**VISION INSTITUTE OF TECHNOLOGY, ALIGARH**

# B.TECH .2nd YEAR (ME) (SEM-IV)

**Assignment**

**SBJECT- MANUFACTURING PROCESSES (NME-404)**

* 1. Why machining allowance is provided in casting?
  2. Differentiate between wire drawing and extrusion.
  3. What is the difference between cutting tool and machine tool?
  4. In a machining operation, doubling cutting speed reduces the tool life to 1/8th of original value. The exponent n of Taylor’s tool life equation will be?
  5. How non-conventional machining differs from conventional machining process?

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* 1. Explain the purpose of riser in casting process. Also discuss the Caine’s method used for riser design.
  2. Show schematically the Merchant force circle in orthogonal cutting. Also drive the following shear angle relationship

(2𝜑 + − 𝑎 = /2)

Where:

φ is the shear angle, λ is the friction angle and α is the rake angle.

* 1. Explain grade in the grinding wheel. Outline the grinding wheel specification by using the following marking of a grinding wheel:

# “B-D-46-P-5-R-17”

* 1. Discuss the TIG & MIG welding in detail with the help of neat sketches.
  2. What is water jet machining? Explain its working principle with the help of suitable diagram. Also, mention its applications.
  3. Explain various types of defects in casting.
  4. Discuss the heat transfer during solidification of a casting of a pure metal with the help of temperature and distance diagram
  5. Differentiate between hot working and cold working. Also explain advantages of metal forming processes over other manufacturing processes.
  6. What do you understand by tool wear? Explain crater wear and flank wear with the help of suitable diagram.
  7. An HSS tool is used for turning operation. The tool life is 60 min when turning is carried out at 30 m/min. The tool life will be reduced to 2 min if the cutting speed is doubled. Find the suitable speed in RPM for turning 300 mm diameter so that tool life is 30 min.
  8. Discuss various types of abrasives used for manufacturing of grinding wheels. Also differentiate between dressing and truing.

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