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Question Paper Code : **21082**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Seventh Semester

Aeronautical Engineering

OPR 751 – BASICS IN MANUFACTURING AND METAL CUTTING PROCESS

(Common to: Aerospace Engineering/Material Science and Engineering/Robotics and Automation)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write down the names of any four lathe accessories?

2. Name any four work holding devices?

3. Write down any four operations performed by a shaper?

4. Compare hydraulic shaper with mechanical shaper?

5. Write down any four operations that can be performed in a drilling machine?

6. What is meant by "sensitive hand feed"?

7. What is cutting force?

8. Define oblique cutting?

9. What is called a tool?

10. How tool life is defined?

PART B — (5 × 13 = 65 marks)

11. (a) What are the different types of feed mechanism available in center lathe? Explain any two types in detail with neat sketch.

Or

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(b) Explain the following taper turning methods,

    (i)   Taper turning by arm form tool

    (ii)   Taper turning by swiveling the compound rest.

12. (a) Illustrate working of the Crank and slotted ink quick return mechanism with neat sketch.

Or

(b) Describe the working principle of feed mechanism of the shaper with neat sketch.

13. (a) Explain the construction and working of Radial drilling machine.

Or

(b) Explain the various Work holding devices used in drilling machines with neat sketch.

14. (a) Explain Merchant's Circle Diagram and its use.

Or

(b) Explain various tool parts of a single point cutting tool with a neat sketch.

15. (a) Describe the forms of wears on the cutting tool with neat sketches.

Or

(b) Discuss the various types of chips produced during metal machining with neat diagram.

PART C — (1 × 15 = 15 marks)

16. (a) What do you understand by tool life? What is the significance to an engineer who is interested in productivity? What different criteria are used to identify that the tool has reached its limiting life?

Or

(b) Briefly explain about the formation Built-up-Edge (BUE). Also justify its and effects with suitable sketch.

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