SET-A

BHARTIYA SKILL DEVELOPMENT UNIVERSITY

Registration No.:.....

School of Manufacturing Skills

Session: 2020-21 (Summer Semester)

B. Voc. Program, I Semester,

2nd In-Sem. Examination

Course Code: SMS1102 **Time: 1 Hour**

Course Name: Handskills **Max. Marks: 20**

Instructions:

1. Attempt all questions.
2. Section A contains 05 Questions. Each question carries 1 Mark.
3. Section B contains 03 Questions. Each question carries 2 Marks.
4. Section C contains 03 Questions. Each question carries 3 Marks.

Section – A

05X01 = 05 Marks

1. What happens if the size of the clearance angle/relief angle becomes very less?
   a) The friction will be more and the surface quality will be bad
   b) Chips will break very easily
   c) The tool will penetrate deeper
   d) None of the above
2. What would be the procedure for the reaming process?
   a) Drill – core drill – reamer
   b) Spot drill – drill – CSK – reamer
   c) Spot drill – drill – CSK – core drill – reamer
   d) None of the above
3. Which one is not a part of the file?
   a) Face length
   b) Tang
   c) Bow
   d) Handle
4. Point angle of a twist drill is (degree)-
   a) 45
   b) 115
   c) 118
   d) 90
5. Jaw protectors can be made of-
   a) Plastic
   b) High-speed steel
   c) ceramics
   d) None of the above

Section- B 02X3= 6 Marks

6. Write the differences between the 'cut file' and 'milled file'.
7. Describe the free cutting in sawing. Types of saw blade can be made to cut free (sketch).
8. Define the scribing and punching.

Section- C 03X3= 9 Marks

9. Write the formula for cutting speed. Also, define its nomenclature with its unit. If cutting speed is 30 m/min and tool diameter is 7 mm then calculate the RPM.
10. What occupational safety should be considered during sawing?
11. Define the following;

    a) Drilling b) Reaming c) Tapping d) CSK

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Answer Key

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   a) 45
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   c) **118**
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5. Jaw protectors can be made of-
   a) **Plastic**
   b) High-speed steel
   c) ceramics
   d) None of the above

Section- B 02X3= 6 Marks

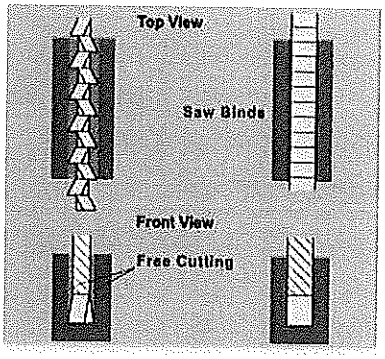
6. Write the differences between the 'cut file' and 'milled file'.

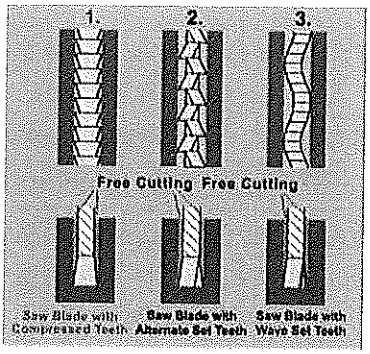
   Ans. Cut file – cut files are made by chiseling notches into the file face. This results in a file with a negative rake angle and a scraping effect. Therefore, cut files are preferred for hard materials.

Milled file – milled files are made by milling the cutting edge into the file face. Files with milled teeth have a positive rake angle, and therefore cut better than cut files. Milled files are especially suited for use on soft material

7. Describe the free cutting in sawing. Types of saw blade can be made to cut free (sketch).

Ans. To prevent the saw blade from binding, the kerf must be wider than the thickness of the saw blade. If this is not the case, the saw blade will bind. Therefore, the saw blades are designed so that they cut themselves free.





Free cutting types:

a) Compression of the teeth
b) Alternation of the teeth
c) Wave setting of the teeth

8. Define the scribing and punching.

Ans. Scribing is a process to transferring the drawing dimensions onto the work and punching is a process to make a conical depression onto the workpiece surface.

Scriber, pencil, marking t rule, trammel, and divider.

Section- C

03X3= 9 Marks

9. Write the formula for cutting speed. Also, define its nomenclature with its unit. If cutting speed is 30 m/min and tool diameter is 7 mm then calculate the RPM.

Ans.

Vc= πDN/ 1000 where D tool dia. and Vc cutting speed and N revolution per minute.

