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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **14ME2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **Manufacturing Processes** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | | | | | **Course outcome** | **Marks** |
| **PART-A (40X1=40 MULTIPLE CHOICE QUESTIONS)** | | | | | | | |
| 1. | The top half of the moulding box is called as \_\_\_\_\_\_\_\_\_\_ | | | | | CO1 |  |
|  | a.drag | b.Cope | | c.Pattern | d.sprue |  | (1) |
| 2. | The function of riser is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | CO1 |  |
|  | a. Pour molten metal | b.allow air to escape | c.supply extra metal during cooling | | d.All the above |  | (1) |
| 3. | The process of making a cavity for pouring molten metal is called \_\_\_\_\_\_\_\_\_\_\_. | | | | | CO1 |  |
|  | a.Casting | b.Moulding | | c.Cavity formation | d.All the above |  | (1) |
| 4. | The type of sand which is sprinkled around the pattern to avoid sticking of patten with the moulding sand is \_\_\_\_\_\_\_\_\_. | | | | | CO1 |  |
|  | a. Green sand | b.Dry sand | | c.parting sand | d.facing sand |  | (1) |
| 5. | \_\_\_\_\_\_\_\_\_\_ is simply the duplicate of the component which has to be manufactured by the casting process. | | | | | CO1 |  |
|  | a.casting | b.core | | c.pattern | d.sprue |  | (1) |
| 6. | Mechanical aerators are generally used for increasing the \_\_\_\_\_\_\_\_\_\_\_\_ . | | | | | CO1 |  |
|  | a. cohesiveness | b.flowability | | c.dry strength | d.Refractoriness |  | (1) |
| 7. | \_\_\_\_\_\_\_\_\_\_\_\_\_ pattern is typically used in high production industry. | | | | | CO1 |  |
|  | a.solid | b.split | | c.match plate | d.cope and drag |  | (1) |
| 8. | \_\_\_\_\_\_\_\_\_is used largely for pipe works and drainage fittings. | | | | | CO1 |  |
|  | a. shell pattern | b.split pattern | | c.cope and drag pattern | d.sweep pattern |  | (1) |
| 9. | Incomplete filling of mould cavity is called \_\_\_\_\_\_\_\_\_\_\_\_ . | | | | | CO1 |  |
|  | a. Cold shut | b.Blow holes | | c.Misrun | d.Shrinkage cavity |  | (1) |
| 10. | When fluidity of liquid metal is high the defect occour in casting is \_\_\_\_\_\_\_\_\_\_ . | | | | | CO1 |  |
|  | a. penetration | b.misrun | | c.cold shot | d. cold shut |  | (1) |
| 11. | Lost-wax casting is also known as\_\_\_\_\_. | | | | | CO1 |  |
|  | a. Die Casting | b.Centrifugal Casting | | c. Continuous Casting | d. Investment Casting |  | (1) |
| 12. | In \_\_\_\_\_\_\_\_\_\_ casting, pattern tree is coated with a thin layer of refractory material. | | | | | CO1 |  |
|  | a. Shell | b. Centrifugal | | c. Investment | d. continuous |  | (1) |
| 13. | A water cooled mold is used in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ casting. | | | | | CO1 |  |
|  | a. Semi-centrifugal | b.True centrifugal | | c. Cenrifuge | d. Continuous |  | (1) |
| 14. | \_\_\_\_\_\_\_ is the process in which the desired size and shape of components are obtained through the plastic deformation. | | | | | CO1 |  |
|  | a. Casting | b. Joining | | c. Forming | d. fabrication |  | (1) |
| 15. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is an example for sheet metal forming process. | | | | | CO1 |  |
|  | a. Cup drawing | b. Rolling | | c. Forging | d. Extrusion |  | (1) |
| 16. | Which among the following is not belong to hand forging tool. | | | | | CO1 |  |
|  | a. Drifts | b. Tongs | | c. Rammer | d. Chisels |  | (1) |
| 17. | \_\_\_\_\_\_\_\_\_\_\_\_\_ casting is used for making blooms and billets. | | | | | CO1 |  |
|  | a. Semi-centrifugal | b. Continuous | | c. True centrifugal | d. all the above |  | (1) |
| 18. | \_\_\_\_\_\_\_\_\_\_\_\_ casting, is used to produce tubular parts. | | | | | CO1 |  |
|  | a. Semi-centrifugal | b.Cenrifuge | | c.True centrifugal | d. None |  | (1) |
| 19. | In \_\_\_\_\_\_\_\_ process, pressure chamber connected to the die cavity that is immersed permanently in the molten metal. | | | | | CO1 |  |
|  | a. cold chamber | b.hot chamber | | c. permanent mould | d.all the above |  | (1) |
| 20. | In \_\_\_\_\_\_\_\_\_\_\_ casting, density of metal in final casting is greater in outer sections than at center of rotation | | | | | CO1 |  |
|  | a. Semi-centrifugal | b.Cenrifuge | | c.True centrifugal | d.all the above |  | (1) |

