College of Engineering, Pune – 411005.
End Sem. Examination Nov-Dec 2013

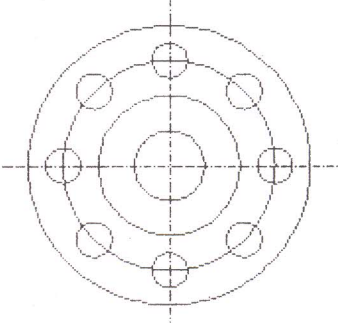
Course: B. Tech
Branch: Mechanical Engg.
Semester: III

(ME 203) Machine Drawing & Computer Graphics

Programme: S.Y. (B. Tech.)
Duration: 3Hrs

Date: / / 2013
Max. Marks: 60

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Instructions: - 1. Solve **all** questions.
2. Figures to the right indicate full marks.
3. Draw neat figures wherever required.

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Q1	A	Explain the following terms (*any three*)	[06]
		i) Arrow side and other side in welding ii) Anti-friction Bearing iii) Plummer Block Bearing iv) Bill of Material	
	B	Differentiate between following with considering its fig., features, advantages, disadvantages and applications i) Hole basis system vs Shaft basis system ii) Chain Riveting and Zig-Zag Riveting	[04]
Q2	A	What is importance of surface roughness? Give surface roughness symbols used in machining process.	[05]
	B	Write a short note in detail for *any one* of the following. i) Explain terminology used to define profile of external and internal threads with their relations between various parameters. Draw any three threads of standard profiles. ii) Explain CI pipe layout and GI pipe layout.	[05]
Q3	A	a) How are following features dimensioned? [2 Marks] i) Countersunks ii) Chordes, Arcs, Angles, Radius b) Draw following components and give dimensions in terms of diameter (D) : [4 Marks] i) Hexagonal and square headed bolt ii) Ring nut and Castle nut	[06]

	B	Calculate the fundamental tolerance for a shaft of 100 mm and grade 7. The shaft size, 100 lies in the basic step, 80 to 120 mm. Table 1: Relative magnitude of IT tolerances for grades 5 to 16 in termsof tolerance unit i for sizes upto 500 mm	**[04]**

Grade	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10	IT 11	IT 12	IT 13	IT 14	IT 15	IT 16
Tolerance values	$7i$	$10i$	$16i$	$25i$	$40i$	$64i$	$100i$	$160i$	$250i$	$400i$	$640i$	$1000i$

Q4	**A**	Write the AutoLISP programme on parametric drawing of Flange coupling as shown in figure given below. Input the flange radius, bore radius, hole radius, number of holes, pitch circle radius od holes. Elaborations for the important stage or command in the programming is must. Do not use array and mirror command. Assume starting point, suitable data, required dim….. etc. wherever necessary. Also draw flow chart of program. 	**[10]**
	B	List various list filtering functions used in Auto LISP programming. Explain in detail OSMODE and OSNAP mode.	**[05]**
Q5	**A**	Write **any two** of the following with suitable examples and essential sketches wherever required. i) Write a procedure to derive the tolerance values for given shaft and hole assembly. ii) Explain the "Loop" **and** "Conditional" statements required for repetitive drawing work. Write a small programme to explain the use of these statements iii) Explain various data conversions functions used in LISP programming with suitable examples. iv) Find the summation of series like: $\text{Sum} = x + x^2 + x^3 + x^4 + \ldots\ldots$ using AutoLISP Programming. Also draw flow chart.	**[10]**
	B	For following hole and shaft assembly, find shaft tolerance, hole tolerance and state type of fit. i) Hole : $50^{+0.25}_{+0.00}$ mm, Shaft : $50^{+0.05}_{+0.005}$ mm ii) Hole : $25^{+0.04}_{+0.00}$ mm, Shaft : $25^{+0.06}_{+0.04}$ mm	**[05]**