



2nd SEM. 2016/2017

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME : **BACHELOR OF SCIENCE IN
TEXTILE, APPAREL DESIGN AND
MANAGEMENT and CONSUMER SCIENCE
EDUCATION YEAR II**

COURSE CODE : **TAD202**

TITLE OF PAPER : **OPERATION AND MAINTENANCE OF
SEWING MACHINES**

TIME ALLOWED : **TWO (2) HOURS**

INSTRUCTION : **ANSWER QUESTION ONE (1) AND
ANY OTHER TWO (2) QUESTIONS**

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GRANTED BY THE CHIEF INVIGILATOR**

QUESTION 1 (COMPULSORY)

a) Industrial sewing machines are robustly built for continuous operation at high speeds. Discuss the several ancillary mechanisms they are provided with to reduce the time needed by the operator for non-sewing activities. (20 Marks)

b) Discuss key points to consider when buying an industrial sewing machine (20 Marks)

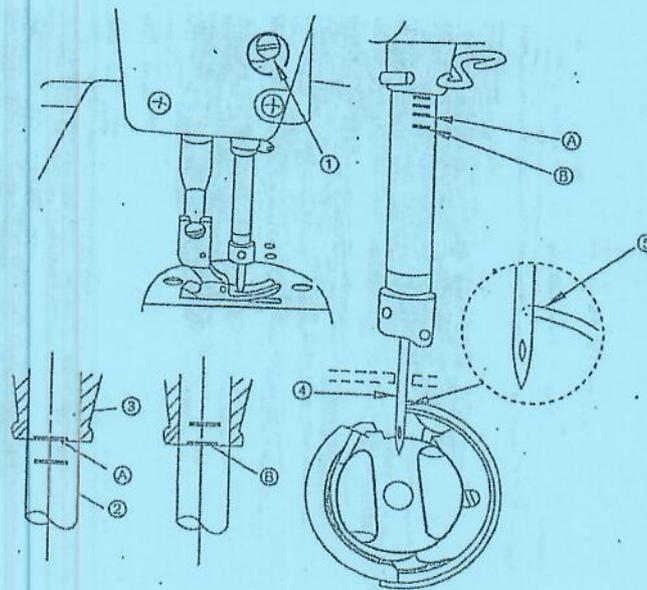
[TOTAL MARKS = 40]

QUESTION 2

a) In apparel mass production, appropriate settings and adjustments are made for each design or line. Fully explain when it would be necessary to do the following adjustments and expected consequences if the adjustment is not done.

- i) Stitch length adjustment
- ii) Feed timing
- iii) Height of the feed dog

b) To ensure that there is good timing in the relationship between the needle and the rotating hook clearance, clearly outline the steps to take when setting the timing at the right clearance. Make reference to the illustration below. (3 X 5 = 15 Marks)



(10 Marks)

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c) Convert 10 electrical horsepower (10 hp) to watts in accordance with the units used in Swaziland.

(3 Marks)

d) Which needle system is used for the following machines?

- i) Three and five thread overlocker
- ii) Single needle lock stitch machine
- iii) Blind stitch machine
- iv) Lock stitch button stitch machine

(2 Marks)

[TOTAL MARKS = 30]

QUESTION 3

a) With reference to the list of fabrics below:

i) Mention the most suitable type of needle for sewing the fabric.

(4 Marks)

ii) Based on the configuration of the needle explain why it is suitable for the fabric (Tabulate your answer)

(10 Marks)

Fabrics	Suitable needle	Justification for the suitability of the needle based on the needle configuration
Spandex or lycra		
Heavy weight denim		
Natural leather		
Micro fibre or silk		
Quilt		

b) Give the sewing defect that would result from the following causes in the sewing machines mentioned below and explain how you would remedy the sewing defects. *Tabulate your answer.*

Type of machine	Causes	Sewing defect	Corrective Measure
Overlocker	i. Bent needle		
	ii. Needle is threaded with an S twist thread		
	iii. Feed dog juts out too much from the throat plate		
	iv. Position of the upper and lower knife is inadequate		
Double needle Lock stitch machine	v. Poor fabric feed		
	vi. Needle is deflected onto the throat plate by the operative pulling on the fabric		
	vii. Worn or damaged hole in the throat plate		
	viii. The looper does not catch the needle thread loop		

(8 X 2 = 16 Marks)

[TOTAL MARKS = 30]

QUESTION 4

a) Demonstrate your sewing machine operation skills by clearly outlining how and when to adjust the lower tension.

(5 Marks)

b) Puckering is a result of particular sewing conditions. Clearly draw distinctions between puckering caused by the separate effects of:

- i) Material feeding
- ii) Fabric structure
- iii) Thread tension

(15 Marks)

c) Needle sizes are selected in relation to the type of fabric to be stitched. Give four (4) needle size ranges used in the apparel manufacturing industry and an example of fabric that can be suitably sewn with the needle sizes.

(6 Marks)

d) Give a motivation why the Consumer Science Department should buy industrial sewing machines instead of domestic sewing machines in the garment factory.

(4 Marks)

[TOTAL MARKS = 30]