

COLLEGE OF ENGINEERING, PUNE.

END-SEM EXAM

Year: 2011-12
Duration: 3 hr.

Subject: Manufacturing Engineering-1

Class: S.Y.BTECH (Mech.)
Max. Marks: 50

Instructions:

- All questions are compulsory.
- Assume suitable data wherever necessary.
- Draw neat sketches wherever required.
- Use of Calculator is permitted.

- Q.1 A Index 69 divisions by 'compound indexing'. Brown & Sharp plate index plates are as follows: 3
- Plate No. 1 – 15, 16, 17, 18, 19, 20
Plate No. 2 – 21, 23, 27, 29, 31, 33
Plate No. 3 – 37, 39, 41, 43, 47, 49
- Cincinnati & Parkinson index plates are as follows:
- First side – 24, 25, 28, 30, 34, 37, 38, 39, 41, 42, 43
Second side – 46, 47, 49, 51, 53, 54, 57, 58, 59, 62, 66
- B Explain 'plain centered type cylindrical grinding machine' with neat figure. 3
- C Explain construction and working of 'Crank & slotted link mechanism' with neat figure. 4
- Q.2 A Explain 'open and cross belt table drive' used in planer with neat sketch. 4
- B Explain 'Vitrified bond used for making Vitrified grinding wheels.' 2
- C Explain geometry of 'Pull Broach' with neat sketch. 4
- Q.3 A Short Notes: (Any Two) 4
- 1) Mounting of Grinding Wheels
 - 2) Grit, Grade and structure in grinding wheel
 - 3) Lapping and Honing.
- B How and why spot welding electrodes cooled. 3
- C A hollow work piece of 80mm outside diameter and 180mm length is held on a mandrel between centers and turned over in 4 passes if the approach length is 20mm and overtravel is 12mm, avg. feed is 0.8mm/rev., cutting speed is 30m/min. calculate the machining time. 3
- Q.4 A Explain Tumbler gear feed reversing mechanism with neat sketch 3
- B To make quick setting and accurate centering of bar stock for continuous production on lathe machine, which type of work holding device would you suggest? Why? 2
- C What is negative rake in single point cutting tool? What are its advantages over positive rake. 2
- D State difference between drill and Reamer tool. Explain twist drill nomenclature with neat sketch. 3

Q.5 A Explain briefly step by step method of Casting the object shown in fig-1. The material for casting is Cast Iron. Consider shrinkage allowance for C.I. is 21mm/1000mm. 6

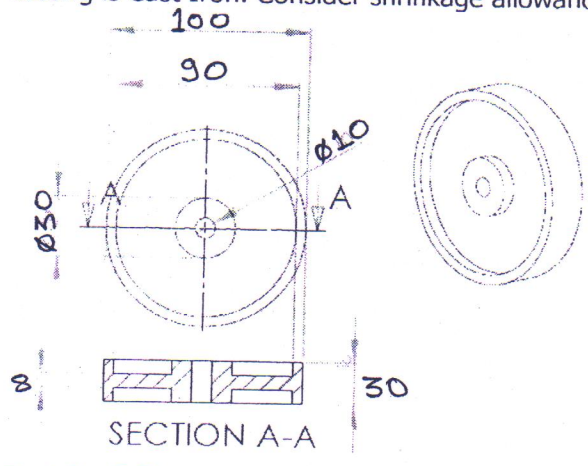


Fig-1 for Q.5A

- B Explain in brief following casting defects 1) Honeycombing or Sponginess 2) Cold Shut 2
- C If a computer mouse cover is to be casted in Aluminum metal. Which casting method would you suggest and why? 2