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Code No: 09A50304

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, May/June – 2013

Machine Tools

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

- 1.a) Explain about various types of chip breakers with neat diagrams.  
b) Draw the Merchant's circle diagram and derive the expression for showing relationship between cutting force and thrust force. [15]
- 2.a) State the various types of taper turning methods. Explain any two in detail with neat sketches.  
b) Distinguish between turret lathe and Capstan lathe. [15]
- 3.a) With a neat sketch, explain construction and working of a slotter.  
b) A C. I. plate measuring 300mm × 100mm × 40mm is to be rough shaped along its wider face. Calculate the machining time. Take approach=25mm, over travel=25mm, cutting speed=12m/min, return speed =20m/min, allowance on either side of plate width=5mm and feed per cycle=1mm. [15]
- 4.a) State the different types of drills used. Explain their functions.  
b) What is a reamer? State the various types of reamers and explain their features briefly. [15]
- 5.a) Distinguish between horizontal, vertical and universal milling machines on some salient features.  
b) Give the tool geometry of milling cutters with neat sketches. [15]
- 6.a) Explain the construction and working of surface grinding machine with a neat sketch.  
b) State and explain the various factors to be considered for the selection of type of abrasive. [15]
- 7.a) With a neat sketch explain the construction and working of a surface broaching machine.  
b) Explain how the length and machining timing of a broach are determined. [15]
- 8.a) State and explain the principles of Jigs and fixtures.  
b) Explain the construction and working of bridge clamp with a neat sketch. [15]

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