

MECHANICAL ENGINEERING DEPARTMENT, I.I.T. KANPUR  
 TA 202: Manufacturing Processes: Quiz-1; Max. Marks: 15; Time: 15 min; VKJ/I-0214

Name: \_\_\_\_\_ ; Roll No. \_\_\_\_\_ Section: \_\_\_\_\_

*Note: Write the answers in the space provided, or as instructed in the question. Number within parentheses indicates marks. No partial grading.*

Q.1. Encircle the most appropriate answer: {3x1}

(a) Time taken to machine a 2.5 cm long shaft at 300 RPM and feed rate of 0.25 mm/rev. will be: (a<sub>1</sub>) 10 s, (a<sub>2</sub>) 40 s, (a<sub>3</sub>) 20 s, (a<sub>4</sub>) 50 s, (a<sub>5</sub>) None of these.

(b) During turning of a M.S. shaft, chip thickness ratio will be: (b<sub>1</sub>) >1, (b<sub>2</sub>) <1, (b<sub>3</sub>) =1.

(c) Shear plane angle is the angle between (a<sub>1</sub>) shear plane and the machined surface, (a<sub>2</sub>) shear plane and rake face of the tool, (a<sub>3</sub>) rake face of the tool and the vertical plane, (a<sub>4</sub>) shear plane and horizontal plane, (a<sub>5</sub>) none of these.

Q.2 Write true (T) or false (F) in the bracket { } provided.

(i)  $h_k$  is a flank wear index which indicates permitted flank wear in mm. [1] { }

(ii) Two single point turning tools (A and B) are specified as follows: [2]

A : 10 - 10 - 6 - 6 - 10 - 15 - 3

B : 15 - 12 - 6 - 6 - 10 - 15 - 1

Which of these tools is stronger? { }

(iii) H.S.S. single point tool is recommended for turning WC bar at 50 m/min. Write whether this recommendation is correct (T) or wrong (F)?. [2] { }

Q.3. Match the items in column A with the items in column B. [7]

A

- (a<sub>1</sub>) HSS
- (a<sub>2</sub>) 2-D cutting
- (a<sub>3</sub>) Tolerances
- (a<sub>4</sub>) Prismatic parts
- (a<sub>5</sub>) Increasing hole size
- (a<sub>6</sub>) Flank wear
- (a<sub>7</sub>) Programmable M/C tools

B

- (b<sub>1</sub>) CNC Machining center
- (b<sub>2</sub>) Oblique cutting
- (b<sub>3</sub>) boring operation
- (b<sub>4</sub>) Wear on rake face
- (b<sub>5</sub>) Oblique cutting
- (b<sub>6</sub>) Milling operation
- (b<sub>7</sub>) Orthogonal machining
- (b<sub>8</sub>) Difference between upper limit of size and lower limit of size
- (b<sub>9</sub>) None of these
- (b<sub>10</sub>) Tool material.

Answer (Fill the correct answer from column B).

(a<sub>1</sub>) \_\_\_\_\_ ;(a<sub>2</sub>) \_\_\_\_\_ ;(a<sub>3</sub>) \_\_\_\_\_ ;(a<sub>4</sub>) \_\_\_\_\_ ;(a<sub>5</sub>) \_\_\_\_\_ ;(a<sub>6</sub>) \_\_\_\_\_ ;(a<sub>7</sub>) \_\_\_\_\_

Good Luck