



**BHARTIYA SKILL DEVELOPMENT UNIVERSITY**  
**SCHOOL OF MANUFACTURING SKILLS**  
**1<sup>ST</sup> SEMESTER, SECOND IN-SEM. EXAMINATION**  
**WINTER SEMESTER, B.VOC. PROGRAM**  
**SESSION 2018-2019**

**Course Code:** SMS1005  
**Time (Minutes):** 60

**Course Name:** Con. Turning  
**Maximum Marks:** 20

**Instructions:**


1. Attempt all questions.
2. Use of Calculators is prohibited.
3. Section A contains 10 Questions. Each question carries 0.5 Mark.
4. Section B contains 06 Questions. Each question carries 1 Mark.
5. Section C contains 03 Questions. Each question carries 3 Marks.

**Section- A**

1. What is the name of coolant being used?
2. Thread angle of buttress thread is.....
3. Concentration of coolant should lie between..... to .....
4. Name different types of chips formed while cutting.
5. Average surface roughness value is named as .....
6. What is the formula of cutting velocity and specify the unit?
7.  $\alpha + \beta + \gamma = \dots\dots\dots$
8. Name any 2 types of tolerance.
9. Which thread is capable to bear heavy load in both directions?
10. Carbide tool can work up to .....°C

**Section B**

11. Under which condition tear chips can be formed?
12. What is the formula for minimum depth of cut?
13. What is the formula for maximum feed rate?
14. Enlist at least 5 operations we can perform on lathe machine.
15. Why do we use coolant?
16. Which angle mainly influences chip formation?



Section C

17. For thread M 16X2, calculate:-

(a):- Thread depth

(b):- Required chamfer

(c):- Minor diameter

18. Explain at least 6 components of lathe machine.

19. Write complete procedure of making Centre drill.

OR

Define different types of thread by their thread cross-section.



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**Section- A**

1. What is the name of coolant being used?  
**Ans.** BLASER VASCO – 5000 0.5 Mark
2. Thread angle of buttress thread is.....  
**Ans.** 33° 0.5 Mark
3. Concentration of coolant should lie between..... to .....  
**Ans.** 8% to 11%. 0.5 Mark
4. Name different types of chips formed while cutting.  
**Ans.** 1. Tear Chips,  
2. Continuous chips  
3. Shear chips. 0.5 Mark
5. Average surface roughness value is named as .....  
**Ans.** Ra 0.5 Mark
6. What is the formula of cutting velocity and specify the unit?  
**Ans.**  $V_c = \frac{\pi dn}{1000} \text{ m/min}$  0.5 Mark
7.  $\alpha + \beta + \gamma = \dots\dots\dots$   
**Ans.** 90° 0.5 Mark
8. Name any 2 types of tolerance.  
**Ans.** Geometrical Tolerance, Shape Tolerance and Positional Tolerance. 0.5 Mark
9. Which thread is capable to bear heavy load in both directions?  
**Ans.** Acme thread. 0.5 Mark
10. Carbide tool can work up to .....°C  
**Ans.** 900 °C 0.5 Mark

## Section B

11. Under which condition tear chips can be formed?

1 Mark

**Ans.** Tear chips mainly results from rough working, when using a large depth of cut, low cutting speed and a large rate of feed.

12. What is the formula for minimum depth of cut?

1 Mark

**Ans.**  $2/3^{\text{rd}}$  of Nose radius.

13. What is the formula for maximum feed rate?

1 Mark

**Ans.**  $1/2$  of Nose radius.

14. Enlist at least 5 operations we can perform on lathe machine.

0.2x5 Mark

**Ans.** 1.) Facing, 2.) Turning, 3.) Center drill, 4.) Threading, 5.) Grooving.

15. Why do we use coolant?

**Ans.** Cooling lubricant are used:

0.33x3 Mark

- 1) to increase tool life
- 2) to improve the surface finish of the workpiece
- 3) to reduce the surface temperature of the workpiece.

16. Which angle mainly influences chip formation?

1 Mark

**Ans.** Rake angle mainly influences chip formation.

## Section C

17. For thread M 16X2, calculate:-

1x3 Mark

- (a):- Thread depth
- (b):- Required chamfer
- (c):- Minor diameter

**Ans.** (a). Thread depth =  $0.614 \times \text{pitch}$

$$= 0.614 \times 2$$

$$= 1.228 \text{ mm (radially)}$$

$$\text{Thread depth (diametrically)} = 2 \times 1.228$$

$$= 2.456 \text{ mm}$$

$$\begin{aligned}
 \text{(b). Required Chamfer} &= \frac{\text{major dia.} - \text{minor dia.}}{2} + 0.5 \\
 &= \frac{15.8 - 13.3}{2} + 0.5 \\
 &= 2 \text{ mm (approx.)}
 \end{aligned}$$

$$\begin{aligned}
 \text{(c). Minor diameter} &= \text{major dia.} - \text{thread depth} \\
 &= 15.8 - 2.5 \\
 &= 13.3 \text{ mm}
 \end{aligned}$$

18. Explain at least 6 components of lathe machine.

0.5x6 Mark

**Ans. 1.) Lathe bed** – The lathe bed is fixed to the lathe frame and made of grey cast iron which is extremely rigid and vibration free.

**2.) Head stock** – The headstock is used to transmit working energy to the workpiece.

**3.) Tailstock** – The tailstock serves as a steady for long workpiece and is also used for holding tools.

**4.) Saddle**- The longitudinal slide runs on the guide ways of the lathe bed. It can move by hand or through lead screw or feed shaft.

**5.) Cross Slide**- The cross slide is driven by threaded spindle. For transverse movement cross slide is required.

**6.) Compound Slide**- The adjustable top slide carries the tool post or tool rest. For precise movement we can use compound slide.

19. Write complete procedure of making Centre drill.

OR

Define different types of thread by their thread cross-section.

**Ans.** Procedure of making center drill:-

- (1) According to drawing select the center drill(.25 marks)
- (2) Mount it in drill chuck. (.25 marks)
- (3) Calculate the RPM. (.25 marks)
- (4) Insert it in workpiece when taper will start. Measure the Actual diameter. (.25 marks)
- (5) Use formula

1 Mark

$\sqrt{3}$  Required diameter- Actual diameter

2

(6) Calculate the distance, and put center drill inside the workpiece calculated distance with the help of tail stock.

1 Mark

