DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE –NOVEMBER -2021.

PRODUCTION DRAWING

(Maximum Marks : 75)   [Time : 2.15 hours]

[Instructions: 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 should be answered in the answer book
4. Sketches accompanied.]

PART–A
(Maximum marks:10)   Marks

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

1. Find the maximum and minimum size of the following using BIS table.

   (a)40H7   (b)30H8   (c)20p6   (d)35 js6   (e)25f7

2. Draw the surface texture symbol with the following surface texture charcterestics.

   (a)Roughness value   (b) Production method   (c)Sampling length

   (d)Direction of lay   (e)Machining allowance

3. Draw the symbols for direction of lay and indicate what they represent.

4. Name any five important types of process charts.   (2x5=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 the shaft and the hole for a clearance fit

   Based on hole basis system, if

   Basic size of the shaft   = Ø 30 mm

   Minimum clearance   = 0.020 mm

   Tolerance on the hole   = 0.033 mm

   Tolerance on the shaft   = 0.021 mm

   Represent the limit dimensions schematically.

2. A fully dimensioned Knurled rest pin is shown in following figure. The surface indicated by capital letters should be finished to roughness values mentioned below :

(a) Surface A to 0. 8 microns

(b) Surfaces B and C to 3. 2 microns

(c) Surfaces other than A, B and C to 6. 3 microns

(d) Later, the surface A is to be chromium plated and then it should be finished to a roughness value of 0.4 microns. Copy the given figure and indicate the surface roughness using grade numbers as per B. I. S.
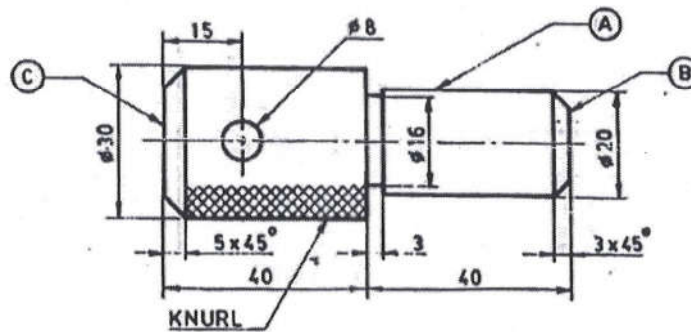
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3. A Locating pin shown in following Figure is to be produced in a workshop. Prepare an operation sheet incorporating the following details-.

Part name:	Locating pin
Part Number:	93 0031 08
Drawing Number:	LP 0030 09
Equipment:	Drill jig
Material:	Steel
Specification:	IS: 666 PART - I
Oty. required:	25 nos.
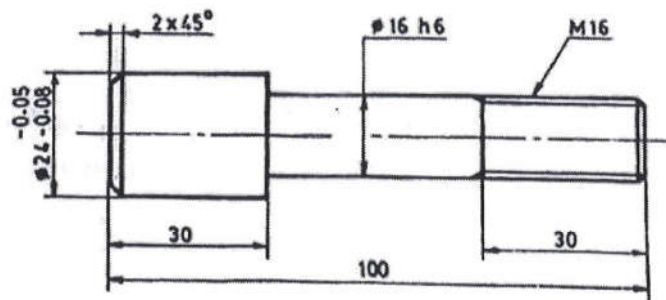
Also, mention the details like departments, machines, tools / gauges for production / measurements, weight per piece, total number of operations, set up and operation times, etc.
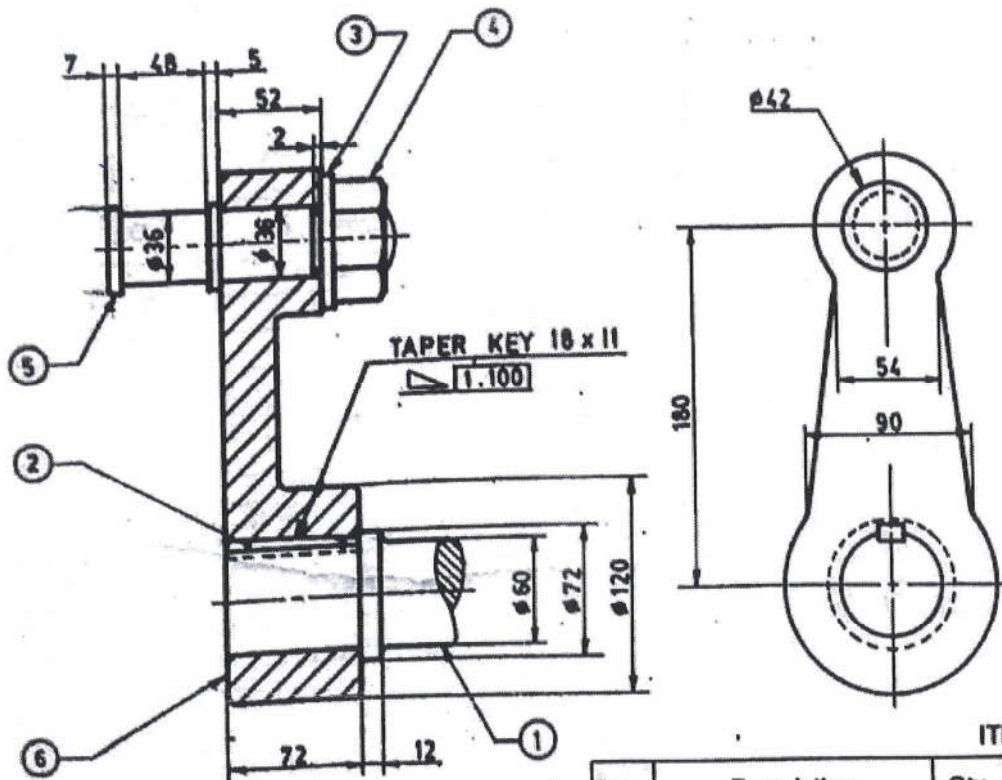
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PART - C
(Maximum marks:50)

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

III.   Prepare a shop floor drawing for all parts of an overhung crank shown in following figure indicating following information and make an item list:

(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 connecting rod.

(d) A parallelism tolerance of 0.003 mm is allowed between the axis of the pin and the axis of the shaft.

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.

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IV. Sectional elevation of a Sleeve is shown in following figure. The surfaces to be toleranced symbolically are represented by 1, 2, 3 and 4. Prepare a shop floor drawing incorporating the following requirements:

(a) Surface 1 should not have a radial run out greater than 0.008 mm with respect to the axis of the sleeve. Also, the surface should be contained between two parallel planes 0.008 mm apart.

(b) Surfaces 1 and 2 should be parallel to each other with a parallelism tolerance of 0.004 mm.

(c) Surface 3 should have a geometrical circularity and cylindricity tolerances within 0.003 mm each.

(d) Surface 4 has radial run out limited to 0.008 mm with respect to the axis, circularity tolerance limited to 0.003mm and a cylindricity tolerance of 0. 003mm.

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