6. The marks scored by 10 students in a French and German examinations were

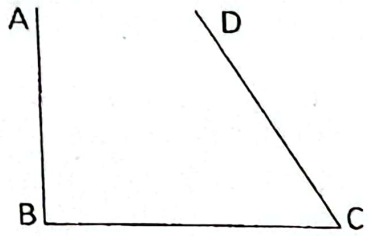
French	56	50	72	67	31	50	65	40	80	61
German	60	50	67	75	64	56	73	48	76	62

Calculate a rank correlation coefficient for the two subjects. Comment on you result.

(05 marks)

7. Locate each of the three roots of the equation $x^3 = 3x^2 - 1$ **(05 marks)**

8. A uniform wire ABCD is bent into the shape shown;



If the sections AB, BC and CD are straight and of length 3m, 10m and 5m respectively and AD is parallel to BC, find the distances of centre of mass of b wire from:

(i) AB **(03 marks)**

(ii) BC **(02 marks)**

SECTION B (60 MARKS)

Attempt only five (5) questions from this section

9. **(i)** Show that the equation $x^3 - 5x + 1 = 0$ has a root between 0 and 1. **(03 marks)**

(Ii) Use linear interpolation to estimate this root correct to 2 decimal places. **(02 marks)**

(iii) Using the Newton Raphson process, find the root of the equation in (i) gi your answer correct to 3 decimal places. **(07 marks)**

10.**(a)** Records from a health facility show that two in every 20 patients are foun with a strange disease. If a sample of 500 patients is checked, find the probat that between 48 and 61 patients are found with the disease.

(06 marks)