BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Tech.(ME)-2021/B.Tech.(ME)-2023
Course Name – Manufacturing Technology
Course Code - PCC-ME601
(Semester VI)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the reasons behind the metal removal process in terms of cost increase.
   a) More energy is required
   b) Some of the material is wasted
   c) More energy is required and some of the material is wasted
   d) None of the mentioned

(ii) The Tool life may be defined as,
   a) The number of pieces machined between tool sharpening
   b) Time when the tool is in contact with the job
   c) The volume of material removed between tool sharpening
   d) All of the mentioned

(iii) Flank wear may be observed at,
   a) Tool flank below the cutting edge
   b) Tool shank
   c) Tool face
   d) None of the mentioned

(iv) Thermal cracking of tools can be found at,
   a) Low temperature
   b) High temperature
   c) Low cutting speed
   d) None of the mentioned

(v) Identify the correct definition of manufacturing technology.
   a) The use of computers in manufacturing
   b) The process of converting raw materials into finished products
   c) The study of management techniques in manufacturin
   d) The application of robots in industrial settings

(vi) Predict the purpose of the carriage in a lathe.
   a) Holding the workpiece securely
   b) Rotating the workpiece
   c) Supporting the cutting tool
   d) Providing longitudinal movement to the cutting tool

(vii) Predict the type of cutting tool material suitable for high-speed cutting and finishing operations.

a) High-speed steel (HSS) b) Carbide
c) Carbon steel d) Cast iron

(viii) Select the instrument that help to measure the cutting force.

a) Transducer b) Dynamometer
c) Load cell d) All of the mentioned

(ix) In metal machining, the zone where the maximum heat is generated due to plastic deformation of the metal is known as the primary deformation zone.

a) friction zone b) work tool contact zone
c) shear zone d) none of the mentioned

(x) Identify the process that is not a type of nontraditional machining.

a) Electrochemical process b) Chemical machining
c) Mechanical energy process d) None of the mentioned

(xi) Select among the following that will give the better chip flow.

a) Positive back rake angle tool b) Negative back rake angle tool
c) Zero back rake angle tool d) None of the mentioned

(xii) Select the factor is considered for evaluation of maintainability.

a) Cutting forces and power consumption b) Tool life
c) Type of chips and shear angle d) All of the mentioned

(xiii) Thermal conductivity of cutting tool is relate to,

a) High b) Low
c) Very low d) None of the mentioned

(xiv) Identify the following serves as a housing for driving pulley, and back gears.

a) Headstock b) Tailstock
c) Tool Post d) None of the mentioned

(xv) Velocity forming is expressed as,

a) A metalworking process using low-speed machines b) A metalworking process using high-speed machines
c) A metalworking process that doesn't involve machines d) A metalworking process using hand tools

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Discuss the factors are responsible for builtup edge in cutting tools. (3)
3. Give two examples of orthogonal cutting. (3)
4. List the elements of single-point cutting tool geometry in ASA system. (3)
5. Explain the specifications of grinding wheel. (3)
6. Analyze different mechanisms of chip formation. (3)

OR

Analyze the various metal removal process. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Discuss the concept of rapid prototyping and its significance in modern product development processes. (5)
8. Interpret the significance of chip-tool interface temperature in machining performance. (5)
9. Illustrate the various types of lathe. (5)
10. Estimate machining economics considering tool life and machining time. (5)
11. Compare grinding with other surface finishing processes based on material removal mechanism and surface quality. (5)
12. Explain the factors that can be considered to select a grinding wheel and state about the Parameters. (5)

Explain the various thread cutting methods. **OR** (5)

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