FIS 304: Fish Gear Design and Production

INSTRUCTION: Answer Four (4) Questions in All.

TIME: 2 Hours 30 Minutes

1. (a). Find the cutting patterns of Figure 1A to E.
(b). What are the detailed cutting patterns of the following:
   i. 30b 30p  
   ii. 70b 75p  
   iii. 6b 30p  
   iv. 180b 200p  
   v. 40b 70p  
   vi. 50b 80p  
   vii. 75b 160p  
   viii. 80b 90p

2. (a). Calculate the area of the Castnet in Figure 2
(b). What is the mouth area?

3. (a). Describe fully the Doppler Shift in water.
(b). A trawler is approaching a school of fish in front and is sailing at 12 knots. The echosounder of the trawler is transmitting a frequency of 40 kHz. At what frequency does the trawler receive echoes?

4. (a). Given the following:
   Mesh size = 20mm; No of meshes in a loop = 3 meshes; No of meshes along the vertical row = 100; Spacing on the head rope = 50m; No of loops on the head rope = 50.
   Calculate:
   I. Primary hanging – co-efficient \( (E_1) \)
   II. Percentage of looseness
   III. Secondary hanging co-efficient \( (E_2) \)
   IV. Fictitious area of the netting if unmounted,
   V. Actual working area of the gear of mounted,
   VI. Not utilization co-efficient

   b. (i). Convert \( 210^{D/21} \) to R-tex.
   (ii). Calculate the twine diameter of 583 tex

5. (a). Define the following:
   (i) A mesh; (ii) Coir; (iii) Fishing technology; (iv) Monofilament
   (b). State seven advantages of knotless netting over knotted netting.
   (c). Explain the factors you would consider to choose a better gear between two fishing gears.

6. (i) What are the objectives of mounting?
   (ii) Explain the factors that can affect determination of natural fibres.
   (iii) Briefly write on the strand systems you have studied.