INSTRUCTION: ATTEMPT ALL QUESTIONS.

1. In a class of 60 students, 22 offered French, 22 offered English, 36 offered History; 8 offered French and English, 10 English and History, 12 French and History while 6 did not offer any of the three subjects.
   (c) Draw the Venn-Euler diagram to represent the data.
   (d) Use your diagram in (a) to find the number of students who offered
      (iii) All the three subjects,
      (iv) History only. (5 marks)
2. If and are the roots of $x^2 - 12x + 7 = 0$, find the values of: $\alpha+\beta=\frac{-b}{a}$ $\alpha\beta=\frac{c}{a}$
   (i) $\alpha^2 + \beta^2$ $(\alpha+\beta)^2 - 2\alpha\beta$
   (ii) $\alpha^3 + \beta^3$ (5 marks)
3. Find the sum of the first twenty terms of an arithmetic progression of which the third term is 55 and the last term is -98. (5 marks)