

Team Name:

Machines C - BEARSO

Team Number:

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### Section A (80 points)

1. \_\_\_\_\_ 9. \_\_\_\_\_ 17. \_\_\_\_\_ 25. \_\_\_\_\_ 33. \_\_\_\_\_

2. \_\_\_\_\_ 10. \_\_\_\_\_ 18. \_\_\_\_\_ 26. \_\_\_\_\_ 34. \_\_\_\_\_

3. \_\_\_\_\_ 11. \_\_\_\_\_ 19. \_\_\_\_\_ 27. \_\_\_\_\_ 35. \_\_\_\_\_

4. \_\_\_\_\_ 12. \_\_\_\_\_ 20. \_\_\_\_\_ 28. \_\_\_\_\_ 36. \_\_\_\_\_

5. \_\_\_\_\_ 13. \_\_\_\_\_ 21. \_\_\_\_\_ 29. \_\_\_\_\_ 37. \_\_\_\_\_

6. \_\_\_\_\_ 14. \_\_\_\_\_ 22. \_\_\_\_\_ 30. \_\_\_\_\_ 38. \_\_\_\_\_

7. \_\_\_\_\_ 15. \_\_\_\_\_ 23. \_\_\_\_\_ 31. \_\_\_\_\_ 39. \_\_\_\_\_

8. \_\_\_\_\_ 16. \_\_\_\_\_ 24. \_\_\_\_\_ 32. \_\_\_\_\_ 40. \_\_\_\_\_

**Section B (120 points)**

1. (a) i. \_\_\_\_\_ N      ii. \_\_\_\_\_  $\text{m s}^{-1}$   
ii. \_\_\_\_\_ J      iii. \_\_\_\_\_ m  
  
(b) i. \_\_\_\_\_      (c) i. \_\_\_\_\_  
ii. \_\_\_\_\_      ii. \_\_\_\_\_  
iii. \_\_\_\_\_      iii. \_\_\_\_\_  
  
\_\_\_\_\_
5. (a) i. \_\_\_\_\_ N m  
ii. \_\_\_\_\_ %  
iii. \_\_\_\_\_
- (c) i. \_\_\_\_\_  
ii. \_\_\_\_\_  $\text{m s}^{-2}$   
iii. \_\_\_\_\_  $\text{m s}^{-1}$
- (b) i. \_\_\_\_\_  
ii. \_\_\_\_\_  
iii. \_\_\_\_\_ m  
iv. \_\_\_\_\_ W
2. (a) i. \_\_\_\_\_ g  
ii. \_\_\_\_\_ g  
  
(b) i. \_\_\_\_\_ g  
ii. \_\_\_\_\_
6. (a) \_\_\_\_\_  
(b) \_\_\_\_\_ N  
(c) \_\_\_\_\_ kg  
\_\_\_\_\_ kg  
  
(d) \_\_\_\_\_  $\text{m s}^{-2}$
3. (a) \_\_\_\_\_ kg  
(b) \_\_\_\_\_  
(c) \_\_\_\_\_  $\text{cm s}^{-1}$   
(d) \_\_\_\_\_ cm
7. (a) i. \_\_\_\_\_ lbf  
ii. \_\_\_\_\_  
iii. \_\_\_\_\_
- (b) i. \_\_\_\_\_ s  
ii. \_\_\_\_\_  $^{\circ}$   
iii. \_\_\_\_\_ N
4. (a) \_\_\_\_\_ kg  
\_\_\_\_\_
- (b) i. \_\_\_\_\_  
\_\_\_\_\_