

Code No: 55018

R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B. Tech III Year I Semester Examinations, December - 2014

MACHINE TOOLS

(Common to ME & MSNT)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

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- 1.a) What do you understand by 'Machinability'? By which parameter it is generally influenced.
 - b) How many types of chips are formed in metal cutting? What factors are responsible for formation of these different types of chips?
 - 2.a) What machining operation can be performed on a center lathe?
 - b) What are primary and secondary motions of Turret and Capstan lathes? Explain.
 - 3.a) What are the different mechanisms used for driving the ram of slotting machine?
 - b) Make a neat sketch of a universal milling machine and describe its constructional features.
 - 4.a) What are natural and artificial abrasives? Why are the latter preferred over the former?
 - b) Describe the process of honing? How lapping and honing differ.
 - 5.a) Briefly explain the basic features of Indian standards limit systems and compare it with the ISO system.
 - b) What is interchangeable manufacture? Briefly describe different types of Interchangeability?
 - 6.a) What are limit gauges? State and explain Taylors principle for gauge design?
 - b) What are sine bar centers? Why sine bar is not preferred for more than 45° ?
 - 7.a) What are the optical flats? Explain their use with the help of suitable sketches?
 - b) Explain the principle and operation of tool maker's microscope with neat sketch.
 - 8.a) With the help of neat sketch describe the construction and working of tomlinson surface meter?
 - b) In rectilinear pen recording of a diamond turned surface a sampling length of 0.8 mm is selected and V/H magnification ratio was 5000/100. Calculate the Ra value if the area (in mm^2) above and below the mean line are as follows
- | A | B | C | D | E | F |
|----|-----|----|----|-----|----|
| 65 | 100 | 91 | 90 | 102 | 68 |