GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. Sem-V[th] Examination December 2010
Subject code: 151901
Subject Name: Manufacturing processes – II

Date: 13 /12 /2010   Time: 03.00 pm - 05.30 pm
                                                       Total Marks: 70

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** **(i)** Give broad classification of manufacturing processes. **02**
        (ii) List the various pattern materials. Explain any two along with their advantages and limitations. **05**
   (b) **(i)** Define following terms **(Any two)** **02**
             1. Cope
             2. Drag
             3. Core
             4. Chaplet
        (ii) Explain precision investment casting stating its advantages, limitations and applications. **05**

Q.2 **(a)** **(i)** List any two casting defects and give their causes and remedies. **02**
        (ii) Sketch the cross section of a sand mould which is ready for pouring and label the important parts. **05**
   (b) **(i)** Differentiate between hot chamber and cold chamber die casting. **02**
        (ii) Explain centrifugal casting process. What is the main difference between semi-centrifugal and centrifuging casting process. **05**
                                    OR
        (ii) Calculate the optimum pouring time for casting whose mass is 20 kg and having an average section thickness of 15mm. the material of the casting are grey cast iron and steel. Assume K=0.7 **05**

Q.3 **(a)** **(i)** Define the following terms **02**
             1. Flux
             2. Filler materials.
        (ii) Describe the types of flame obtained in oxy-acetylene gas welding with neat sketch. **05**
   (b) **(i)** Define the following terms **02**
             1. Electrode
             2. Shielding gas
        (ii) Explain electron beam welding process and state its advantages and limitations. **05**
                                    OR
Q.3 **(a)** **(i)** State the function of flux in soldering and brazing. **02**
        (ii) Explain gas welding process with neat sketch and state its advantages and limitations. **05**
   (b.) **(i)** Differentiate between TIG and MIG welding processes. **02**
        (ii) Calculate the melting efficiency in the case of arc welding and resistance welding of steel with potential of 20 V and a current of 200 A. The travel speed is 5 mm/s and the cross area of the joint is 20 mm^2. Heat required to melt steel may be taken as 10 J/mm^3 and heat transfer efficiency as 0.85. Assume resistance, R=100 micro ohms **05**

Q.4	(a)	(i)	Define following terms	02
			1. Ingot	
			2. Slab	
		(ii)	Write short note on roll pass sequence.	05
	(b)	(i)	Define following terms	02
			1. Bloom	
			2. Billet	
		(ii)	Derive the equation for the roll bite angle.	05

OR

Q.4	(a)	(i)	Differentiate between hot working and cold working.	02
		(ii)	Explain coining and embossing processes.	05
	(b)	(i)	Differentiate between open and close die forging.	02
		(ii)	Write short note on Wire Drawing.	05

Q.5	(a)	(i)	Classify plastic materials.	02
		(ii)	The marking system for conventional grinding wheel is as under	
			51 A 60 K 5 V 05	
			Explain each term in marking system.	05
	(b)	(i)	Define following terms with respect to polymers	02
			1. Viscosity	
			2. Viscoelastisity	
		(ii)	Explain extrusion process for thermosetting plastic.	05

OR

Q.5	(a)	(i)	Define following terms	02
			1. Honing	
			2. Lapping	
		(ii)	Explain blow molding process stating its advantages, limitations and applications.	05
	(b)	(i)	Define following terms	02
			1. Burnishing	
			2. Buffing	
		(ii)	Write short note on powder coating.	05

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