P P SAVANI UNIVERSITY

Third Semester of B. Tech. Examination

May 2019

SEME2030 Non-Cutting Manufacturing Processes

25.05.2019, Saturday **Time: 09:00 a.m. To 11:30 a.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1 Choose the correct option (Any Five): **[05]**

(i) Which casting is used to make hollow casting with thin walls?

a) Die casting b) Centrifugal casting

c) Slush casting d) Shell moulding

(ii) Solidification of casting does not depend upon _____ factor.

a) Type of metal

b) Thermal properties of metal

c) Geometric relationship between volume and surface area

d) Surface tension.

(iii) The allowance provided to take care of the contraction of a casting is known as_____.

a) Draft allowance b) Shrinkage allowance

c) Machining allowance d) Shake allowance

(iv) Which one of the followings is used to make patterns?

a) Wood b) Plastics c) Metals d) All of the Mentioned

(v) The lower moulding flask is also known as_____.

a) Drag b) Cope c) Check d) None of the Mentioned

(vi) Which of the following is used to support the cavity from inside?

a) Chill b) Chaplet c) Sprue d) Core

(vii) Distortion allowance is not provided in the following shape of casting.

a) U b) T c) C d) O

Q - 2 (a) It is easy to withdraw the pattern having taper shape. Justify the statement with suitable sketch. **[05]**

Q - 2 (b) A casting company needs to produce large casting of circular sections and symmetrical shape component to achieve a Net Profit of Rs.25,000. Company runs at fixed cost of Rs.30,000 and contribution per component is Rs.10. Discuss suitable type of pattern and number of units to be produced to get net profit. **[05]**

OR

Q - 2 (a) Sketch and name any five defects in the casting. **[05]**

Q - 2 (b) Describe the features of ceramic mould casting. **[05]**

Q - 3 (a) Explain with neat sketch any two types of cores. **[05]**

Q - 3 (b) Describe a test that could be performed to measure the permeability of the sand. **[05]**

OR

Q - 3 (a) Explain the moisture content test with neat sketch. **[05]**

Q - 3 (b) Chocolate is available in hollow shapes. What process is used to make these chocolates? **[05]**

Q - 4	A slab of height 350x350x50mm is required to cast from molten steel using top riser of 150 mm diameter. The diameter of the riser is twice the height of the riser. Calculate the freezing ratio.	**[05]**

SECTION – II

Q - 1	Choose the correct option (Any Five):	**[05]**
(i)	Weld pass is associated with the movement of_____. a) Torch b) Metal c) Flux d) Electrode	
(ii)	Identify the flame contacting the same proportion of oxygen. a) Neutral flame b) Oxidizing flame c) Carburizing flame d) None of the mentioned	
(iii)	Which of the following is true about electrodes? a) Low electrical conductivity and low mechanical strength b) Low electrical conductivity and high mechanical strength c) High electrical conductivity and low mechanical strength d) High electrical conductivity and high mechanical strength	
(iv)	In arc welding, arc is created between the electrode and work by _____. a) contact resistance b) flow of voltage c) flow of current d) electrical energy	
(v)	Material used for coating the electrode is called _____. a) flux b) slag c) protective layer d) deoxidizer	
(vi)	In reverse polarity welding _____. a) work is negative and holder is earthed b) electrode holder is connected to negative and work to positive c) electrode holder is connected to positive and work to negative d) none of the mentioned	
(vii)	Electron beam welding is carried out in_____. a) Inert atmosphere b) Partially filled chamber c) Vacuum d) Partially vacuum	
Q - 2 (a)	Explain various flames produced in an Oxy-acetylene gas welding.	**[05]**
Q - 2 (b)	Explain welding techniques with neat sketch.	**[05]**
	OR	
Q - 2 (a)	Classify welding process. Discuss the principle of arc welding.	**[05]**
Q - 2 (b)	Explain seam-welding process with neat sketch. Give its application.	**[05]**
Q - 3 (a)	Explain the factors involved in electrode selection in arc welding processes.	**[05]**
Q - 3 (b)	Write short note on Electro-slag welding.	**[05]**
	OR	
Q - 3 (a)	Differentiate MIG welding & TIG welding.	**[05]**
Q - 3 (b)	Explain any five welding defects in brief.	**[05]**
Q - 4	Attempt **any one** short note.	**[05]**
(i)	Explosive welding	
(ii)	Forge welding	

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