Assignment 5

The cut-off date for submitting this assignment has passed.

Assignment 5

1. What will be the surface obtained when generate and drill holes are circular and straight respectively in boring process? [1 point]
   - Pass
   - Surface roughness
   - Straightness
   - Collector

   No, the answer is incorrect. Correct Answer: Straightness

2. Which of the following is not true for shaping process? [1 point]
   - Cutting tool is provided reciprocating motion.
   - Workpiece is fixed during the shaping operation.
   - Collector is used.
   - Collector is present in shaper machine.

   No, the answer is incorrect. Correct Answer: Collector is used.

3. Which of the following is correct for plating? [1 point]
   - Upward force tends to lift up the workpiece.
   - Lower part of the workpiece is used.
   - Collectors are not necessary.
   - Lower part of the workpiece is used.

   No, the answer is incorrect. Correct Answer: Lower part of the workpiece is used.

4. Which of the following is correct for down plating? [1 point]
   - Tool wear is faster.
   - Width of the slits at maximum and decreases.
   - Surface finish obtained is not good.
   - More power is required.

   No, the answer is incorrect. Correct Answer: Surface finish obtained is not good.

5. Which of the following is the correct expression for relation between rake angle (\(\alpha\)), shear angle (\(\beta\)), and cutting ratio (\(r\))? [1 point]
   - \(\tan \beta = \cot \alpha (\cos \alpha + \sin \alpha)\)
   - \(\tan \beta = \cot \alpha (\cos \alpha - \sin \alpha)\)
   - \(\tan \beta = \cot \alpha (\cos \alpha + \sin \alpha)\)
   - \(\tan \beta = \cot \alpha (\cos \alpha - \sin \alpha)\)

   No, the answer is incorrect. Correct Answer: \(\tan \beta = \cot \alpha (\cos \alpha + \sin \alpha)\).

6. In an integrated cutting operation, the tool has a rake angle of \(\alpha\), the chip thickness before the cut is \(0.3\) mm, and the cut yields a deformation chip thickness of \(0.06\) mm. What are the shear plane angle and the shear area for the current machining operation? [1 point]

   No, the answer is incorrect. Correct Answer: Shear plane angle and shear area are calculated based on the deformation chip thickness and rake angle of the tool.

7. In an integrated cutting operation, the tool has a rake angle of \(\alpha\), the chip thickness before the cut is \(0.3\) mm, and the cut yields a deformation chip thickness of \(0.06\) mm. What is the Hinton angle in this case calculated through Smith & Merchant's theory and Loe & Shaker theory? [1 point]

   - 32.4° and 18.5°
   - 72.1° and 31.1°
   - 92.7° and 33.1°
   - 52.7° and 29.6°

   No, the answer is incorrect. Correct Answer: 32.4° and 18.5°.

8. Which of the following is the correct relationship between rake angle (\(\alpha\)), shear angle (\(\beta\)), and friction angle (\(\phi\)) as per Statler's relationship? [1 point]
   - \(\alpha = \beta + \phi\)
   - \(\alpha = 2\beta + \phi\)
   - \(\alpha = \beta - \phi\)
   - \(\alpha = 3\beta + \phi\)

   No, the answer is incorrect. Correct Answer: \(\alpha = \beta + \phi\).

9. Which of the following is not grouped under metal removal process? [1 point]
   - Stamping
   - Milling
   - Grinding
   - Drilling

   No, the answer is incorrect. Correct Answer: Stamping.

10. What will be the coefficient of friction in machining when \(F_1 = 600\) N, \(F_2 = 1200\) N, and \(\tan \beta = 0.5\)? [1 point]

    - 0.56
    - 0.61
    - 0.65
    - 0.70

    No, the answer is incorrect. Correct Answer: 0.56.