KUMARAGURU
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Register Number:……..…

M.TECH DEGREE EXAMINATIONS: DEC 2022

(Regulation 2018)

Third Semester

APPAREL TECHNOLOGY

P18ATE1005: Sports and Medical Apparels

COURSE OUTCOMES

CO1: Gain knowledge on requirements of sports apparels

CO2: Acquire knowledge on sports apparels and cross functional assemblies

CO3: Describe the biomaterials of metals, ceramics, polymers, natural biomaterials and specialty fibers.

CO4: Define and classify the different types of healthcare and hygiene products, infection control and barrier materials and nonwoven products.

CO5: Identify and construct the different types of bandaging materials and pressure garment with suitable construction techniques.

CO6: Recognize the suitability, specifications of medical textile products and garments for wounds and selection factors for different implantable products for various end uses and intelligent textiles. Identify the suitable materials for developing implantable products.

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

Answer all the Questions: -

PART A (10 x 1 = 10 Marks)

1. -------- known as ready-to-wear category, has more standardized designs and measures, made for a specific target audience CO1 [K_2]

   a) Haute Couture b) Mass Market

   c) Prêt-a-porter d) Designers clothing

2. The essential functionality differs greatly and may be based on the application of compression or the principles of aerodynamics to reduce wind or air-drag in ---- clothing CO2 [K_2]

   a) Healthcare b) Sports

   c) Medical d) Vanity

3. Textile structures in implantation are identified by------ and suitable for sports and medical apparels CO2 [K_3]

   i. Structure ii. Material composition iii. Hydrophilicity

   a) i & ii only b) ii & iii only

   c) i & iii only d) ii only

4. Matching type item with multiple choice code CO4 [K_3]

List I Apparels/ products	List II- TYPE OF CLOTHING
A. Medical scrubs	i. Therapeutic clothing
B. EKG Vests	ii. Surgical clothing
C. Surgeon's gowns	iii. Intelligent functional clothing
D. Pressure garments	iv. Healthcare/hygiene clothing

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

5. -----are substances that absorb and release thermal energy (heat) during the process of melting and freezing. CO4 [K_2]

a) Phase Change materials b) Microfiber Fabrics

c) Shape memory polymers d) 3D spacer fabrics

6. _____ is well known for its haemostatic properties and its bacteriostatic and fungistatic behaviors, all of which are particularly useful for wound treatment. CO3 [K_2]

a) Hydrogel b) PLA

c) Alginate d) Chitosan

7. Examine the two statements carefully and select the answer using the codes given below: CO6 [K_4]
Assertion (A): Extracorporeal devices is one of the classifications of medical textiles.
Reason (R): It is used as stand for essential organs that are functioning correctly

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. Phase Change Materials (PCM) possess the ability to change their state with a certain range. CO3 [K_2]

a) Pressure b) Temperature

c) Moisture d) Light

9. Which types of synthetic polymers are used in the manufacturing of modern artificial ligament CO5 [K_2]

a) Polyamide b) carbon

c) Polyethylene terephthalate d) Polyester

10. Identify the category of functional requirements that are especially needed for health-care garments. CO6 [K_4]
i. Anti-microbial ii. Comfort iii. Durability

a) i & iii only b) ii only

c) ii & iii only d) i & ii only

PART B (10 x 2 = 20 Marks)

11.	State the fundamental requirements for selecting sports apparels	CO1	[K_2]
12.	Illustrate about the role of balance in sports garment designing with examples	CO1	[K_3]
13.	Highlight the test methods and standards for different sport clothing	CO2	[K_2]
14.	State the factors affecting the choice of natural biomaterials for therapeutic clothing	CO3	[K_2]
15.	Indicate the steps for designing body shaping garments with examples	CO3	[K_3]
16.	Outline the use of electronic based Sensors in medical textiles	CO4	[K_2]
17.	List the seam types used in pressure garment construction.	CO5	[K_1]
18.	Give examples for the applications of textiles used as bandaging materials	CO5	[K_1]
19.	Discuss about the wound scar management with suitable examples	CO6	[K_2]
20.	State about any two methods of mobile health monitoring system	CO6	[K_3]

PART C (6 x 5 = 30 Marks)

21.	Design any one sports garment suitable for adolescent boys and prepare a specification sheet for the same garment	CO1	[K_6]
22.	Elucidate about the multi – functional performance of clothing with examples	CO2	[K_2]
23.	Design any one women's sports garment with the application of any four principles of design factors with a neat sketch	CO2	[K_6]
24.	Describe in detail about the classes of textile material used as biomaterials in medicinal field	CO3	[K_2]
25.	With neat line diagram, explain in detail about the different kinds of wound care dressings classification with its applications	CO6	[K_2]
26.	Illustrate about the any two bio- sensing monitor for assessing physiological parameters with suitable example	CO5	[K_2]

Answer any FOUR Questions

PART D (4 x 10 = 40 Marks)

27.	Explain briefly about the process and steps involved in clothing design with examples	CO1	[K_2]
28.	Infer about the therapeutic rehabilitative clothing and its role for healthcare applications	CO4	[K_2]

29.	With neat line diagram, explain in detail about the phase change materials according to their application in medical field.	CO3	[K_2]
30.	Explain about wound healing process and requirements of wound dressings.	CO5	[K_2]
31.	Analyse in detail about the smart medical textiles with reference to Moisture transport – wetting and wicking and water vapour transfer property test on materials.	CO6	[K_4]

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