Sand casting

Answer the following questions

1. The dowels are
   a. Wooden nails
   b. Box nails
   c. Wire nails
   d. None of these

2. Which of the following material can be used for making patterns?
   a. Aluminum
   b. Wax
   c. Lead
   d. All of these

3. Aluminum is the best material for making patterns because it is
   a. A light in weight
   b. Easy to work
   c. Corrosion resistant
   d. All of these

4. When a pattern is made in three parts, the bottom part is known as a cope.
   a. True
   b. False

5. A taper provided on the pattern for its easy and clean withdrawal from the mould is known as
   a. Machining allowance
   b. Draft allowance
   c. Shrinkage allowance
   d. Distortion allowance
6. The metal patterns as compared to wooden patterns require less
   a. Shrinkage allowance
   b. Machining allowance
   c. Draft allowance
   d. Distortion allowance

Investment Casting

Answer the following questions

1). Investment casting is preferred in the places where machining is_____________ or_____________.

2). A wide variety of materials such as both ___________ and ___________ can be used in investment casting.

3). Whenever holes are to be incorporated a minimum size (diameter) must be greater than or equal to ___________ and ___________ for nonferrous and ferrous alloys respectively are to be used.

4). In through holes L/D ratio should not exceed ___________ and ___________ for ferrous and copper & aluminium respectively.

5). To remove wax pattern from the mould a small amount of ___________ is provided to the pattern. The recommended values should lie in the range between $1/4^\circ$ to $1/8^\circ$. 
Die casting

Answer the following questions:

1. In hot chamber method of die-casting
   (a) Only low melting point metal can be used
   (b) High melting point metal can be used
   (c) Both (a)&(b)
   (d) None of these

2. Die casting method is used to cast
   (a) Brass
   (b) Aluminium
   (c) Alloy of lead tin and zinc
   (d) All of the above

3. Metallic mould is used in which of casting
   (a) Investment casting
   (b) Slush casting
   (c) Die casting
   (d) All of these

4. Why ladle is used in die casting
   (a) To pour molten metal
   (b) To avoid continuous contact
   (c) To remove defect
   (d) None of these

5. Application of die casting
   (a) To make ornament
   (b) To make pipes
   (c) To produce bottles
   (d) To produce automobile appliance

6. Limitation of die casting
(a) Not to make hollow parts
(b) Not applicable for metallic components
(c) Not applicable for intricate parts
(d) None of these

**Injection moulding**

**Fill in the blanks**

1) Injection molding is generally used to produce ____________ type of materials.

2) ____________ is the most common defect occurs in the moulded part due to shrinkage.

3) In case of round and cylindrical parts ____________gating is preferred in injection moulding.

4) Bosses are protruding pads designed to provide ____________ around the hole.

5) ____________ is the major problem with sharp corners that affect the moulding.

**Design for powder metal processing**

**Answer the following questions**

1. What is the common length of parts manufactured by powder metallurgy?
   a) 10 cm
   b) 15 cm
   c) 20 cm
   d) Can be of any length

2. Why are highly spherical parts not manufactured in powder metallurgy?
   a) Not possible to make spherical parts.
   b) High tool cost.
   c) Extremely difficult to make such parts
   d) Finishing operations are difficult
3. What is the recommended angle for chamfers in PM?
   a) 60 degree
   b) 30 degree
   c) minimum 45 degree
   d) greater than 0 degree

4) Which of the following cannot be produced by PM?
   a) Gears
   b) Angled side walls
   c) Knurls
   d) Screw Threads

5) What is the heating processing in PM known as?
   a) Annealing
   b) Case Hardening
   c) Sintering
   d) Packing
Answers:

Sand casting

(1). Wooden nails
(2). Wax
(3). All of these
(4). False
(5). Draft allowance
(6). Draft allowance

Investment Casting

(1) Difficult, unfeasible
(2) Ferrous, non-ferrous
(3) 1.5mm , 2.2 mm
(4) 4:1 , 5:1
(5) Draft, 1/4° to 1/8°

Die casting

(1). (a)
(2). (c)
(3). (c)
(4). (b)
(5). (d)
(6). (a)

Injection moulding

1) Thermoplastic polymers
2) Sink mark or surface depression
3) Center gating
4) Reinforcements
5) Obstruct the smooth flow of material and create surface defect.
Design for powder metal processing

(1). b
(2). c, d
(3). c
(4). d
(5). c