UNIT-V

	Unit-V **SHORT ANSWER QUESTIONS.**		L2	1,3,6,7
1	Explain the liquid infiltration technique used for manufacturing of CMCs	**CO5**	L1	1,3,6,7
2	Discuss on toughness of CMCs.	**CO5**	L1	1,3,6,7
3	What is iso strain and iso stress?	**CO5**	L2	
4	Give the limitations of solid state diffusion technique.	**CO5**	L1	1,3,6,7
5	Give the important properties of carbon-carbon composites.	**CO5**	L1	1,3,6,7
6	What is the importance of matrix fiber compatibility?	**CO5**	L3	1,3,6,7
7	Draw the stress –strain curves for various fibers	**CO5**		
8	Write short notes on strength failure theories of an angle lamina	**CO5**	L2	1,3,6,7
9	Write short notes on maximum stress failure theory	**CO5**	L2	1,3,6,7
10	Write short notes on envelopes	**CO5**	L3	1,3,6,7
	LONG ANSWER QUESTIONS		L2	1,3,6,7
1	Derive the reduced stiffness matrix in terms of engineering constants for an orthotropic material under plane stress condition.	**CO5**	L3	1,3,6,7
2	Clearly discuss about knitting, and weaving.	**CO5**	L1	1,3,6,7
3	Compute the extensional stiffness matrix Aijfor the laminate [0/90/0/90]. The properties of the unidirectional composite are E11=155GPa, E22=E33=12.1GPa, υ12= υ13= 0.248, υ23= 0.455 G12=G13=4.4 GPa, G23=3.2 GPa Assume thickness of each layeris0.15mm	**CO5**	L3	1,3,6,7
4	How the knitting, braiding and weaving structure influence the properties of the composites?	**CO5**	L3	1,3,6,7
5	Describe in detail about the processing of Carbon/Carbon composites by chemical vapordeposition process.	**CO5**	L2	1,3,6,7
6	Derive the expression for rule of mixture and load sharing conditions under isostrainconditions.	**CO5**	L2	1,3,6,7
7	Calculate the longitudinal modulus and tensile strength of a unidirectional composite containing 60 percent volume of carbon fibers (E_{1f}= 294 GPa and σ_{1fu}= 5.6 GPa) in toughened epoxy matrix (E_m = 3.6 GPa and σ_{mu}= 105 GPa). Compare these values with theexperimentally determined values of E_1=162GPa, σ_{1u}=2.94 GPa. What fraction of load is carried by fibers in the composite?	**CO5**	L3	1,3,6,7
8	Calculate the longitudinal modulus and tensile strength of a unidirectional composite containing 55 percent by volume of Sisal fibers in epoxy matrix. The modulus and strength of fiber is 30 GPa and 600 MPa respectively and the same for matrix is 3.5GPa and 100MPa respectively. Calculate i) elastic Modulus of composite ii) the fraction of load taken by fibers in the composite.	**CO5**	L2	1,3,6,7
9	Derive rule of mixtures for predicting Young's Modulus of a composite in terms of volume fractions and elastic modulus of fiber and matrix	**CO5**	L3	1,3,6,7
10	Explain the braiding process with the help of a neat sketch	**CO5**	L1	1,3,6,7