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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017**

**Course Code: ME220**

**Course Name: MANUFACTURING TECHNOLOGY (IE, ME, MA)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three questions. Each carries 10 marks.*

- 1 a) List at least four types of moulding sand based on their use in moulding operation. (2)
- b) Explain four desirable properties of moulding sand. (8)
- 2 With a neat and labelled sketch, analyse the steps in Shell moulding process. List advantages and application of the process. (10)
- 3 a) Describe the construction and advantage of Planetary roll mill with simple sketch. (4)
- b) Identify and explain a process for production of seamless tubes and pipes. (6)
- 4 With simple sketches describe the following: -
  - i) Alligating (3)
  - ii) Neutral point (3)
  - iii) Thread rolling process (4)

**PART B**

*Answer any three questions. Each carries 10 marks*

- 5 a) Identify four advantages of forging process. (4)
- b) Differentiate between Extrusion and Drawing process with simple sketches. (6)
- 6 Explain the following: -
  - i) Cold shuts (3)
  - ii) Forging under sticking condition (3)
  - iii) A process for making thin wires (4)
- 7 a) With a neat sketch explain 3-2-1 principle of locating. (6)
- b) Describe four principles of clamping. (4)
- 8 Describe with sketches the working principle of : -
  - i) Strap clamp (3)
  - ii) Slide clamps (3)
  - iii) Hinge clamps (4)

**PART C**

*Answer any four questions. Each carries 10 marks.*

- 9 With simple sketches illustrate the following: -
  - i) Tube spinning (3)
  - ii) Stretch forming (3)
  - iii) Deep drawing (4)
- 10 Enumerate the following with simple sketches: -
  - i) Spring back (3)
  - ii) Shear spinning (3)
  - iii) Rubber forming (4)

- 11 a) Describe any four welding defects. (4)  
b) What is Heat Affected Zone (HAZ)? Explain the parameters affecting HAZ. (6)
- 12 a) Enumerate the principle of resistance welding (2)  
b) Analyse different types of welding flames in oxy acetylene gas welding with neat sketches. (8)
- 13 a) List the use and types of filler materials and fluxes used in gas welding? (4)  
b) Describe two types of electrical resistance welding processes with neat sketches. (6)
- 14 a) Explain Friction welding process with a neat diagram. (4)  
b) With a neat sketch explain the Submerged Arc Welding. What are the applications of this process? (6)

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