions. Each question carries 5 marks.

- Define Basic size, Actual size, Minimum limit, Maximum limits.
- List any five types of process charts which are commonly used for industrial purposes.
- Draw and mark nomenclature of surface texture.
- Select following tolerance zone and limits from BIS table for corresponding shaft and hole.
 - Nominal diameter 45mm (h6-H7)
 - Nominal diameter 55mm (p6-H8)

(4 × 5 = 20)

PART — B

(Maximum marks : 30)

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

- Dimension of a hole and its mating shaft are given below, according to basic hole system.
Hole : 27.500 mm Shaft : 27.470 mm
 27.575 mm 27.445 mm
Find the values of hole tolerances, shaft tolerances. Check the calculated dimensions. Also represent these dimensions schematically. 15
- A Cylindrical Pin manufactured in a workshop as shown in figure-1. Prepare an operation process chart in the following details.
Part Name : Cylindrical Pin
Part No : 91 00 2807
Drawing No : p46
Material : Steel
Specification : IS 8536
Specific weight of steel is 8 gm/cc
Quantity required : 50 Nos.
Specify sequence and total number of operation and weight per piece. 15

[39]

[P.T.O.]

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(i)

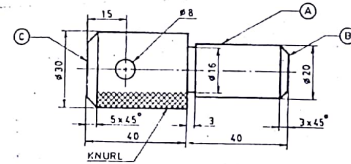
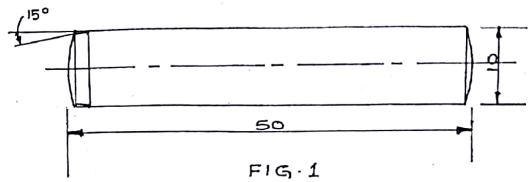
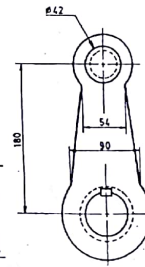
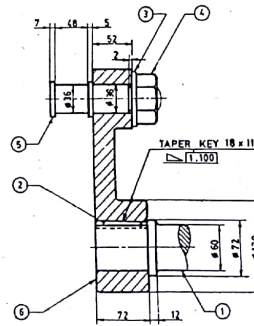


FIG. 2



Item	Description	Qty.	Material
1	Crank shaft	1	Steel
2	Taper key	1	M. S.
3	Washer	1	M. S.
4	Nut	1	M. S.
5	Crank pin	1	Steel
6	Crank	1	C. S.

[39]

FIG. 3

[P.T.O.]

3. Fully dimensioned Knurled rest pin is shown in figure-2. The surface indicated by capital letters should be finished to roughness values as given below :

Surface A to 0.8 microns

Surface B and C to 3.2 microns

Surfaces other than A, B and C to 6.3 microns

The surface A is to be chromium plated and then it should be finished to a roughness value of 0.4 microns.

Copy the figure and indicate the surface roughness using grade number as per B.I.S. 15

PART — C

(Maximum marks : 50)

III Answer any one of the following questions. Each full question carries 50 marks.

- L & T Engineers (P) Ltd. received an order for manufacturing 50 number of Overhung cranks. An assembly drawing of the crank is shown in figure-3. Prepare a shop floor drawing for the production, incorporating the following information which are also supplied.
 - Crank shaft end is assembled in the crank with light keying fit.
 - Crank pin is with push fit in the crank.
 - Crank pin is with normal running fit in the big end of the connecting rod.
 - A parallelism tolerance of 30 microns is allowed between the axis of the pin and the axis of the shaft.
 - Prepare a item list also.
- Prepare a shop floor drawing for the production of Sleeve & Cotter Joint is shown in figure-4, incorporating the following information with item list.
 - Rod end and sleeve are to be manufactured with easy running fit.
 - Cotter pin is to be fixed with a sliding fit in the sleeve and shaft end.
 - Mating ends of shaft are to be finished a parallelism tolerance of 0.03mm.
 - Inside surface of sleeve and outer surface of rod end are to be manufactured with a co-axial tolerance of 0.03mm.
 - Mating surface of rod end is perpendicular with the axis with a tolerance of 0.04mm.
 - All the mating surface are to be finished with a roughness value of 3.2 microns.
 - All other surfaces are to be finished with a roughness value of 6.3 microns. (1×50 = 50)

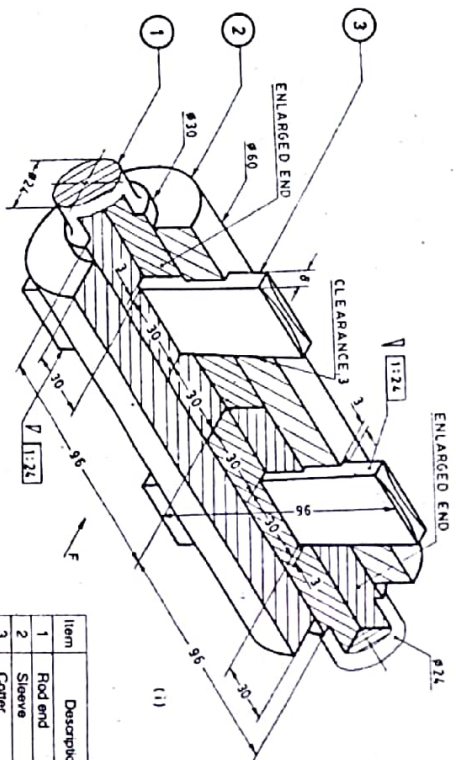


FIG. 4

Item	Description	Qty.	Material
1	Rod end	2	M.S.
2	Sleeve	1	M.S.
3	Cotter	2	M.S.

ITEM LIST