

IE-352
Section 1, CRN: 48700/1/2
Section 2, CRN: 48706/7/8
Second Semester 1437-38 H (Spring-2017) – 4(4,1,2)
“MANUFACTURING PROCESSES – 2”

Wednesday, March 08, 2017 (09/06/1438H)

Quiz 1 ANSWERS

Name:	Student Number:
	4

Given the following information for a shaft-hole system, 53 H6/p5

1. What is the basic size? [1 Point]

ANSWER:

53 mm

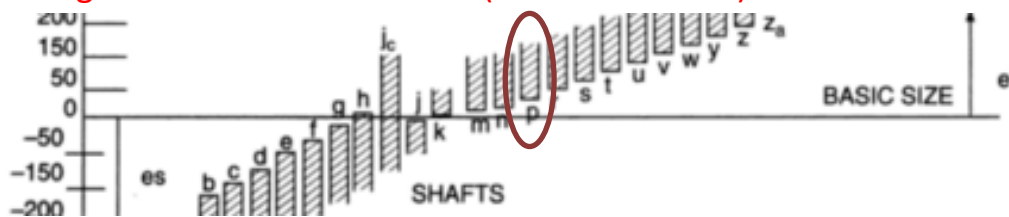
53 mm (note, all ISO fits are SI)

2. What is the fit type? [1 Point]

ANSWER:

interference fit

- H6/p5 is an interference fit. This can be easily determined from the fundamental deviation chart which shows that the lower deviation for the shaft is greater than the basic size (as shown below)



- Note, also, this can be determined from the plus (+) sign for the shaft in the fundamental deviations chart, which again indicates that the lower deviation is greater than the basic size

3. What is the system of units used here? [½ Pt.]ANSWER:

SI system

4. What is the basis of the fit? [½ Pt.]

ANSWER:

Basic hole

Basic hole (remember, any H associated with hole \Rightarrow basic hole); also from table/chart of fundamental deviations ($EI = 0$)

5. What is the hole MMC/ hole LMC? [1 Point]

$hole_{MMC}$:

53.000 mm

$hole_{LMC}$:

53.019 mm

6. What is the shaft MMC / shaft LMC? [1 Point]

$shaft_{MMC}$:

53.045 mm

$shaft_{LMC}$:

53.032 mm

7. Express the hole and shaft sizes below in the specified formats [2 Points]

	Hole Size	Shaft Size
a) Stacked Form		
b) Referenced to Basic Size Form	$\phi 53.000 \begin{smallmatrix} +0.019 \\ 0 \end{smallmatrix}$	$\phi 53.000 \begin{smallmatrix} +0.045 \\ +0.032 \end{smallmatrix}$

8. What is the max., min. *interference*? [1 Point]

$inter_{max}$:

0.045 mm

$inter_{min}$:

0.013 mm

$$inter_{max} = shaft_{MMC} - hole_{MMC} = 53.045 - 53.000 = 0.045 \text{ mm}$$

$$inter_{min} = shaft_{LMC} - hole_{LMC} = 53.032 - 53.019 = 0.013 \text{ mm}$$

9. What is the max., min. *clearance*? [1 Point]

$clear_{max}$:

Not applicable

$clear_{min}$:

Not applicable

no clearances are possible with such a fit (since this is an interference fit)

10. Sketch below the basic size, hole tolerance, and shaft tolerance. [1 Point]