N=30x1000/3.14x7=1364 RPM

10. What occupational safety should be considered during sawing?

Ans. Occupational safety during sawing –

a) Clamp the work piece firmly in the vise.
b) Prevent the saw from slipping off the work piece by filing a notch.
c) Shortly before separation of the work piece, reduce the cutting pressure.
d) Don't remove saw chips with fingers.
e) Deburr the work piece after sawing

11. Define the following;

a) Drilling b) Reaming c) Tapping d) CSK

a) Drilling – It is a process of making hole onto the work piece.

b) Reaming – It is a process of enlarging a hole with high surface quality and within tolerance of 10 – 20 microns.

c) Tapping – It is a process of making internal thread with a special tool named 'tap'.

d) CSK – It is a process of making a conical shape at the entrance of the hole.

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Session: 2020-21 (Summer Semester)

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Course Code: SMS1103 **Time: 1 Hour**

Course Name: Conventional Milling **Max. Marks: 20**

Instructions:

1. Attempt all questions.
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3. Section B contains 03 Questions. Each question carries 2 Marks.
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Section – A

05X01 = 05 Marks

1. Type 'H' milling cutters are used to cut materials.
   a) Soft & stringy
   b) Hard & tough
   c) Hardened steel
   d) All of the above
2. Wedge angle is the angle between _____ and _____.
   a) Tool flank & face
   b) Face & finish surface
   c) The perpendicular line to the point of contact & rake face
   d) None of these
3. Which type of wear is caused due to fluctuations in temperature?
   a) Edge fractures
   b) Thermal cracks
   c) Edge build-up
   d) Chips & splinters
4. Which tool holder is used for clamping Morse taper tool?
   a) Collet type tool holder
   b) Reducing bushes
   c) Weldon type tool holder
   d) Arbor type tool holder
5. What is the range for V_c on the mild steel workpiece with HSS cutter?
   a) 25-30
   b) 400-500
   c) 100-120
   d) 80-100

Section- B

02X3= 6 Marks

6. Write any 3 uses of Cutting Oil?
7. What is Milling and differentiate between grinding and milling?
8. Write the difference between turning and milling?

Section- C

03X3= 9 Marks

9. Explain the following: -
    a. Name the types of Tool Holders with their applications.
    b. CNC milling machine.
10. Explain the different types of Milling processes.
11. Describe the Steps to calculate R.P.M for ⌀63 Face mill with V_c= 450 and also calculate its Feed Rate with feed per tooth 0.15?

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Answer Key

Section – A

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   a) 25-30
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   d) 80-100

Section- B 02X3= 6 Marks

6. Write any 3 uses of Cutting Oil?

   Ans. 1. It prevents tool wear
   2. Increasing tool life
   3. Improves surface finish quality
   4. Maintain temp during machining.

7. What is Milling and differentiate between grinding and milling?

   Ans. Milling is a material removal process in which we use multi-point cutting tool and our workpiece is stationary & tool is rotating. Difference between milling and grinding is in milling we use geometrically define cutting tools while in grinding we use undefined geometrically tools like grinding wheel.

8. Write the difference between turning and milling?

   Ans. In turning we use a single-point cutting tool or in milling we use multi-point cutting tool. In turning our workpiece is rotating and the tool is stationary while in milling our tool is rotating and workpiece remain stationary.

Section- C 03X3= 9 Marks

9. Explain the following: -
   a. Name the types of Tool Holders with their applications.
   b. CNC milling machine.

   Ans. a) Arbor type tool holder- Use for tools don't have a shank
   b) Side clamp tool holder- Use for roughing operations.
   c) Collet type tool holder- Use for finishing operations
   d) Reducing buses type tool holder- Use for tools have tapper shank or mores taper.

10. Explain the different types of Milling processes.

    Face milling- In face milling process end cutting edges remove material from the workpiece surface

    End peripheral milling – In the end, the peripheral milling process end and peripheral cutting edges both removes material from the workpiece surface

    Profile milling- In profile milling process special profile tool is used to generate a profile on the workpiece

    Thread milling- In thread milling process we use thread tool to make threads on the workpiece.

11. Describe the Steps to calculate R.P.M for ⌀63 Face mill with V_c= 450 and also calculate its Feed Rate with feed per tooth 0.15?

    Ans. N= Vc x 1000/pie x D
    N= 450 X 1000 X 7/ 22 X 63
    N= 2272

    Feed per tooth= 0.15
    No of teeth =6
    feed rate= 0.15x6x2272