

# Question bank of Manufacturing Processes

## B.Tech (2<sup>nd</sup> year, ME)

### Unit 1

- 1) Explain in brief of the following with neat diagram:
  - (i) Investment casting process with its application
  - (ii) Common defects found in casting and remedies
  - (iii) Write down different pattern Allowances
- 2) Enlist various hot working and cold working processes.
- 3) What are the design considerations of powder metallurgy?
- 4) From first principles, derive the formula for the extrusion of wire with friction where  $\sigma$  refers to the stress in wire at inlet to the die,  $D_B$  and  $D_a$  are the inlet and outlet diameters of the wire,  $B = \mu \cot \alpha$  ( $\mu$  is coeff. of friction and  $\alpha$  is half die angle) and  $K$  is the critical shear stress.
- 5) Briefly explain mechanism of rolling process. Also derive the relation for maximum draft obtained in rolling process.
- 6) What is moulding sand? List the different types of moulding sand. What are the characteristics of moulding sand?
- 7) Describe the following in brief:
  - i. Centrifugal casting
  - ii. Investment casting
  - iii. Stir casting
  - iv. Continuous casting
- 8) Derive an expression for average pressure for forging of a disc with sticking friction condition.

### Unit 2

- 1) Explain Merchant's force diagram and derive the merchant's shear angle relationships.
- 2) Write down the Taylor's tool life equation also explain the different factor which affect the tool life. What are the desirable characteristics of cutting tool material?
- 3) With the help of suitable sketch, describe the geometry of a twist drill and also explain .
- 4) What do you mean by brazing and soldering?
- 5) What do you mean by cnc machining?

## Unit 3

- 1) What are the different finishing operations? What do you mean by surface and cylindrical grinding?
- 2) Explain with the help of neat sketch grinding operation. Also explain designation of grinding wheel?
- 3) Explain lapping, polishing and honing process .also explains centreless grinding.
- 4) What do you mean by grinding wheel wear?Write the expression for maximum chip thickness?
- 5) Explain dressing and truing?

## Unit 4

- 1) What is the difference between submerged arc welding and electro slag welding? Also explain the mechanism of resistance welding process?
- 2) Explain the principle of arc welding .also explain TIG welding with applications and limitation.
- 3) Explain the principle of gas welding. Also explain different types of flame and their applications.
- 4) What do you mean by atomic hydrogen welding and weld decay in HAZ?
- 5) Write the survey of welding and its applications.

## Unit 5

- 1) Explain the working principle of plasma arc machining. Also write down their advantages and applications.
- 2) Derive the expression for the material removal rate of electro discharge machining. Also explain various types of circuit used in EDM.
- 3) Explain the working principle of electro-chemical machining process with the help of suitable diagram also derive the formula for material removal rate.
- 4) What is Abrasive jet machining (AJM)? Describe its working with suitable diagram. Also explain the effect of standoff distance and abrasive grit size on material removal rate in the AJM.
- 5) What do you mean by a) LBM b) EBM c) ultrasonic machining