

Bachelor of Design (B.Des.) Examination, 2019

Semester - VI

Specialization in Textile & Clothing

Paper – TC-VI/04

(Textile Technology – II)

Time: Three Hour

Full Marks: 40

Questions are of value as indicated in the margin.

Group – A

(Weaving Mechanism, Fabric Structure & Calculation – II)

Question No. 1 is compulsory, and answer any one (1) from the rest:

1. (a) Match the following with appropriate combination:

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|---------------------------------|---|
| A) link beat-up mechanism | i) Automatic shuttle loom |
| B) 2/2 twill weave | ii) Negative tappet shedding |
| C) Cam | iii) Cone over pick mechanism |
| D) Pawl-and-ratchet-wheel drive | iv) weaving of delicate fabric |
| E) Handloom dobby | v) Continuous take-up |
| F) Split shuttle | vi) shuttle loom |
| G) Worm-and-worm-wheel drive | vii) picking mechanism |
| H) Spring under motion | viii) Intermittent take-up |
| I) Non-automatic power loom | ix) 10-12 heald shafts |
| J) Direct take-up | x) Positive shedding mechanism |
| | xi) Warp tension |
| | xii) 4 shedding tappets mounted on counter shaft. |

(b) Fill up the blanks with most appropriate answer [**any 10 (ten)**]:

- A) Corkscrew weave is the derivative of _____ weave.
- B) Speed ratio of main shaft and bottom shaft of a power loom is _____.
- C) Picking mechanism is driven by _____ shaft.
- D) Appropriate driving source for shedding mechanism for producing weaves other than plain is _____.
- E) Power of beat-up mechanism is taken from _____ shaft.
- F) If a loom is running at 150 rpm with an efficiency of 90% then picks per minute will be _____.
- G) In superior quality 'Gaamchha', _____ weave is used.
- H) Brighton Honeycomb weave is _____ (irreversible / reversible), and its repeat is multiple of _____.
- I) For applications where more light and air are desired to be passed through the fabric, _____ weave may be chosen.
- J) The average mass of a powerloom shuttle for cotton weaving is _____ kg.
- K) Power required to drive a plain power loom is _____ HP.
- L) Main difference between a tappet and a cam is that unlike cam tappet has _____ period.
- M) Sley eccentricity ratio, e , is defined as the ratio of r/l , where 'r' is _____ and 'l' is _____.
- $(10 \times 0.5) + (10 \times 0.5) = 10$

2. (a) What are the salient differences between diamond and diaper designs?

(b) Show on the graph paper weaving plan of a typical 'Sponge' weave.

(c) What are the different ways of producing cellular structure in a textile fabric by weaving?

P.T.O.

- (d) A loom is running at 180 rpm. with 90% efficiency and producing a fabric having 60 EPI, 80 PPI and 36 inch in width in loom state. Calculate loom production in metre per shift of 7.5 hr.
2+3+1+4 = 10
3. (a) Show on the graph paper weaving plan of **any two** of the following weaves:
 (i) A typical Weft Distorted Thread effect
 (ii) A suitable Brighton Honeycomb using 20 heald shafts
 (iii) A suitable Crepe weave by rotation method.
 (b) What is the equivalent yarn count of 2/20^s Ne in denier system?
 (c) What is the equivalent reed count of 48^s Stockport in universal system?
 (d) Show on the graph paper a suitable repeat of a Diamond design based on 3/3 twill.
 6+1+1+2 = 10

Group - B

(Dyeing of Textile Substrates)

Question No. 1 is compulsory and answer any other three from the rest

1. Answer **any ten** questions: 2x10=20
- What are the advantages and drawbacks of reactive colour?
 - Why sodium hydrosulphite is used as a reducing agent in vat colour dyeing?
 - What are the functions of different chemicals used in solubilised vat dyeing?
 - What is the role of electrolytes in acid colour dyeing?
 - What is bronziness and how it can be minimised?
 - What is coupling ratio? Mention the role of sodium acetate in naphthol colour dyeing.
 - What are the advantages and drawbacks of basic dyes?
 - Why jute fibre absorbs basic dye and acid dye?
 - What is mordant? Explain the role of mordants in natural colour.
 - Why acetic acid is used in dyeing of polyester with disperse dye?
 - Discuss various classes of reactive dyes.
 - What are the differences between Procion and Remazol class of reactive dyes?
 - Explain the role of sodium carbonate in direct dyeing and reactive dyeing.
 - Discuss the dyeing process of silk fibre with reactive dye.
 - Why naphthol colour is called ice colour? Explain the role of Sodium nitrite in naphthol colour dyeing.
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