KUMARAGURU
college of technology
character is life

Register Number:……..…

M.TECH DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

APPAREL TECHNOLOGY

P18ATT2002**:** Advanced Knitwear Technology

COURSE OUTCOMES

CO1: Appreciate importance of seamless knits in apparels.

CO2: Identify machinery for making seamless knit apparels.

CO3: Understand technology involved in making seamless knit apparels.

CO4: Understand technology involved in manufacturing integrated and fully fashioned knit apparels

CO5: Recognize fabric requirements for knitwear.

CO6: Possess required knowledge on quality control of knitted apparels.

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. **Assertion (A):** In all types of seamless knitwear production, shaping of the 3D garment is possible. CO1 [K_3]

   Reason (R): The seamless knitwear technology provides the option of making different types of stitches adjacent to each other.

   a) A is false and R is true b) A and R are individually false

   c) A and R are individually true d) A is true and R is false

2. For producing a 1X1 rib fabric in circular weft knitting machine, identify how many number of cam systems are required. CO1 [K_2]

   a) One cam system b) Three cam system

   c) Two cam system d) Four cam system

3. Needle loop transfer of stitches achieved on a single row of courses of single faced fabric is prominent in _____knitting machine that uses rack ably controlled transfer points. CO2 [K2]

   a) Circular weft knitting machine b) V bed flat knitting machine

   c) Straight bar knitting machine d) Jacquard knitting machine

4. Matching type item with multiple choice code CO2 [K_2]

List I	List II
A. Components of the garment are shaped in the knitting machine by narrowing or widening. Later the components are joined together separately.	i. Circular weft knitting
B. Garments are produced as one piece, with limited possibility for size changes. The garment beginning or its end are joined separately.	ii. fully fashioned knitting
C. The entire garment from neck to bottom with all its components is produced on the knitting machine.	iii. Integral knitting
D. Fabric in tubular form of fixed diameter is produced on the knitting machine.	iv. Whole garment knitting technology

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

5. **Assertion (A):** Seamless knitting machine has inbuilt technology to produce knit stitch, tuck or float stitch adjacent to each other. CO3 [K_3]
Reason (R): the seamless technology is supported by Individual needle selection and operated by electronically controlled cams.

a) A is false and R is true
b) A and R are individually true, R is related to A.
c) A and R are individually true, R is not related to A.
d) A is true and R is false

6. Each feed track of seamless knitting machine feeds yarn to a specific _____whose actions are determined by the knit design pattern. CO3 [K_2]

a) Cam group
b) Needle and sinker
c) Needle bed
d) Sinker and carriage

7. The reciprocating cam carriage across flat needle bed in flat knitting machine reduces the problem of _____ in the knitted fabric produced. CO4 [K_2]

a) Skewness
b) Bowing
c) Spirality
d) Laddering

8. **Assertion (A):** Flat knitting machines has two needle beds arranged in inverted "V" shape. CO4 [K_2]
Reason (R): Hence it is capable of producing double faced knit fabric.

a) A is false and R is true
b) A and R are individually true, R is related to A.
c) A and R are individually true, R is not related to A.
d) A is true and R is false

9. The prominent factors that influences fabric's mechanical properties in a knitted garment is _____ CO5 [K_2]

a) Fabric construction, thickness & material
b) Fabric density, construction and yarn & fiber fineness**.**
c) Air permeability, absorbency & weight
d) Absorbency, comfort and fiber type

10. Rank the following fabric parameters in the order of priority, that makes the fabric automatic choice for knitted intimate apparels. CO6 [K_2]

i. Anti-bacterial properties.
ii. Good sensorial comfort and soft.
iii. Good capillarity & drying rate.
iv. Knitted fabric weight and fineness.

a) I, IV, III AND II
b) IV, I, II AND III
c) IV, II, III AND I
d) II, III, I AND IV

PART B (10 x 2 = 20 Marks)

11. In an (interlock fabric) double set needle system, each feeder has its own cam group, justify. CO1 [K_4]
12. Compare the waste level generated in "cut and sew" knitted garments and "integral" knitted garments CO1 [K_2]
13. Infer the different types of machines used for producing seamless knitwear garments. CO2 [K_2]
14. Briefly discuss the limitations of William cotton knitting machine. CO2 [K_2]
15. Illustrate the production technology used for Stitch less construction of intimate garments. CO3 [K_2]
16. Seamless knitwear is more elastic than the conventional cut and sew knitwear, justify. CO3 [K_4]
17. In fully fashioned knitwear, it is possible to reduce or increase the fabric density, justify. CO4 [K_4]
18. Micro denier fiber knitted fabrics has better drape and exhibit good moisture transport capability, predict the reasons. CO5 [K_3]
19. Attribute the fiber property responsible for performing moisture transportation. CO5 [K_4]
20. Identify the reasons for hole formation in stitching of knitted fabrics. CO6 [K_2]

PART C (10 x 5 = 50 Marks)

21. Compare the pattern of stitch formation between Purl fabric and Interlock fabric with the help of knitting notations. CO1 [K_3]
22. Discuss the working mechanism of circular weft knitting machine with a suitable example. CO1 [K_2]
23. Compare the characteristics of Ultrasonic welded seam and a conventional lap seam. CO2 [K_2]
24. Predict the advantages of intimate apparel made from stretch fabric and assembled using welded seams. CO2 [K_2]
25. Sports brassiere made for high impact activities like running, mountaineering and intense workouts needs special construction and specific fabric. Determine the suitable construction techniques and right fabric choice. CO3 [K_5]
26. Fully fashioned garment panels knitted on flat bed machine are more stable in their dimensions, justify CO4 [K_4]
27. Infer the three different techniques used for shaping panels in fully fashioned knitwear CO4 [K_2]
28. Write a short note on moisture management principle advocated in the knitted fabric performance functions. CO5 [K_2]

29. Determine the factors governing knitted fabric shrinkage. CO6 [K_5]

30. Suggest the remedial measures for controlling missed stitches during sewing of knitwear garments. CO6 [K_3]

Answer any TWO Questions
PART D (2 x 10 = 20 Marks)

31. The knitted seamless track pant shown in figure 1 is produced on santoni seamless knitting machine. The track pant has an integrated net fabric on the side seam, integrated waistband and regular double faced fabric structure with high stretchable characteristics. Determine the garment design influencing factors and yarn properties for knitting the same on santoni seamless knitting machine. 10 CO3 [K_5]

Figure 1: seamless knitted track pant

32. Explain the four types of loop transfer techniques and conclude the best techniques suitable for shaping the following garment component: front bodice shown in figure 2 below. 10 CO4 [K_2]

Figure 2

33. Resolve the fabric parameters and specific fiber properties suitable for making winter season outer wear Apparel shown in figure 3. 10 CO5 [K4]

Figure 3

****