Code No: 135BE

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November/December - 2018
METROLOGY AND MACHINE TOOLS
(Mechanical Engineering)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B
consists of 5 Units. Answer any one full question from each unit. Each question carries
10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	What are the different types of Chips	[2]
b)	How can tool rake angle and clearance angle defined?	[3]
c)	Describe the Portable drilling machine and its applications.	[2]
d)	Discuss the characteristics of planer machined parts.	[3]
e)	What are the basic functions of milling?	[2]
f)	What are the applications of broaching machines?	[3]
g)	What are types of fits?	[2]
h)	Discuss about the Bevel protractor. Where it is used?	[3]
i)	Describe the importance of surface roughness?	[2]
j)	What is Coordinate measuring machine?	[3]

PART - B

(50 Marks)

2.a) Describe the turning process in lathes.
   b) Explain the working of a multi spindle lathes and its applications.   [5+5]
OR
3.a) Differentiate between Capstan and Turret lathe.
   b) What are the different attachments used in lathe machine? Explain any two attachments?   [5+5]

4.a) Explain the working of radial drilling machine with a sketch.
   b) What are the different types of drill are used? Describe any one of the drill bits.   [5+5]
OR
5.a) Show and describe the various machining applications of slotting machines.
   b) Explain the working of planning machine with a sketch.   [5+5]

6.a) Describe briefly the method of estimation of the required for producing all the teeth of a spur gear in a gear hobbing machine.
   b) Explain the methods of indexing applicable in milling machine and its limitations. [5+5]
OR
7.a) Explain the geometry of milling cutters with sketches.
   b) What are the types of abrasives? Explain any one of it.   [5+5]

8.a) Explain the Taylor's principle applied in limits.
 b) Explain the principle of optical flat and auto collimator.   [5+5]

OR

9.a) Describe the measuring method by using sine bar.
 b) Explain Hole basis system and shaft basis system.   [5+5]

10.a) What are the types and applications of CMM?
 b) Describe the screw thread measurement with sketch.   [5+5]

OR

11.a) Explain the machine tool alignment test on drilling machine.
 b) Explain the Roughness parameters and Roughness profiles.   [5+5]

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