SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY :: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583
QUESTION BANK

Subject with Code : RP (18ME3005) **Course & Specialization**: M.Tech – CAD&M

Year & Sem: I & II-Sem **Regulation:** R18

UNIT-I

1.	(a)	Briefly explain the need for rapid prototyping.	(6M)
	(b)	Discuss the evolution of RP systems indicating the history and their growth rate in the industrial sector	(6M)
2.	(a)	What is rapid prototyping? Give its advantages and limitations.	(6M)
	(b)	What are the materials used in rapid prototyping?	(6M)
3.	(a)	Classify rapid prototyping process.	(6M)
	(b)	List out applications of rapid prototyping.	(6M)
4.		Explain rapid tooling wheel.	(12M)
5.		Discuss the steps followed in rapid prototyping process.	(12M)
6.		Describe the role of RP in product development.	(12M)
7.	(a)	Describe the principle of working of Stereo lithography system.	(6M)
	(b)	What are its applications?	(4M)
8.	(a)	Discuss about photo polymerization.	(6M)
	(b)	What are the advantages and disadvantages of SLA?	(6M)
9.	(a)	What are the desirable features of Stereo lithography resin?	(6M)
	(b)	Discuss the suitable measures to reduce distortions in SLA process.	(6M)
10.		Explain the process details on the quality of product in SLA.	(12M)

UNIT-II

1.		Explain the working principle and details of process parameters of an FDM machine.	(12M)
2.	(a)	With neat sketches explain solid ground curing process and its advantages.	(6M)
	(b)	What are the disadvantages and applications of SGC system?	(6M)
3.	(a)	Explain in detail about laminated object manufacturing and its applications.	(12M)
4.	(a)	With an example explain path generation in FDM process.	(3M)
	(b)	What are the applications of FDM models? Give an example.	(6M)
5	(a)	List the advantages and limitations of FDM.	(6M)
	(b)	What are the merits and demerits of LOM?	(6M)
6.		With neat sketch explain the process of selective laser sintering process and its advantages, disadvantages and applications.	(12M)
7.	(a)	What are the materials used in SLS system.	(6M)
	(b)	Differentiate SLA and SLS in rapid prototyping	(6M)
8.		Describe laminated object manufacturing process and discuss the principle and effect of process parameters on qualities of final product.	(12M)

9.	(a)	What are the materials suitable for FDM process?	(6M)
	(b)	Discuss the machine details of SGC.	(6M)
10.		Distinguish the following process: FDM, LOM, SGC and SLS.	(12M)

UNIT-III

1.	(a)	List the various rapid prototype concept modelers	(6M)
	(b)	Explain how SLS process can be used to produce direct and in-direct prototypes.	(6M)
2.		Write short notes on:	
		(i) Object Quadra system.	(6M)
		(ii) Thermal jet printer.	(6M)
3.	(a)	Write short notes on Genisys Xs printer HP system	(6M)
	(b)	What is rapid tooling and explain the applications of RPT in manufacturing and tooling.	(6M)
4.		What are concept modelers? Explain the applications of RP components from concept modeling.	(12M)
5.		Explain about the Sander's model maker and Object Quadra system	(12M)
6.	(a)	Explain the working principle of three dimensional printing along with its advantages	(6M)
	(b)	Explain in detail about process details and machine details of 3-D printing	(6M)
7.		With neat sketch explain the model maker operation.	(12M)
8.		Discuss about multi jet modeling and its uses.	(12M)
9		Write advantages and disadvantages of	
		(i) Model maker.	(6M)
		(ii) Multi jet modeling.	(6M)
10.		Explain the Z402 system hardware, operation and software.	(12M)

UNIT-IV

1.	(a)	Enumerate the features of the software's for RP	(6M)
	(b)	With a neat sketch explain the copper polymide methods of tooling.	(6M)
2.	(a)	List out the various indirect rapid tooling methods and explain about the silicon rubber tooling	(6M)
	(b)	Explain rapid tooling.	(6M)
3.		Explain the following:	
		(i) Aluminum filled epoxy tooling	(6M)
		(ii) Spray metal tooling	(6M)
4.		With a neat sketch explain the following methods of tooling techniques:	
		(i) Sand casting tooling	(6M)
		(ii) Laminate tooling	(6M)
5.		Explain with diagrams, the selecting laser melting and electron beam melting process. Compare these processes	(12M)
6.		Write short notes on:	
		(i) Spray metal tooling & sand casting tooling.	(6M)

		(ii) Magic and magic communication	(6M)
7..	(a)	Discuss in detail about the direct rapid tooling and indirect rapid tooling.	(6M)
	(b)	Differentiate between soft and hard tooling.	(6M)
8.	(a)	Explain laser generation process with neat sketch & also its applications.	(6M)
	(b)	Explain in detail the LENS process with a neat diagram. Also write the advantages and disadvantages.	(6M)
9.	(a)	Discuss about Cast kriksite and 3Q Keltool.	(6M)
	(b)	What is the collaboration tools used in RP software?	(6M)
10.		Write short notes on	
		(i) DMILS and prometal.	(6M)
		(ii) Quick cast process.	(6M)

UNIT-V

1.		Explain the effect of part building, part finishing and part deposition orientation on accuracy of rapid prototyping model.	(12M)
2.	(a)	Explain rapid manufacturing process.	(6M)
	(b)	Can rapid prototype parts be made of paper? Explain.	(6M)
3.		List out the various surface digitizing techniques in rapid prototyping and explain any one of the technique.	(12M)
4.		Discuss about the influence of various factors in determining the part building error and data preparation error.	(12M)
5.	(a)	Explain briefly vacuum casting and epoxy tooling.	(6M)
	(b)	Write the applications of vacuum casting and epoxy tooling.	(6M)
6.		With a sketch explain vacuum casting process	(12M)
7.	(a)	What are the factors which influences accuracy of RP model?	(6M)
	(b)	What is meant by data preparation error?	(6M)
8.		Write short notes on:	(12M)
		(i) Surface digitizing	(6M)
		(ii) Surface modification – data transfer to solid models.	(6M)
9.		Explain the significance of part orientation, support generation & slicing with reference to RPT.	(12M)
10.		Write short note on the following:	
		(i) Errors in SH files.	(6M)
		(ii) Influence of building orientation.	(6M)

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