DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL-2021

PRODUCTION DRAWING

[Maximum marks: 75]   (Time: 2.15 Hours)

[Note:- 1. Use of BIS tables and charts are permitted.

2. Sketches Accompanied.]

PART – A
(Maximum mark: 10)

I   (Answer *two* questions in one or two sentences. Each question carries 5 marks)

1.   Schematically represent Clearance, Transition fit in Hole basis system

2.   Determine the values of following tolerance from BIS table

     (i)Nominal diameter 45 mm (H7-h6)

     (ii)Nominal diameter 55 mm (H8-p6)

3.   Draw basic symbol of Surface texture and mark all its characteristics

4.   List any five process charts which are commonly used for industrial purposes   (2 x 5 = 10)

PART – B
(Maximum Marks:15)

II   (Answer any *one* of the following questions. Each question carries 15 marks)

1.   Compute the limit dimensions of an Interference fit on Hole basis system, if

     Basic size of hole = Ø40 mm

     Minimum negative clearance = 0.001mm

     Tolerance on the hole = 0.021mm

     Tolerance on the shaft = 0.013mm

     Represent the same on schematic drawing

2.   A locating pin is shown in Fig.1 is to be produced in workshop. Prepare an operation chart
     incorporating the following details

Part Name	Locating pin
Part Number	9303106
Drawing number	LP 0030 09

Equipment	Drill jig
Material	Steel
Specification	IS:666 PART-1
Qty.required	20Nos

Also mention the details like departments, machines, tools, gauges for production, weight per piece, total number of operation, set up time and operation times etc.

3. Sectional view of a flange is given in Fig.2. Copy the drawing and indicate the surface finish using following roughness grade numbers. Surface a=1.6μm, Surface b=3.2 μm, Surface c = 6.3 μm, Surface d = 0.8 μm, Surface e = 3.2 μm   (1x15=15)

PART – C
(Maximum marks : 50)

III.   (Answer *any one* of the following questions)

1. An assembly drawing of Overhung crank is Shown in Fig.3. Prepare a shop floor drawing for the parts for the production, incorporating the following information

   (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) Mating surface of crank pin and Crank hole is to be finished with roughness values 3.2 μm

   (f) Mating surface of Crank shaft is to be finished with roughness values of 1.6 μm and all other mating surfaces are finished with 6.3 μm.

   (g) Prepare item list also   (50)

OR

2. Fig.4 shows assembly of a socket and spigot joint. Prepare a production drawing of the parts as per BIS by incorporating the following information

   (a) The spigot inside the socket is to be fitted with easy running fit.

   (b) Cotter pin is to be fitted with normal running fit.

   (c) The bore of the socket and the cylindrical surface of the spigot are to be manufactured with Cylindricity tolerance value of 0.05mm.

   (d) All the mating surfaces are to be finished with a roughness value of 1.6 um.

   (e) All the remaining surfaces are to be finished with roughness value of 6.3 um

(f) Prepare item list also (50)

Fig.1
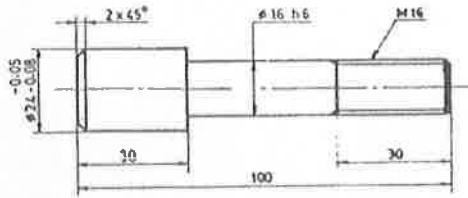
Fig.2
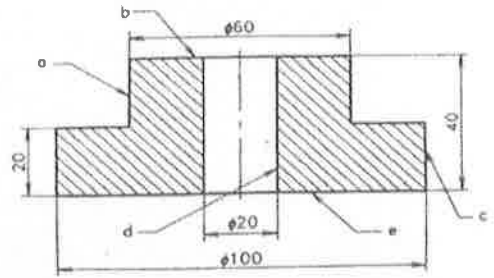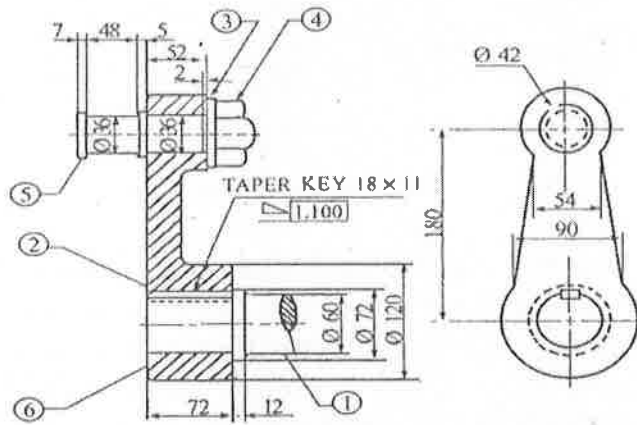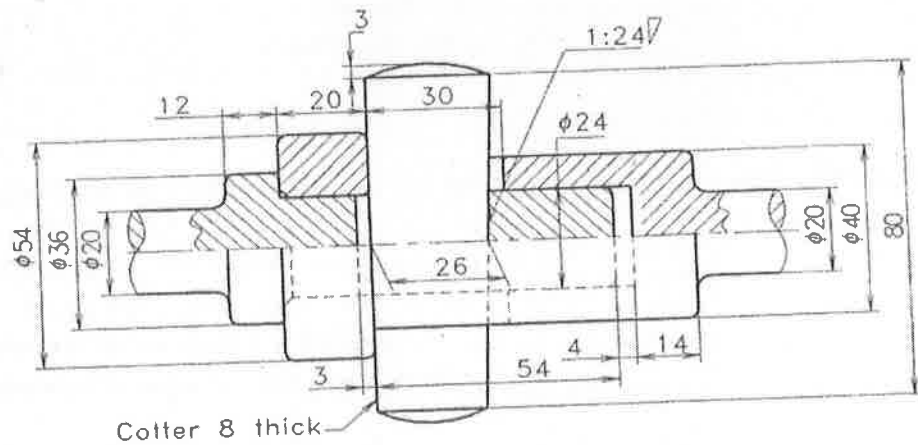
TAPER KEY 18 × 11

Fig.3

Cotter 8 thick

Fig.4

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