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| 21. | In \_\_\_\_\_\_\_\_\_ extrusion, the problem of friction is prevalent . | | | | | CO1 |  |
|  | a. Forward | b.Impact | c.Reverse | d.lateral | |  | (1) |
| 22. | Fish skin is one of the defects in \_\_\_\_\_\_\_\_\_\_ | | | | | CO1 |  |
|  | a. casting | b.rolling | c.Forming | d.extrusion | |  | (1) |
| 23. | In \_\_\_\_\_\_\_\_\_ method of tube drawing, the internal surface becomes uneven. | | | | | CO1 |  |
|  | a.Sinking | b.Fixed plug | c.floating plug | d.moving mandrel | |  | (1) |
| 24. | Collapsible medicare tubes are produced using \_\_\_\_\_\_\_\_ extrusion. | | | | | CO1 |  |
|  | a. Forward | b.Impact | c.Reverse | d.hydrostatic | |  | (1) |
| 25. | When the internal stresses exceeds the tensile strength of the steel, \_\_\_\_\_\_\_occur in the forging. | | | | | CO1 |  |
|  | a. porosity | b.cracks | c.pitting | d.dents | |  | (1) |
| 26. | In Blanking operation, the \_\_\_\_\_\_\_\_\_\_\_\_ is made to the correct hole size. | | | | | CO2 |  |
|  | a. Blank | b. Die | c. punch | d. clearance | |  | (1) |
| 27. | \_\_\_\_\_\_\_\_\_ is the cutting operation which metal pieces are cut from the edge of a sheet, strip or blank. | | | | | CO2 |  |
|  | a. Lancing | b. Notching | c. Perforating | d.Sliting | |  | (1) |
| 28. | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the operation used to punch overlapping small holes along a contour to cut out. | | | | | CO2 |  |
|  | a. Nibbling | b.Notching | c.Lancing | d.perforating | |  | (1) |
| 29. | \_\_\_\_\_\_\_\_\_\_ die performs two or more cutting operations simultaneously in a single stage. | | | | | CO2 |  |
|  | a. Simple | b. Compound | c. Combination | d.Progressive | |  | (1) |
| 30. | \_\_\_\_\_\_\_\_\_ is defined as thestrainingof thesheet metal around astraightedge. | | | | | CO2 |  |
|  | a. Blanking | b. Shearing | c. Bending | d. Drawing | |  | (1) |
| 31. | The amountof heat generated in resistanceweldingdepends upon \_\_\_\_\_\_\_\_\_\_. | | | | | CO2 |  |
|  | a. Force applied | b. Magnitude ofcurrent | c. Electrodematerial | d. Pressureapplied time | |  | (1) |
| 32. | \_\_\_\_\_\_\_\_\_\_ is aweldingtechnique used to connect parts which arenearlyparallel and don't overlap in resistance welding. | | | | | CO2 |  |
|  | a. Seam welding | b. Spot welding | c. Buttwelding | d. projection  welding | |  | (1) |
| 33. | The particle shape greatly effects the \_\_\_\_\_\_\_\_\_\_\_\_ of the final PM product. | | | | | CO2 |  |
|  | a. Brittleness | b. Toughness | c. Hardness | d. porosity | |  | (1) |
| 34. | The process of compressing loose metal powder particles into required shape and size is called \_\_\_\_\_\_\_\_\_\_. | | | | | CO2 |  |
|  | a. Briquetting | b. shaping | c. embossing | d. coining | |  | (1) |
| 35. | In PM \_\_\_\_\_\_\_\_\_\_ is carried out to impart required strength, density and hardness. | | | | | CO2 |  |
|  | a.Sintering | b. Tempering | c. Normalizing | d. Cooling | |  | (1) |
| 36. | In PM, the temperature of sintering are kept \_\_\_\_ \_\_\_\_ the melting point of main metal powder constituents. | | | | | CO2 |  |
|  | a. Equal | b. Below | c. above | d. None | |  | (1) |
| 37. | \_\_\_\_\_\_\_\_\_\_\_\_\_ flame has three zones. | | | | | CO2 |  |
|  | a. Neutral | b. Oxidizing | c. Carburizing | d. None | |  | (1) |
| 38. | Friction welding is an example for\_\_\_\_\_\_\_\_\_\_ | | | | | CO2 |  |
|  | a. Resistance welding | b. Gas welding | c.solid state welding | d. Arc welding | |  | (1) |
| 39. | In direct current arc welding the greater heat is generated at the \_\_\_\_\_\_\_\_ pole of the arc. | | | | | CO2 |  |
|  | a. Positive | b. Negative | c. Both Positive and negative poles | | d. None |  | (1) |
| 40. | In punching operation,the die opening is made \_\_\_\_\_\_\_\_ an amount equal to die clearance. | | | | | CO2 |  |
|  | a. oversize | b.smaller | c.equal | d. None | |  | (1) |

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| **PART B(8 X 5 = 40 MARKS) (ANSWER ANY EIGHT)** | | | |
| 41. | Discuss the important properties the moulding sand. | CO1 | (5) |
| 42. | Write short note on true centrifugal casting process. | CO1 | (5) |
| 43. | Distinguish between hot working and cold working | CO1 | (5) |
| 44. | Discuss the defects in extrusion. | CO1 | (5) |
| 45. | Describe the different types of sheet metal bending processes. Also explain the spring back phenomenon. | CO1 | (5) |
| 46. | Distinguish between compound die and combination die with simple sketches. | CO2 | (5) |
| 47. | List out the various defects in Welding operations with neat sketch. | CO2 | (5) |
| 48. | List out the advantages and disadvantages of gas welding. | CO2 | (5) |
| 49. | Discuss the important properties of metal powders in powder metallurgy. | CO2 | (5) |
| 50. | Discuss the important applications of powder metallurgy. | CO3 | (5) |
| **PART C( 2 X 10 = 20 MARKS) (ANSWER ANY TWO)** | | | |
| 51. | Explain the investment casting process with neat sketches: List out the advantages and limitations. | CO1 | (10) |
| 52. | Explain the MIG welding process with neat sketch. Also discuss its applications. | CO3 | (10) |
| 53. | Describe the steps involved in the manufacturing of products through powder metallurgy with relavent sketches. | CO2 | (10) |

ALL THE BEST

**Course outcome:**

Ability to

* Demonstrate the principles associated with basic operations involving casting, bulk forming of materials
* Demonstrate the principles associated with basic operations welding, sheet metal and powder metallurgy of engineering materials
* Recommend the most appropriate manufacturing process and material.