Question (4): Machining [10 Marks]

1. Compare between the Shaper and the Planner, showing feed, speed and depth of cut motions.
2. Mention the main cutting angles of a single point tool, and their uses.
3. Draw two different views for the drilling tool, showing its cutting edges, direction of feed and cutting motion.

Question (5): Applications [10 Marks]

1. It is required to reduce the diameter of the shaft shown in figure (2-A) from d1=60 mm to d2=50 mm through a length of 100 mm. Find the cutting velocity, machining time and Metal Removing Rate if the feed f=0.2 mm/rev, depth of cut d=2 mm and the cutting speed N=300 rpm.
2. It is required to form the steel cup shown in figure (2-B) using deep drawing. The thickness of the cup is 0.5 mm, its final height and diameter are 90 mm and 60 mm respectively. Find the Blank Diameter, number of drawings and the diameters of the Die and Punch in each drawing step.

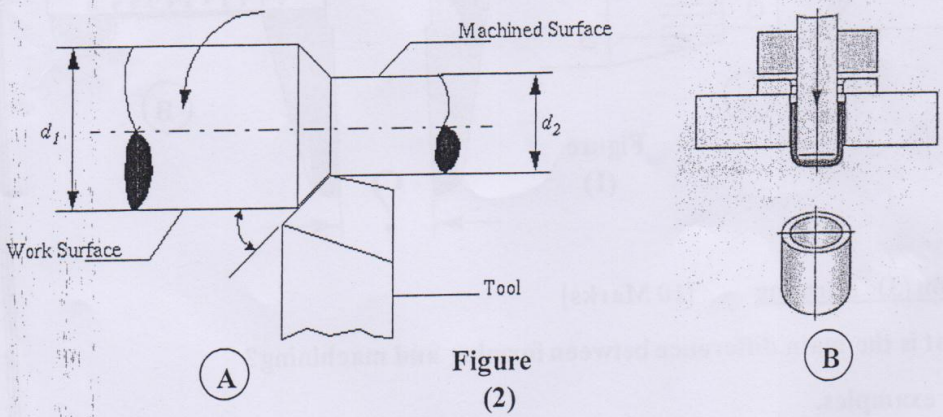

Figure (2)

End of Exam

Best of luck, Associate Prof. Ahmed Galal

Mansoura University,		level (000) - Final Exam, June 2015
Faculty of Engineering		Marks: 50 & Time: 2 hours
Specific Program (BME)		Workshop Technology [PDE042]

Solve all questions using Neat Sketches whenever possible:

Question (1): Material [10 Marks]

1. Compare between HCP and FCC structures, then prove that both have the same Packing Factor.
2. Draw the Equilibrium Iron Carbon Diagram, showing its details.

Question (2): Measurements [10 Marks]

1. Identify the measuring tools shown in figure (1), then compare between them.
2. Show how to find the readings of both A and B then mention their values.

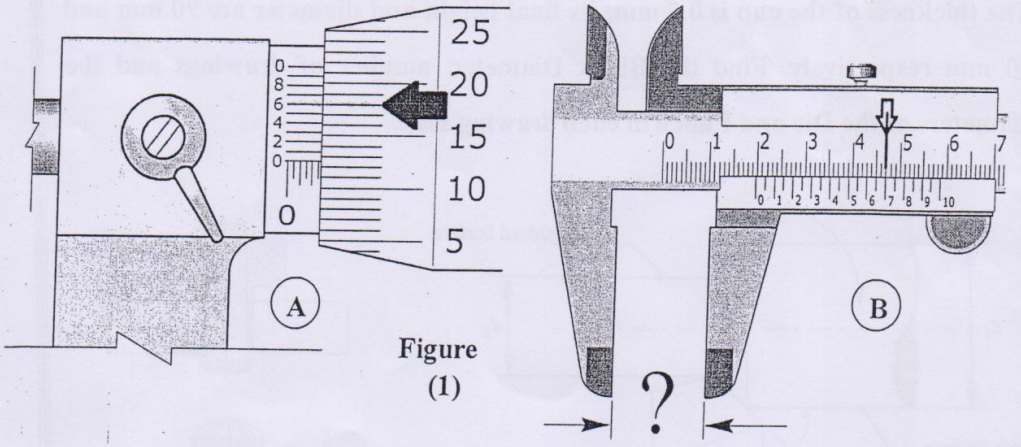

Figure (1)

Question (3): Forming [10 Marks]

1. What is the main difference between forming and machining? Give examples.
2. Mention three different forming processes in details.
3. Mention five different types of sand used in Sand Casting.