

**B.TECH DEGREE EXAMINATIONS: APRIL/MAY 2011**

Sixth Semester

**TEXTILE TECHNOLOGY**

U07TTE04: Textile Composites

**Time: Three Hours**

**Maximum Marks: 100**

**Answer ALL Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. Among the fibers which one of the fiber is flame resistant  
A) Polypropylene      B) m- aramid      C) Polyethylene      D) Nylon
2. Which among the following resins have high thermal resistance  
A) Polyester      B) Vinyl Ester      C) Nylon      D) Polyimide
3. The type of reinforcement product suitable for filament winding is  
A) Chopped strand      B) SMC      C) DMC      D) Rovings
4. The maximum weight fraction of reinforcement in composite by using CSM in hand lay up technique is  
A) 33%      B) 70%      C) 75%      D) 90%
5. To produce axi symmetrical shells which one of the following is used  
A) Polar winding      B) Pirn Winding      C) Flat braiding      D) Knitting
6. The impact properties of the composites will be higher for reinforced composites  
A) Woven      B) braided      C) knitted      D) filament
7. The glass transition temperature of the resin during curing will  
A) increase      B) decrease      C) remains unaltered      D) unpredictable
8. Which one of the following is fully crystalline ceramic  
A) glass      B) SiC      C) PBO      D) Aramid
9. The rubbing of gel coat and the exposure of fibre glass beneath is called as  
A) Grazing      B) Trimming      C) Fracture      D) Puching
10. The units for pendulum based impact testing of composites is  
A) J      B) J/m      C) J/°C      D) J/W

**PART B (10 x 2 = 20 Marks)**

11. What is meant by fiber volume fraction?
12. What is meant by inlaid yarns?
13. Differentiate between interface and interphase

14. What is meant by degree of curing?
15. Name any two coupling agents
16. What are the disadvantages of compression moulding?
17. Give the expression for calculation of flexural strength
18. What is meant by Interlaminar Shear Strength?
19. Which type of reinforcement has superior impact strength? Assign reasons
20. What is a whisker?

**PART C (5 x 14 = 70 Marks)**

21. a) (i) Discuss in detail the classification of composites by phase composition. (7)  
(ii) Discuss in detail about flexible composites and its types (7)

**(OR)**

- b) (i) Discuss in detail about the classification of composites based on matrix system. (7)  
(ii) Write a brief note on fibers, whiskers and fillers. (7)

22. a) (i) What is meant by critical fiber length? (2)  
(ii) Give an detail account of rule of mixtures to estimate the modulus and strength of the composites. (12)

**(OR)**

- b) (i) Elaborate in detail about the different type of reinforcement forms used in composites. (7)  
(ii) Differentiate between thermoplastic and thermoset resin? (7)

23. a) (i) Elaborate in detail about the different types of bonding mechanisms. (7)  
(ii) Give a brief outline on estimation of bond strength of interface. (7)

**(OR)**

- b) (i) Enumerate in detail about the various factors that contribute to work of fracture. (7)  
(ii) Give a brief note on failure modes of long fibre reinforced composites. (7)

24. a) (i) What is meant by comingling? (2)  
(ii) Compare the properties of woven and knitted fabric reinforced composites based on the performance. (12)

**(OR)**

- b) (i) What are the requirements for the reinforcements? (2)
- (ii) Enumerate in detail about the types and properties of glass fibers. (12)
25. a) (i) Give a brief note on production of composites by pultrusion and resin transfer moulding. (7)
- (ii) Elaborate in detail how testing of composites is done for Interlaminar Shear strength. (7)

**(OR)**

- b) (i) Elaborate in detail on production of composites by Injection moulding and filament winding. (7)
- (ii) Write short notes on applications of composites (7)

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