BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – Dip.ME-2022/Dip.ME-2023
Course Name – Manufacturing Engineering
Course Code - DMEPC305
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Choose the benefit of automation in manufacturing processes.
a) reducing the need for skilled workers
b) increasing the potential for human error
c) increasing production speed and efficiency
d) decreasing the overall cost of production

(ii) Select the role of robots in modern manufacturing.
a) To replace all human workers
b) To improve worker safety and perform repetitive tasks
c) To create a chaotic and unproductive work environment
d) To increase manufacturing costs

(iii) Indicate the primary function of a lathe.
a) cutting materials into shapes
b) Mixing chemicals in a laboratory
c) Baking bread in a bakery
d) Sewing fabrics together

(iv) Predict the purpose of carriage in a lathe.
a) Holding the workpiece securely
b) Rotating the workpiece
c) Supporting the cutting tool
d) Providing longitudinal movement to the cutting tool

(v) Select the lathe operation which is used to create a hole in the center of the workpiece.
a) Turning
b) Facing
c) Boring
d) Threading

(vi) Discover the process of cutting internal threads on the inside surface of a hole.
a) Boring
b) Threading
c) Turning
d) Facing

(vii) Choose the purpose of using coolant during lathe operation.
a) To cool down the lathe machine
b) To make the cutting tool more rigid
c) To prevent overheating
d) To lubricate the workpiece

(viii) Choose the type of material that is moatly used for casting.
a) Wood and plastic
b) Glass and ceramics

c) Metal and alloys d) Rubber and leather

(ix) Select the lost-wax casting process .

a) Sand casting b) Investment casting
c) Die casting d) Continuous casting

(x) Identify is the purpose of the gating system in casting.

a) To cool down the molten metal rapidly b) To remove impurities from the metal
c) To allow air to escape from the mold d) To control the flow of molten metal into the mold cavity

(xi) In casting, the solidified metal piece inside the mold is called:

a) Sprue b) Riser
c) Casting defect d) Casting pattern

(xii) Identify the casting defect which appears as a depression or cavity on the casting surface.

a) Shrinkage defect b) Blowholes
c) Inclusions d) Sand wash

(xiii) Choose the casting defect which is caused by the presence of low-melting-point impurities in the metal.

a) Shrinkage defect b) Blowholes
c) Inclusions d) Hot tears

(xiv) Judge the purpose of using a riser in casting.

a) To increase the cooling rate of the metal b) To support the mold during pouring
c) To provide an escape path for air and gases d) To supply molten metal to compensate for shrinkage

(xv) State the disadvantage of sand casting.

a) High tooling costs b) Limited material choices
c) Difficulty in achieving complex shapes d) Long cooling time

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain the process of press forging. (3)
3. State the application of rolling and extrusion process. (3)
4. Interpret few applications of extrusion process. (3)
5. State the advantages of hot extrusion. (3)
6. With a neat sketch explain "gating system" used in casting process. (3)

OR

Distinguish between hot forging and cold forging. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Classify the various types of lathe. (5)
8. With a neat sketch, point out the various zones of a cupola furnace. (5)
9. Write the purpose of providing Runner and Riser in the casting also define the draft allowance.. (5)
10. Explain the term projection welding. (5)
11. Explain the process of knurling with reference to a lathe machine. (5)
12. Justify the statement: "Forging temperature is a critical parameter in the forging process." (5)

OR

Name the type(s) of welding that will you recommend for the welding of Aluminum sheets, also state the reason(s) for your recommendation. (5)