Register Number:……..

KUMARAGURU
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B.TECH DEGREE EXAMINATIONS: MAY 2017

(Regulation 2015)

Fourth Semester

TEXTILE TECHNOLOGY

U15TXT402: Shuttle less Weaving Technology

COURSE OUTCOMES

CO1 Generalize the functions of machine elements in unconventional weaving machines

CO2 Discuss the concept and mechanism of projectile weaving machine

CO3 Summarize the working of each elements in rapier weaving machine

CO4 Generalized the weft insertion cycle of fluid jet weaving machines

CO5 Explain the mechanism of multiphase weaving and 3-D weaving

CO6 Summarize the application of weaving in Technical Textiles

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Find out the correct match CO1 [K_3]

List I	List II
A. Weft accumulator	i. Automatic loom
B. Pirn changing	ii.Airjetloom
C. Weft bars	iii. Shuttleless loom
D.Nozzle	iv.Powerloom

	A	B	C	D
a)	i	ii	iii	iv
b)	ii	iii	iv	i
c)	iii	i	iv	ii
d)	iv	i	iii	ii

2. The following is not a shuttle less loom CO2 [K_3]

a) Air jet loom b) Water jet loom

c) Multiphase loom d) Projectile loom

3. The specialty of projectile loom is CO2 [K_3]

a) Torsion rod Picking b) Selvedge

c) Take up motion d) Warp stop motion

4. Out of the following shuttle less loom which is having theoretically lesser weft insertion rate CO3 [K_3]

a) Air jet b) Projectile

c) Water jet d) Rapier

5. To weave cotton cloth the following set of looms are suitable CO4 [K_4]

a) Rapier, projectile , water jet, Airjet b) Rapier, projectile , Power loom, Air jet

c) Rapier, projectile , water jet, Power loom d) Rapier, Power loom ,water jet ,Air jet

6. To weave fine filament yarn the more suitable loom is CO4 [K_3]

a) Projectile , b) Air jet

c) Rapier, d) water jet,

7. Assertion (A):The Airjet looms are equipped with profile reeds CO4 [K_3]

Reason (R):Because the jet of air has to be guided to the other side of the loom

a) both A and R are individually true and R is the correct explanation of A b) both A and R are individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true.

8. The weft insertion rate of a projectile weaving machine with 300cm width and 220rpm is CO4 [K_3]

a) 660m/sec b) 66m/sec

c) 660m/minute d) 66m/minute

9. Find out the correct sequence of passage for weft yarn CO2 [K_3]

a) Cheese- projectile -accumulator- cloth b) Cheese –cloth - projectile- accumulator

c) Cheese – accumulator -projectile- cloth d) Cheese –cloth –accumulator- projectile

10. The main difference between a powerloom and a shuttleless loom is CO4 [K_2]

a) Take up mechanism b) Beat up mechanism

c) Weft insertion system d) Let off mechanism

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11.	What are the unconventional selvedges used in loom?	CO1	[K_3]
12.	State the different types of shuttle less looms	CO1	[K_3]
13.	What are the weft insertion elements used in different shuttle less looms?	CO3	[K_3]
14.	What is the difference between flexible and rigid rapier?	CO3	[K_4]
15.	What is the purpose of relay nozzles in air jet weaving?	CO4	[K_3]
16.	What do you mean by multiphase weaving?	CO5	[K_4]
17.	What is 3D weaving?	CO5	[K_3]
18.	What is the amount of air requirement for a normal air jet weaving machine?	CO4	[K_3]
19.	What are the modifications required in the shuttle less loom to weave filament yarn?	CO4	[K_3]
20.	What do you mean by profile reed?	CO4	[K_4]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	Explain the limitations of shuttle looms and their deficiencies	CO1	[K_3]
22.	Explain the torsion bar picking mechanism of projectile weaving machine with a diagram	CO2	[K_4]
23.	Describe the principle of tip and loop transfer and weft insertion cycle of rapier weaving machine	CO3	[K_3]
24.	Explain the reasons and the types of fabrics that can be best woven in air jet and water jet weaving machines.	CO4	[K_4]
25.	Explain the working principle of multiphase weaving	CO5	[K_3]
26.	Explain the principle of dual directional shedding /weaving	CO6	[K_4]
27.	Explain the loom timing diagram of projectile looms	CO2	[K_4]

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