

**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.

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

1. 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

2. 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

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.

1. 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.
 - (a) Crank shaft end is assembled in the crank with light keying fit.
 - (b) Crank pin is with push fit in the crank.
 - (c) Crank pin is with normal running fit in the big end of the connecting rod.
 - (d) A parallelism tolerance of 30 microns is allowed between the axis of the pin and the axis of the shaft.
 - (e) Prepare a item list also.
2. Prepare a shop floor drawing for the production of Sleeve & Cotter Joint is shown in figure-4, incorporating the following information with item list.
 - (a) Rod end and sleeve are to be manufactured with easy running fit.
 - (b) Cotter pin is to be fixed with a sliding fit in the sleeve and shaft end.
 - (c) Mating ends of shaft are to be finished a parallelism tolerance of 0.03mm.
 - (d) Inside surface of sleeve and outer surface of rod end are to be manufactured with a co-axial tolerance of 0.03mm.
 - (e) Mating surface of rod end is perpendicular with the axis with a tolerance of 0.04mm.
 - (f) All the mating surface are to be finished with a roughness value of 3.2 microns.
 - (g) All other surfaces are to be finished with a roughness value of 6.3 microns.

(1×50 = 50)