ADAMAS UNIVERSITY PURSUE EXCELLENCE	**ADAMAS UNIVERSITY** **END-SEMESTER EXAMINATION : MAY 2021** (Academic Session: 2020 – 21)		
Name of the Program:	B. Tech ME	**Semester:**	VIII
Paper Title :	Machine Tool Design	**Paper Code:**	EME44104
Maximum Marks :	40	**Time duration:**	3 Hours
Total No of questions:	8	**Total No of Pages:**	01
Instruction to the Candidate:	**1.** At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam. **2.** All parts of a Question should be answered consecutively. Each Answer should start from a fresh page. **3.** Assumptions made if any, should be stated clearly at the beginning of your answer.		

Answer all the Groups

Group A

Answer all the questions of the following $5 \times 1 = 5$

1. **a)** How many gears have to provide to get 18 spindle speeds in a lathe?
b) What is the purpose of feed motion in machine tools?
c) In which progression preferably spindle speeds of machine tools are provided?
d) What are the different type of control systems of machine tool?
e) Which mechanism is used for changing feed in center lathe?

GROUP –B

Answer *any three* of the following $3 \times 5 = 15$

2. Explain design procedure of speed gear box.
3. Define backlash and what are its after effects? How is backlash minimized in a lead screw and nut drive? 3+2
4. Why box section is preferred for machine tool bed?
5. Discuss machine tool guide wear.

GROUP –C

Answer *any two* of the following $2 \times 10 = 20$

6. Derive an expression for GP ratio limitation (1<0<2) for machine tool stepped drive system. What is meant by Deviation diagram? 6+4
7. If in 12 speed lathe the velocity ranges from 40 m/min to 200 m/min and job diameter ranges from 50 mm to 200 mm, then what would be the values of those 12 spindle speeds.
8. Explain hydraulic circuit for shaping and grinding machine with sketch.

———————