

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

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| 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
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
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 μ = coefficient of friction, α = 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.

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| 5 | a) With the aid of a simple sketch explain about open die forging. | (3) |
| | b) Write short notes on the following forging methods.
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
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
