

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
FOURTH/FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

**Course Code: ME220**

**Course Name: MANUFACTURING TECHNOLOGY**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any three full questions, each carries 10 marks.*

Marks

- |   |  |     |
|---|--|-----|
| 1 | a) Write two advantages and disadvantages of sand casting.   | (2) |
|   | b) List the types of patterns and pattern materials.   | (4) |
|   | c) What is a core? Write any two functions and requirements of a core.   | (4) |
| 2 | a) List the sand testing methods.  | (2) |
|   | b) With the aid of sketches write short note on the following<br>i) Two High Mill    ii) Three High Mill    iii) Four High Mill  | (4) |
|   | c) What is the function of gates in casting? Write short notes on the types of Gates?  | (4) |
| 3 | a) What do you mean by recrystallization temperature?  | (2) |
|   | b) Define the terms<br>i) Draft    ii) Neutral point    iii) Angle of Bite   | (4) |
|   | c) Write notes on the Hot chamber pressure die-casting process   | (4) |
| 4 | a) What are the methods used to reduce the roll force requirement in rolling process?  | (3) |
|   | b) $\mu \geq \tan(\alpha)$ . Where $\mu$ = coefficient of friction, $\alpha$ = angle of bite or angle of contact. From the above statement write down the roll bite conditions in rolling. | (4) |
|   | c) Write short notes on Hot and Cold Rolling process.  | (4) |

**PART B**

*Answer any three full questions, each carries 10 marks.*

- |   |  |     |
|---|--|-----|
| 5 | a) With the aid of a simple sketch explain about open die forging.   | (3) |
|   | b) Write short notes on the following forging methods.<br>i) Upsetting    ii) Fullering    iii) Edging                   | (3) |
|   | c) With the aid of a sketch list the terminology for a forging die.  | (4) |
| 6 | a) List the Extrusion Defects.   | (2) |
|   | b) List the forging defects? Write short note on any two forging defects.  | (4) |
|   | c) Write short note on Degree of Freedom. Draw a sketch showing the 12 degrees of freedom.                               | (4) |
| 7 | a) What is a clamp?  | (2) |
|   | b) Differentiate between Hot and Cold Extrusion.   | (4) |
|   | c) Write short notes on the following locating methods<br>i) Locating from circular surfaces.    ii) Concentric locating | (4) |
| 8 | a) Vacuum Clamping   | (3) |
|   | b) Write notes on Hinge Clamping.  | (3) |
|   | c) Write down the principles of clamping.  | (4) |

**PART C**

*Answer any four full questions, each carries 10 marks.*

- 9 a) What is Bending? Write short notes on Bend allowance and Bend Deduction (3)  
b) Write short notes on the following terms: (3)  
i) Bend axis            ii) Flat length            iii) Bend length
- c) Explain about Press-brake forming (4)
- 10 a) What do you mean by the term Bendability? (2)  
b) Write notes on Shear spinning process. (4)  
c) Write notes on rubber forming process. (4)
- 11 a) Define the term Weldability. (2)  
b) Write short notes on the following weld defects (4)  
i) Cracks            ii) Distortion            iii) Lack of penetration.
- c) What do you mean by HAZ? Write short notes on the regions of HAZ. (4)
- 12 a) Write short notes on Gas welding. Write any three advantages, disadvantages and application of gas welding. (5)  
b) Write notes on the following (5)  
i) Consumable Electrodes            ii) Non-consumable Electrodes
- 13 a) Explain how Plasma arc Welding is carried out. (5)  
b) Explain how Gas Tungsten Arc welding is carried out. Write any two advantages of Gas Tungsten Arc welding. (5)
- 14 a) Explain the following types of welding process: (5)  
i) Stud Welding            ii) Percussion welding
- b) Write notes on the following (5)  
i) Torch Brazing            ii) Vacuum Brazing

\*\*\*\*