

Name _____

Index No. _____

2401/304

TEXTILE SCIENCE

Oct/Nov 2013

Time: 3 hours

Candidate's Signature _____

Date _____



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN CLOTHING TECHNOLOGY

TEXTILE SCIENCE

3 hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

Sign and write the date of the examination in the spaces provided above.

This paper consists of EIGHT questions.

Answer any FIVE questions in the spaces provided in this question paper.

All questions carry equal marks.

Maximum marks to each part of a question are as shown.

Do NOT remove any pages from this booklet.

Candidates should answer the questions in English.

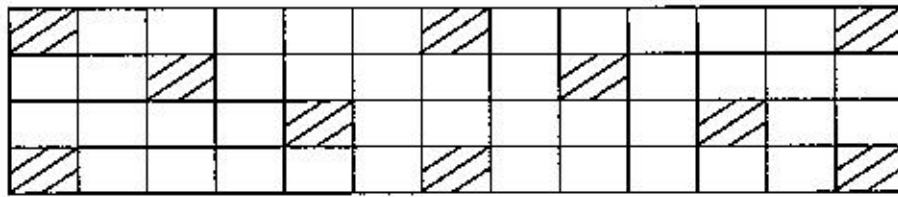
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Question	1	2	3	4	5	6	7	8	TOTAL SCORE
Candidate's Score									

This paper consists of 20 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. (a) Study the fabric structure below and determine the following:



- (i) the type of weave; (1 mark)
- (ii) the designation of the weave; (1 mark)
- (iii) **five** characteristics of the weave. (5 marks)

(b) Outline **five** limitations of each of the following:

- (i) linen; (5 marks)
- (ii) silk. (5 marks)

(c) Explain the term 'scouring' as used in cotton fabric production, citing **one** objective. (3 marks)

2. (a) Explain the following fabric finishes:

- (i) burling; (2 marks)
- (ii) antislip; (2 marks)
- (iii) chlorination; (2 marks)
- (iv) mercerization. (2 marks)

(b) Explain the production process of acetate fibres. (10 marks)

(c) Describe the term 'roving' in yarn production. (2 marks)

3. (a) (i) Explain the term 'slub dyeing'. (2 marks)

(ii) Outline **three** desirable qualities of dyed fabrics. (3 marks)

(b) Describe the discharge printing process. (3 marks)

(c) Highlight **seven** advantages and **five** disadvantages of nylon fabrics. (12 marks)

4. (a) State **three** functions of each of the following in laundry:
- (i) sunlight; (3 marks)
 - (ii) ironing. (3 marks)
- (b) Illustrate the care label symbol for each of the following instructions:
- (i) do not bleach; (1 mark)
 - (ii) do not dry clean; (1 mark)
 - (iii) do not tumble dry; (1 mark)
 - (iv) use cool iron; (1 mark)
 - (v) drip dry. (1 mark)
- (c) Distinguish between each of the following in silk production:
- (i) weighting and degumming; (2 marks)
 - (ii) reeling and throwing. (2 marks)
- (d) (i) Explain the term 'selvedge'. (2 marks)
- (ii) Identify **three** types of selvages. (3 marks)
5. (a) State the effect of acetone on each of the following:
- (i) viscose; (1 mark)
 - (ii) triacetate. (1 mark)
- (b) With the aid of illustrations, describe the longitudinal microscopic appearance of each of the following:
- (i) linen; (3 marks)
 - (ii) wool; (3 marks)
 - (iii) unmercerized cotton. (3 marks)
- (c) (i) Outline **four** objectives of the carding operation in cotton yarn production. (4 marks)
- (ii) Highlight **three** objectives of stretching in nylon yarn production. (3 marks)
- (d) Distinguish between 'pre-shrinking' and 'residual shrinking' in fabrics. (2 marks)

6. (a) Outline **three** objectives of 'stiffening' as a fabric finish. (3 marks)
- (b) With the aid of a labelled diagram, describe the wet spinning process. (7 marks)
- (c) Explain the procedure for ironing a cotton shirt. (6 marks)
- (d) Highlight **four** points to consider before and when hanging clothes on a drying line. (4 marks)
7. (a) (i) Describe the term 'fullfashioning' in knitting. (3 marks)
- (ii) Highlight **three** advantages of warp knits over weft knits. (3 marks)
- (b) Identify the following knitted fabric faults:
- (i) ladder; (1 mark)
- (ii) bowing; (1 mark)
- (iii) float; (1 mark)
- (iv) press off. (1 mark)
- (c) Outline **six** desirable qualities of suitable fabrics for lingerie. (6 marks)
- (d) Identify the generic group of each of the following fibres:
- (i) nylon; ($\frac{1}{2}$ mark)
- (ii) crimplene; ($\frac{1}{2}$ mark)
- (iii) lurex; ($\frac{1}{2}$ mark)
- (iv) orlon; ($\frac{1}{2}$ mark)
- (v) courtelle; ($\frac{1}{2}$ mark)
- (vi) dacron; ($\frac{1}{2}$ mark)
- (vii) spanzelle; ($\frac{1}{2}$ mark)
- (viii) asbestos. ($\frac{1}{2}$ mark)

8. (a) Highlight **five** limitations of pile fabrics during usage. (5 marks)
- (b) Explain the term 'mixing' in fabric formation, citing **three** disadvantages. (5 marks)
- (c) State the number of shafts required to produce each of the following woven fabric structures:
- (i) $\frac{4}{1}$ twill weave; (1 mark)
 - (ii) $\frac{3}{3}$ twill weave; (1 mark)
 - (iii) $\frac{1}{1}$ plain weave. (1 mark)
- (d) (i) Explain the term 'dry cleaning'. (2 marks)
- (ii) Highlight **three** advantages and **two** disadvantages of dry cleaning. (5 marks)