

A division of PhIE Learning Center

**GATE Mechanical Engineering**

**ASSIGNMENT – MACHINING AND MACHINE TOOL OPERATIONS-1**

*Q 1-14 carries 1 mark each, Q 15-25 carries 2 marks each*

Q 1. The purpose of providing side rake angle on the cutting tool is to

- a) avoid work from rubbing against tool
- b) control chip flow
- c) strengthen tool edge
- d) break chips

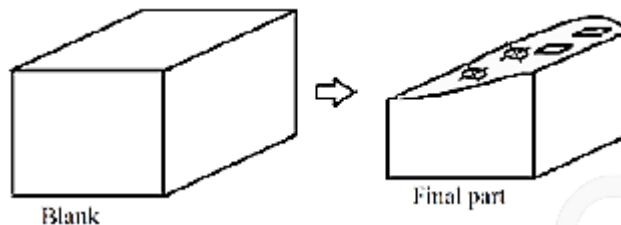
*[IES 2015]*

Q 2. In ultrasonic machining process, the material removal rate with time would

- a) increase
- b) decrease
- c) increase and then decrease
- d) decrease and then increase

*[ISRO 2015]*

Q 3. Find the correct combination of manufacturing processes to produce the part, shown in figure, from a blank (holes shown are with square and circular cross-sections).



- a) Drilling and milling on column and knee type universal milling machine
- b) Die-sinking and CNC Wire-cut EDM process
- c) Die-sinking and CNC drilling
- d) CNC Wire-cut EDM process only

Q 4. Which of the following statements related to grinding process is INCORRECT?

- a) Grinding wheels made of finer abrasive grains produce better surface finish
- b) Abrasive grains tend to fracture frequently during the grinding process
- c) Specific energy in grinding is higher than in turning
- d) Cutting speed in grinding process is much lower than that in face milling

[GATE PI 2015]

Q 5. The basis of slip line field theory in metal cutting is

- a) Merchant theory
- b) Lee and Shaffer theory
- c) Ernst-Merchant theory
- d) None of these

Q 6. A milling cutter having 8 teeth is rotating at 150 rpm. If the feed per tooth is 0.1, the table speed in mm per minute is

- a) 120
- b) 187
- c) 125
- d) 70

[ISRO 2015]

Q 7. A negative rake angle is generally preferred for

- a) Brittle workpiece materials to reduce cutting forces
- b) Cutting tool materials that are hard and brittle
- c) Ductile workpiece materials to reduce cutting forces
- d) Cutting tool materials that have higher shock resistance

Q 8. The following provides the best surface finish

- a) Hand grinding
- b) Cylindrical grinding
- c) Cylindrical turning
- d) Milling