BMM3643 Manufacturing Processes

Combination of all topics

Quiz 3

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Quiz 3 - Combination of all topics

- Aims
  - Differentiate the various manufacturing processes and categories
  - Analyze the characteristics and defects depends on the various processes

- Expected Outcomes
  - Understand and able to analyze the characteristics of various manufacturing processes and categories

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1-Why porosity can develop in a casting?
(A) Basically caused by shrinkage, especially in the absence of effective risers.
(B) Caused by shifting of cope and drag
(C) Molten metal penetrate into the sand mold
(D) None of the above

2-Describe the drawbacks to having a riser that is too large?
(A) wastes material, adds to the solidification time and will require additional finishing operations
(B) the formation of microporosity
(C) sufficient pressure will build up and may crack the mold.
(D) hot tearing occurred and reduced the strength

3-How are the individual wax patterns attached on a tree in investment casting?
(A) Heat is applied to the wax pattern and tree at the contact surface
(B) Pressure is applied on the wax pattern
(C) Soldering is applied on both surface wax pattern and tree
(D) Glue is used to attach the wax patterns

4-These are the design rules in forging process EXCEPT
(A) High tolerance and intricate shape are possible
(B) Large at areas should be avoided
(C) Corners, angles, and fillets should be avoided
(D) A small draft angle must be made

5-This is a general recommendations to make forging materials with limited ductility EXCEPT
(A) Forge slowly
(B) Forge at high temperatures to improve ductility
(C) Keep shapes simple and minimize total strain.
(D) None of the above

6-Which of this is NOT the similarities between direct extrusion and drawing
(A) Both uses a compressive pressure
(B) Both are commonly applied to metals
(C) Able to produce constant cross sections
(D) Both can produce hollow parts

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7-Which of this best describe extrusion process?
(A) A process which a metal strip enters the roll gap and to reduce thickness
(B) A process which the workpiece is shaped by compressive forces
(C) A forming process by forcing melting metal into a die
(D) A process of pushing a billet through a die to reduce cross-section

8-Which of these are products made by sheet metal forming?
(A) Car bodies
(B) Wires and tubes
(C) Spark plugs
(D) Springs

9-Below are operations can be done in sheet metal forming EXCEPT
(A) Blanking
(B) Punching
(C) Deep drawing
(D) Cold extrusion

10-Powder metallurgy process consists of these operations EXCEPT
(A) Blending
(B) Compaction
(C) Finishing operations
(D) Atomization

11-Which of this is NOT the methods of powder productions?
(A) Carbonyls
(B) Reduction
(C) Combustion synthesis
(D) Mechanical alloying

12-What is the purpose of sintering in powder metallurgy?
(A) To allow bonding of individual particles to impart strength
(B) To reduce the pressure required during forming
(C) To reduce ductility for ease of shaping the parts
(D) To reduce the number of additional finishing operations

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13-Which of this is NOT involves non consumable electrode?
(A) Gas Tungsten-arc Welding (GTAW)
(B) Plasma-arc Welding
(C) Shielded-Metal-arc Welding (SMAW)
(D) None of the above

14-Below is the purpose of flux EXCEPT?
(A) To supply additional metal to the weld zone
(B) To retard oxidation on the welded parts surface
(C) To dissolves and remove oxides from weld zone
(D) To protects the molten metal against oxidations as the weld cools

15-These are characteristics of GTAW EXCEPT
(A) Suitable for thin metals
(B) Provides welds of very high quality and good surface finish
(C) Expensive compared to SMAW
(D) None of the above

16-Which of this is limitations of gas metal-arc welding (GMAW)?
(A) Suitable only for thin sheets and sections less than 6mm
(B) Not suitable for ferrous and non ferrous metals
(C) Not economical
(D) Productivity is low compared to SMAW

17-Porosity in welds may be caused by;
(A) Contaminants and Chemical reactions during welding
(B) Localized heating and cooling during welding
(C) Expansion and contraction of the weld area
(D) Elevated temperatures during welding

18-Which of this practices can helps in crack-prevention?
(A) Modify the joint design to minimize stresses
(B) Cleaning the weld area prior to welding
(C) Providing sufficient shielding gas
(D) Reduced welding speeds

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19-Which of this is NOT defects in extrusion process ?
(A) Porosity
(B) Pimples on surface
(C) Bubbles
(D) Excessive shrinkage

20-Which of these operations CAN NOT forming and shaping polymers materials?
(A) Extrusion
(B) Injection molding
(C) Blow molding
(D) Cold forging

21-Below are basic types of molds for injection molding EXCEPT
(A) Cold-runner, two-plate mold
(B) Cold-runner, three-plate mold
(C) Hot-runner mold
(D) Hot-runner mold, two-plate mold

22-In extrusion process, the screw that heat the pallets have three distinct sections EXCEPT
(A) Pressure section
(B) Feed section
(C) Melt section
(D) Pumping section

23-Which of this is NOT the purpose of surface treatments?
(A) To easily joint the parts during assembly
(B) Improve fatigue resistance
(C) Impart decorative features
(D) Modify surface texture

24-Which of this is typical applications for case hardening?
(A) Cams and shafts
(B) Electromechanical parts
(C) Dental instruments
(D) Electronics

25-Below are design guidelines for electroplating EXCEPT
(A) Avoid sharp external and internal corners
(B) Avoid to coat thin materials
(C) Eliminate non uniform thickness shape design
(D) Avoid coat intricate shape

Quiz 3 Format

Please remember to **include the question numbers** in the assignments. Your answer MUST be in **hand writing**. Not need for cover page, but you need to write your details such as:

1. Your Name & No. Matric
2. Section
3. Lecturer's Name
4. Submission date

Submit at the end of lecture. Late submission will not be entertained.