
	Kafrelsheikh University – Faculty of Engineering Mechanical Engineering Department			
	2 nd year	Coarse Title: Production Engineering (2)		
	Final exam	Coarse Code: MDP2210		
	Time: 3 hour	Date: 4 / 7 / 2021		

Solve the following questions (60 Marks)

Q1- Choose the correct answer: (15 Marks)

- 1) Gas welding processes depend on for heat generation.
a) pressure b) friction c) diffusion d) fusion
- 2) What type of core is used in centrifugal casting process?
a) Vertical b) Ceramic c) No core d) Horizontal
- 3) is a tool for mixing oxygen and acetylene.
a) Valve b) Welding torch c) Torch tip d) Hose
- 4) is the simplest type of resistance welding used for making lap welds.
a) Resistance spot b) Resistance seam c) Projection d) Upset
- 5) Materials suitable for oxy- acetylene welding.....
a) stainless steel b) aluminum c) copper d) all of the above
- 6) Which of the following defects occur due to the flux employed and the electrode coating?
a) Inadequate penetration b) Incomplete fusion c) Inclusion of slag d) Porosity
- 7) welding position is the hardest welding position.
a) Vertical b) Overhead c) Flat d) Horizontal
- 8) Wheels and pulleys are castings that can made by.....process.
a) semi-centrifugal b) shell casting c) permanent d) sand casting
- 9) To weld a nut to the automotive chassis, we use welding.
a) resistance spot b) resistance seam c) upset d) projection
- 10) is the ability of the sand to get compacted and behave like a fluid.
a) Adhesiveness b) Collapsibility c) Flowability d) green strength
- 11) Incorrect edge preparation in welding process may cause
a) porosity b) lack of penetration c) undercut d) lack of fusion
- 12) Too rapid cooling of the weld may cause
a) porosity b) distortion c) lack of fusion d) undercut
- 13) The important features of the sand include
a) grain size b) distribution of grain size c) shape of the individual grains d) all of the above
- 14) core supports would be used for cast iron castings.
a) Copper b) Aluminium c) Steel d) Wood
- 15) allowance is not a positive allowance.
a) Shrinkage b) Shake c) Machining d) Taper

Q2- Put (√) for the right sentences and (X) for the wrong sentences. (15 Marks)

- 1) Mold shift is a defect caused by a sidewise displacement of the mold cope relative to the drag.
- 2) In shielded metal arc welding process, a pure graphite rod is used as a non-consumable electrode.

- 3) For Oxy-Acetylene welding, the equipment cost is very expensive and requires a lot maintenance.
- 4) Tungsten electrodes are non-consumable electrodes.
- 5) In arc welding, hot electrode holders shall be permitted to dip in water.
- 6) Distortion is a defect occurred due to unsuitable parent metals used in the weld.
- 7) Shell-molding applications include small mechanical parts requiring high precision.
- 8) Neutral welding flame is the hottest flame.
- 9) In horizontal welding position, the plane of the work-piece is horizontal.
- 10) Gate is the channel through which the molten metal enters the mold cavity.
- 11) Vertical up welding position is preferred when the strength is the major consideration.
- 12) A reducing flame may be distinguished from carburizing flame by the fact that a carburizing flame contains less acetylene than a reducing flame.
- 13) Dry sand molds always require metallic mold boxes.
- 14) Lifters are used to blow away the loose or unwanted sand from the surfaces of mold cavities.
- 15) Dry strength is the ability of molding sand to withstand high temperatures without breaking down or fusing.

Q3- (10 Marks)

- a) Compare between the expendable molds and permanent molds in casting.
- b) Compare between the consumable and non-consumable electrodes.
- c) Mention ten of the tools used in the foundry.
- d) Mention ten of the tests to be performed on the casting sand.

Q4- (10 Marks)

- a) State the advantages and disadvantages of the welding process.
- b) Explain the machining allowance in designing the patterns.
- c) Explain the working principle of oxy-acetylene welding.
- d) Mention ten of the tools and equipment used for arc welding.

Q5- Mention with-clarification drawings the following: (10 Marks)

- a) The defects of castings
- b) The defects of welding.
- c) The common welding joints.
- d) The difference between resistance spot and resistance seam welding

With best wishes