

Exam Date & Time: 20-Jan-2023 (09:30 AM - 12:30 PM)



# MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.TECH END SEMESTER MAKE UP EXAMINATIONS, JAN 2023

**MANUFACTURING PROCESS ENGINEERING [MME 2157]**

**Marks: 50**

**Duration: 180 mins.**

**A**

**Answer all the questions.**

Instructions to Candidates: Answer ALL questions Missing data may be suitably assumed

- 1) Explain the laboratory test process undertaken to determine the permeability of a molding sand with suitable sketch (4)
  - A)
  - B) Discuss the casting process with sketch used to make the product shown below without the use of cores (3)
- C) Sketch and explain the electric resistance welding process used for welding of steel racks (3)
- 2) Discuss following operations with suitable sketches
  - a. Lancing
  - A) b. Tube sinking (4)
  - c. Fullering
  - d. Notching
- B) Differentiate forward and backward extrusion with suitable sketches (3)
- C) Identify and with suitable sketch explain the working principle of core making machine used for making regular cross section sand cores (3)
- 3) Discuss the welding process with sketch, where in heat produced by friction is used for welding purpose (3)
  - A)
  - B) Differentiate between straight and reverse polarity welding process with suitable sketches (2)

- C) Index 141 divisions by compound indexing using index plate 3 with hole circles 37, 39, 41, 43, 47 and 49 (5)
- 4) With a neat sketch explain dressing and truing of grinding wheels (4)
- A)
- B) Write the specification of grinding wheel W-D-120-P-10-V-23 (3)
- C) Sketch and describe in brief working principle of a radial drilling machine (3)
- 5) Briefly describe the working principle of ultrasonic machining process with the help of a neat sketch (4)
- A)
- B) With a neat sketch explain the working principle of tumbler gear mechanism used in lathe (3)
- C) With a neat sketch explain the working principle of fused deposition modelling method used in rapid prototyping (3)

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