UNIVERSITY OF GHANA

SCHOOL OF ENGINEERING SCIENCES

FIRST SEMESTER EXAMINATIONS: 2016/2017
LEVEL 100: BACHELOR OF SCIENCE IN ENGINEERING

FAEN 103: BASIC MECHANICS I (3 Credits)

INSTRUCTION: *ANSWER ALL QUESTIONS*
TIME ALLOWED: TWO AND HALF (2½) HOURS

For equilibrium of a rigid body, the following conditions must be satisfied;

$$F_R = \sum F = 0$$
$$M_R = \sum M_O = \sum (r \times F) = 0$$

i. Explain each term in the above statements. **(5 marks)**

ii. Represent the above statements using scalar equations. **(3 marks)**

For the cables shown in figure 1, if the maximum allowable tension in cable *AC* is 600 N and in cable *BC* is 750 N, determine:

i. The maximum force *P* that may be applied at *C*.
ii. The corresponding value of θ.

(9 marks)

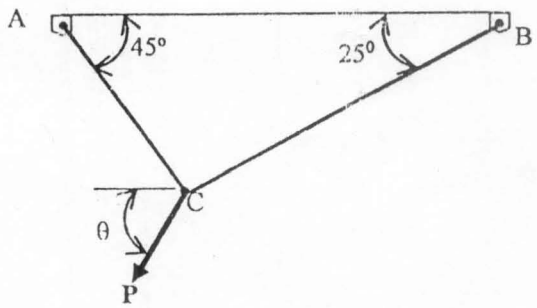

Figure 1

EXAMINER: DR. M. N. JOSIAH