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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2013/2014**

COURSE NAME	:	YARN PRODUCTION TECHNOLOGY I
COURSE CODE	:	BNH 20203
PROGRAMME	:	2 BNH
EXAMINATION DATE	:	JUNE 2014
DURATION	:	2 1/2 HOURS
INSTRUCTION	:	ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **SIX (6)** PAGES

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- Q1**
- (a) Discuss the differences between carded yarn and combed yarn in term of production process and properties. (4 marks)
 - (b) 500kg fiber was processed in blowroom and the waste removed is 1980g. Calculate the percentage of trash eliminate during the process. (3 marks)
 - (c) Aided with diagram, name the parts and illustrate the carding process. Discuss on the diameter and speed of each roller. (6 marks)
 - (d) A carding unit with calendar roller diameter 85mm is producing sliver at 27.3 kg/hr. The roller speed is 600rpm with 97% machine efficiency. The waste generated 2.3%. Calculate the sliver weight (in TEX) produced. (7 marks)
- Q2**
- (a) There are two systems used in preparing the comber lap; Lap Doubling System and Sliver Doubling System. Discuss briefly **ONE(1)** of the system. (4 marks)
 - (b) **Figure Q2** shows the graph of Effective Length versus % of fibers. Analyze the graph. (4 marks)
 - (c) Demonstrate the steps involved in combing process. (7 marks)
 - (d) The combing machine has a specification as below. Calculate the production output.

Delivery roller speed	:	260rpm
Delivery roller diameter	:	1.367"
Efficiency	:	80%
No. Of deliveries	:	2
Sliver weight	:	74gr/yd
Wastage	:	18%

(5 marks)

- Q3** (a) Discuss how the blending of two different fibers occurred in drawing process. (4 marks)
- (b) Two types of slivers was produced from the same card sliver but having different drafting unit, 6 and 10. Compare the drafting arrangement for each sliver. (6 marks)
- (c) **Figure Q3** shows the 3-over-3 drafting arrangement. Given the $V_1 = 50\text{m/s}$, $V_2 = 30\text{m/s}$ and $V_3 = 20\text{m/s}$. Calculate:
- (i) Break draft
 - (ii) Main draft
 - (iii) Total draft (6 marks)
- (d) Explain the function of apron roller and pressure bar in drafting arrangement. (4 marks)
- Q4** (a) Differentiate between short apron bottom system and long bottom apron system. Show diagram for each system. (4 marks)
- (b) Describe the function of traveller in ring spinning. List **THREE (3)** properties of material suitable for traveller. (5 marks)
- (c) **Figure Q4** shows gear arrangement for spinning process. Calculate:
- (i) Draft between Front Roller (FR) and Middle Roller (MR)
 - (ii) Draft between Middle Roller (MR) and Back Roller (BR)
 - (iii) Total draft (6 marks)
- (d) A mass of traveller directly influence the frictional force between itself and the ring. Based on **Table Q4** below, select the best option for producing good yarn and give an explanation.

Table Q4

Option	Yarn Count	Traveller Number for Cotton
A	85	16
B	85	26
C	85	36

(5 marks)

- Q5** (a) Aided with diagram, discuss **TWO (2)** types of package can be produced by winding machine. (6marks)
- (b) A package of yarn has been produced in winding process. The quality control worker found out too many knot appear on yarn and it will effect fabric quality. Propose another method on joining broken end and explain the advantages of the method. (5 marks)
- (c) Explain the functions of roving process. Give an opinion on the elimination of roving process in short staple spinning. (6 marks)
- (d) A cotton roving strand produced in a factory has the twist insertion of 3TPI (Twist Per Inch). Relating to common practice, analyze the consequences if the strands are carried to ring spinning frame. (3 marks)

- END OF QUESTION -

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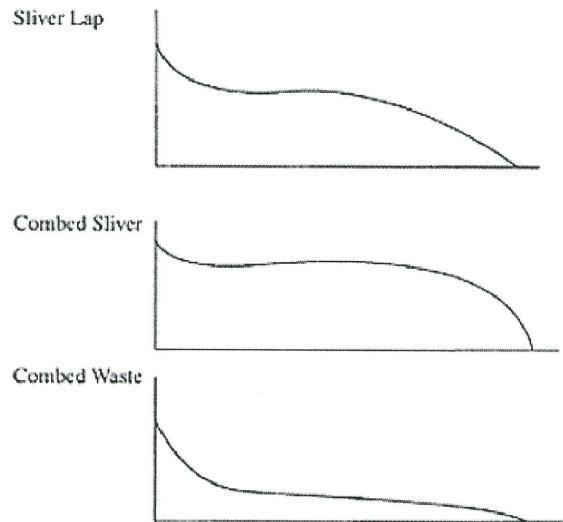


FIGURE Q2

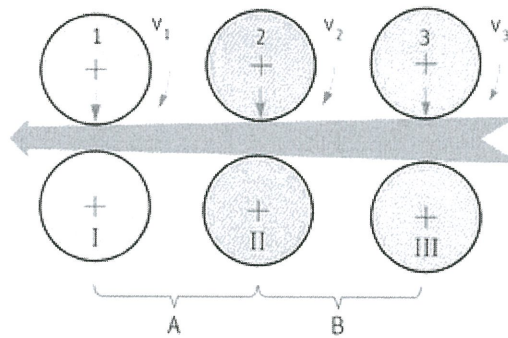


FIGURE Q3

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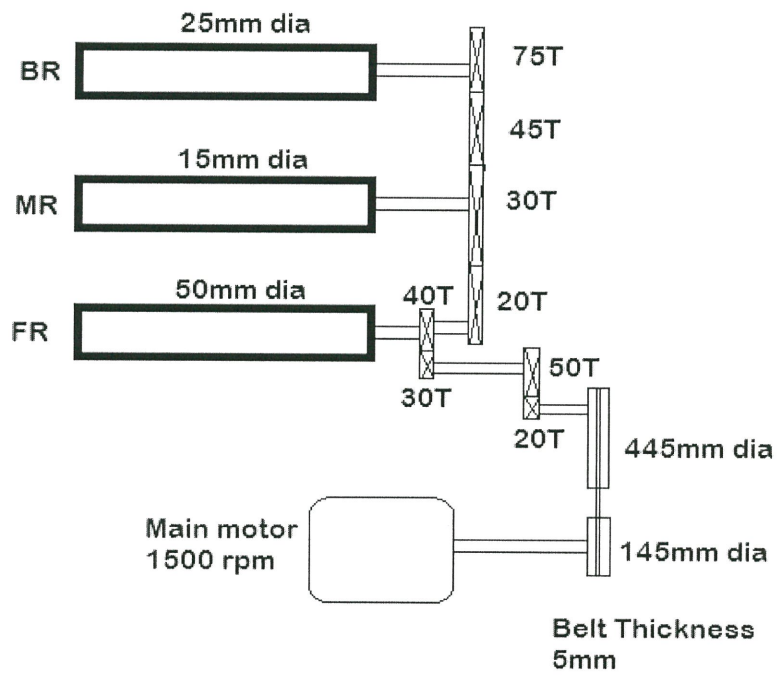


FIGURE Q4