



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2016/2017**

COURSE NAME : WEAVING PRODUCTION  
TECHNOLOGY II

COURSE CODE : BNH 30603

PROGRAMME : 3 BNH

EXAMINATION DATE : JUNE 2016

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

- Q1**
- (a) Explain the tension variation in the warp sheet during weaving cycle.  
(4 marks)
  - (b) Discuss **THREE (3)** important factors of balance tension between take-up and warp let-off section.  
(3 marks)
  - (c) Discuss **THREE (3)** factors that can cause warp breakages in weaving operation.  
(3 marks)
  - (d) Explain the working principle of the torsion bar mechanism.  
(4 marks)
  - (e) With an aid of a diagram, analyse the advantages of positive let-off motion to control tension variations over negative let-off system.  
(6 marks)
- Q2**
- (a) Why are projectile weaving machines very suitable for industrial textiles.  
(2 marks)
  - (b) By comparing between air-jet and water-jet looms, decide the best loom to produce 100% cotton denim fabric. Give your reasons.  
(2 marks)
  - (c) Compare the performance of the following yarns in air-jet weaving. Assume that the yarns have the same count.
    - (i) Ring spun yarn
    - (ii) Monofilament yarn(4 marks)
  - (d) The yarn width in the reed is 105 cm and the shuttle length, with the curved ends neglected, is 35 cm. The loom speed is 220 picks per minutes, and  $110^\circ$  of crankshaft rotation are available for shuttle traverse through the shed. Shuttle retardation is  $950 \text{ cm/s}^2$ . Calculate the following:
    - (i) Mean velocity
    - (ii) Maximum velocity
    - (iii) Minimum velocity before entering shuttle box(12 marks)

- Q3** (a) What are early shedding and late shedding. What kind of shedding would be preferred for weaving the following:-  
(i) Silk fabrics from filament yarns  
(ii) Cotton fabrics with very high density  
(4 marks)
- (b) List **THREE (3)** advantages and **THREE (3)** disadvantages of jacquard shedding compared to other shedding systems.  
(3 marks)
- (c) Write short notes on the following subjects:-  
(i) Reason that limits the number of cams on a weaving machine.  
(ii) Does the choice of shedding system depend on fabric style  
(iii) **TWO (2)** differences between negative and positive dobby  
(6 marks)
- (d) Determine the ratio of strain created in the warp threads during shedding by the front heald and back heald if the total shed length (distance between the cloth fell and back rest) is 120 cm, front shed length for the front heald is 20 cm, distance between the front and back heald is 4 cm, diameters of reversing rollers are 5 cm and 6 cm.  
(7 marks)
- Q4** (a) List any **FOUR (4)** auxiliary motions in a typical weaving machine.  
(4 marks)
- (b) Explain how temple is useful to prevent end breakages at the selvages.  
(3 marks)
- (c) What is the function of warp protector? List **TWO (2)** types of warp protection.  
(3 marks)
- (d) Define the terms positive and negative shedding mechanisms. With an aid of diagram, explain the negative shedding and the type of fabric structure that can be woven.  
(6 marks)
- (e) With the aid of linear or circular timing diagrams, discuss all the important events during a loom cycle for a shuttle loom.  
(4 marks)

- Q5** (a) What are the disadvantages of forming a woven fabric, when beating-up during open shed?  
(2 marks)
- (b) Define sley eccentricity. Mention **TWO (2)** advantages of sley eccentricity and what problem will arise if the sley eccentricity value is very high.  
(5 marks)
- (c) Why bumping occurs while weaving fabric with very high pick density and how the problem of bumping can be minimized?  
(4 marks)
- (e) Calculate the number of looms required to weave 150,000 meters fabric in one month, if a machine runs at 550 picks/min, 90% efficiency, 3 shifts a day, 24 working days a month and 25 picks/cm.  
(6 marks)
- (f) Discuss **THREE (3)** important factors in getting efficient shuttle flight in warp shed.  
(3 marks)

- END OF QUESTIONS -