Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017

COURSE NAME	:	YARN PRODUCTION TECHNOLOGY
COURSE CODE	:	BNH 20203
PROGRAMME CODE	:	BNH
EXAMINATION DATE	:	JUNE 2017
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1 (a) The ability to turn fibres into yarn must consider several fibre characteristics. Explain **FOUR (4)** of the main textile fibre characteristics.

(8 marks)

(b) Justify the difference between yarn and thread. Discuss the characteristic of compound yarn.

(6 marks)

(c) Assess the strength of yarn with regard of its twist and bulkiness.

(4 marks)

(d) Fibres must be prepared before spinning process can be performed. List **TWO (2)** of the reasons.

(2 marks)

Q2 (a) As a textile engineering technologist, recommend the processes where blending of TC can be made. Discover the benefit of producing TC. List **TWO (2)** factors affecting the properties of blended yarns.

(6 marks)

(b) 800 kilograms fibres were processed in blowroom and the waste collected was 3100 grams. Calculate the percentage of trash eliminated during the process.

(2 marks)

(c) Sketch **THREE (3)** opening devices used in blowroom line and describe **THREE (3)** factors affecting the intensity of the opening.

(6 marks)

(d) Name part A, B and C in **Figure Q2 (d)**. Explain the function of each part.

(6 marks)

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Q3 (a) 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 is recorded as 2.3%. Calculate the sliver weight (in Tex).

(7 marks)

(b) Discover **THREE (3)** of the importance of combing and distinguish **FOUR (4)** differences between combed and carded yarns.

(7 marks)

(c) Sketch any **THREE (3)** of the following operating sequence in a combing process:

(i) Lap nipping by nipper
(ii) Combing by cylinder
(iii) Piecing of web
(iv) Combing by top comb
(v) Waste extraction by the brush

(6 marks)

Q4 (a) Evaluate the card sliver weight if the infeed weight is 36 kTex and doublings are 6.

(2 marks)

(b) **Figure Q4 (b)** shows gear arrangement for spinning process. Analyse:

(i) Draft between Front Roller (FR) and Middle Roller (MR)

(3 marks)

(ii) Draft between Middle Roller (MR) and Back Roller (BR)

(3 marks)

(iii) Total draft

(3 marks)

(c) Irregularity refers to the uneven distribution of fibres along the length of the material. Discuss **TWO (2)** of the causes of irregularity and recommend **TWO (2)** ways to reduce or control irregularity.

(4 marks)

(d) Drafting arrangement is the most important unit in ring spinning. List **THREE (3)** effects of drafting and identify **TWO (2)** important factors to consider in drafting.

(5 marks)

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Q5 (a) With aid of diagram illustration, label the important parts of roving frame such as can, drafting rollers, spindle, bobbin, flyer and presser arm.

(6 marks)

(b) Determine the function of flyer and presser arm in roving process.

(4 marks)

(c) As a textile engineering technologist in a spinning industry, you found that some automation features need to be implemented in the operations. Develop a proposal which highlighted the area where automation is necessary and justify the reason.

(10 marks)

-END OF QUESTIONS –

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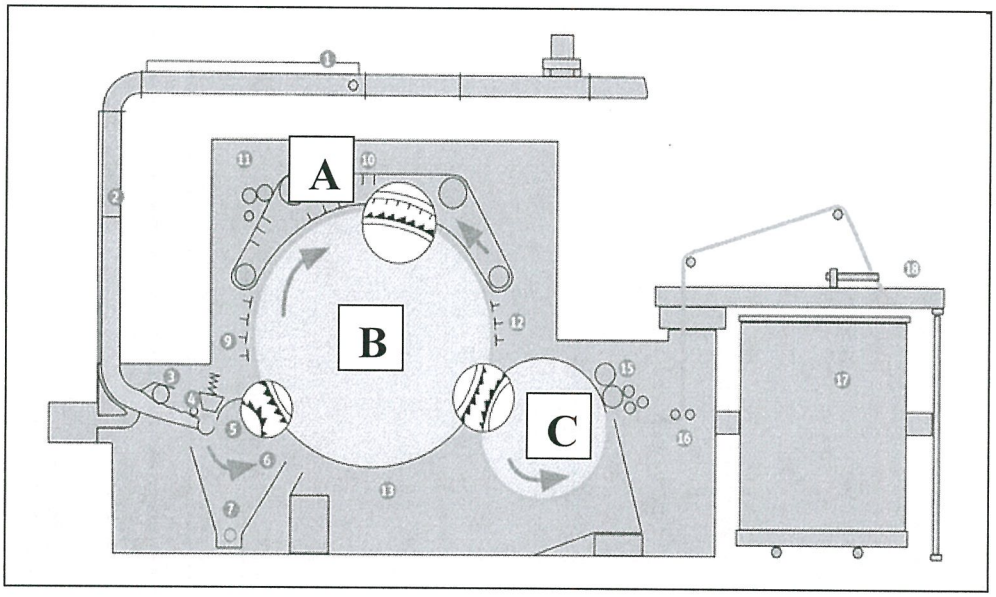

Figure Q2 (d)

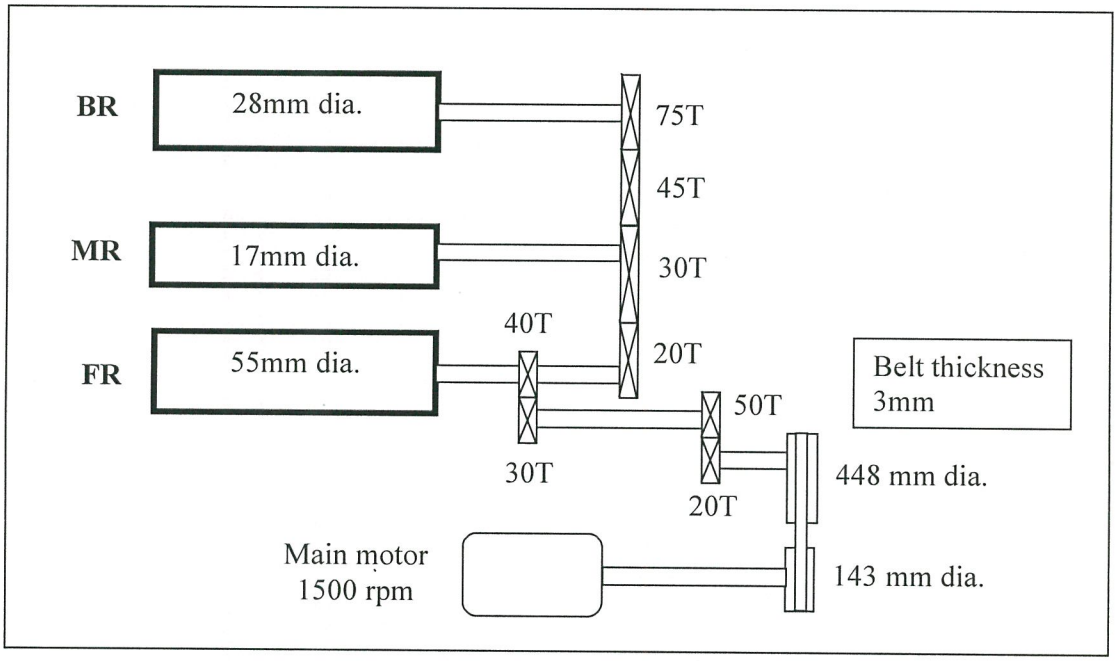

Figure Q4 (b)

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