

Course No: *Engi1304*  
Course Title: *Physics II*  
Date: *17/04/2018*  
No. of Questions: (3)  
Time: *1:00 hours*  
Using Calculator: (*Yes*)

University of Palestine



Second Med Exam-2S  
2017-2018  
Total Grade: 15

Instructor Name:  
Student No.:  
Student Name:  
College Name:  
Dep. / Specialist:  
Using Dictionary: (*No*)

اسم الطالب:	الرقم الجامعي:	رقم الشعبة:
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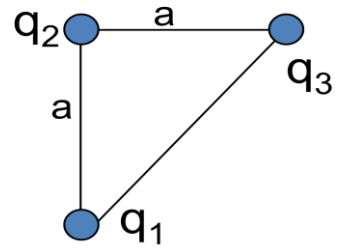
Constant:  $k = 9 \times 10^9$ ,  $\epsilon_0 = 8.85 \times 10^{-12}$ ,  $m_e = 9.11 \times 10^{-31} \text{kg}$ ,  $q_e = 1.6 \times 10^{-19} \text{C}$ .

**Question 1:** (4)

Consider three point charges at the corners of a triangle, as shown.

Find the resultant force (magnitude and direction) on  $q_3$  if:

$q_1 = q_3 = 5 \times 10^{-6} \text{C}$ ,  $q_2 = -2 \times 10^{-6} \text{C}$ ,  $a = 0.10 \text{m}$ .



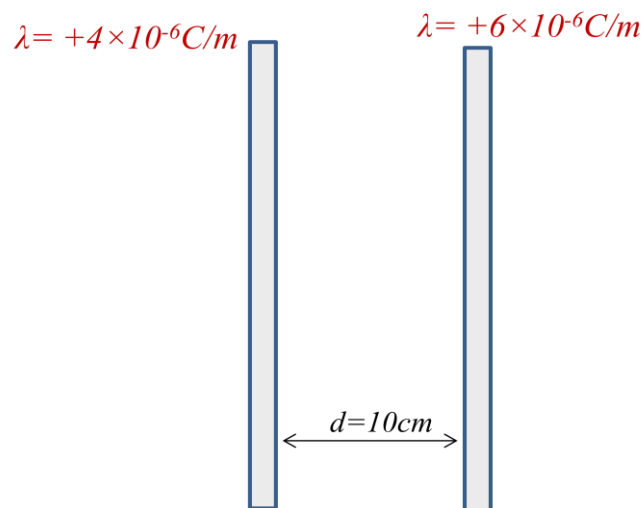
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**Question 2:** (5)

Two long, straight wires are separated by a distance  $d = 10$  cm.  
The two wires carried linear charge density  $\lambda = +4 \times 10^{-6} \text{ C/m}$  and  $\lambda = +6 \times 10^{-6} \text{ C/m}$ .  
Find the places at which no electric field ( $E_{\text{TOT}} = 0$ ).



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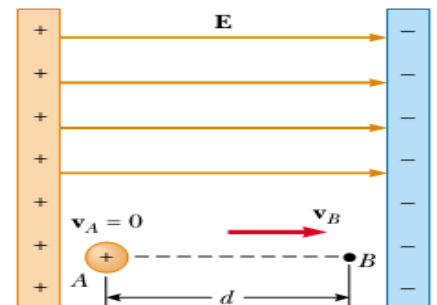
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**Question 3:** (6)

A proton is released from rest in a uniform electric field that has a magnitude of  $10 \times 10^4 \text{ V/m}$ . The proton undergoes displacement of 0.40m in the direction of  $E$ .

- A- Find the change in electric potential between points A and B.
- B- Find the change in potential energy of the proton-field system for this displacement.
- C- Find the speed of the proton after completing the 0.50m displacement in the electric field.
- D- Find the time need to complete this displacement.

Note:  $q_p = +1.6 \times 10^{-19} \text{ C}$ ,  $m_p = 1.67 \times 10^{-27} \text{ kg}$ .



*End of Questions*

Useful Constant:  $k = 9 \times 10^9$ ,  $\epsilon_0 = 8.85 \times 10^{-12}$ ,  $m_e = 9.11 \times 10^{-31} \text{ kg}$ ,  $q_e = 1.6 \times 10^{-19} \text{ C}$ .