SEAT #: _____

NAME: _____

ID: _____

University of Guelph
Department of Population Medicine

Final Examination – Epidemiology (POPM*3240 DE)

Course Instructors: Dr. Nathan Lachowsky and Dr. Steven Roche
December 7, 2015 (8:30am to 10:30am)

This exam is out of 63 marks and is worth 35% of the total course grade

INSTRUCTIONS:

1. Write your name & ID number on each page of the exam AND on the Computer Test Scoring sheet. Write your seat number in the top left corner of this page.

2. Communication with anyone other than the instructors or invigilators during the exam is not permitted.

3. Scientific or desk calculators may be used, but cannot be shared. Cell phones cannot be used as calculators.

4. The use of other electronic devices like computers, cell phones and PDAs is NOT permitted. Cell phones must be turned off during the exam and put away.

5. **All** pages of the examination AND the Computer Test Scoring sheet must be handed in at the end of the exam period. **Do NOT remove the formulae sheet from the exam booklet (Page 12)**; show answer questions begin on the formulae sheet (Question 41).

6. **PART A: MULTIPLE CHOICE QUESTIONS (MCQ) – 40 marks – BEGINS ON PAGE 2**
   - Fill in the personal information on the Computer Test Scoring sheet
   - Each question is worth one (1) mark
   - There is only one correct answer for each MCQ - choose the most correct answer
   - Enter the correct answer for each MCQ on the Computer Test Scoring sheet
   - Use only an HB #2 pencil to fill in the Computer Test Scoring sheet. Make heavy black marks that fill the circle completely. Erase cleanly any answer you wish to change. Make no stray marks on the answer sheet.

7. **PART B: SHORT ANSWER QUESTIONS – 23 marks – BEGINS ON PAGE 12**
   - Answer ALL questions in the space provided on (the front of) the exam pages
     DO NOT WRITE ON THE BACK OF EXAM PAGES
   - Please write legibly (we cannot mark things we cannot read)

8. Note that “interpret” means “explain the meaning of”.

9. This examination should have 17 pages. Ensure that you have all 17 pages.

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Formulae and Information you may find useful (DO NOT REMOVE THIS PAGE):

Sample size:

$$n = \frac{{Z_\alpha}^2 * \sigma^2}{L^2} \qquad n = \frac{{Z_\alpha}^2 * p * q}{L^2}$$

$$n = \frac{\left(Z_\alpha\sqrt{2pq} - Z_\beta\sqrt{p_1q_1 + p_2q_2}\right)^2}{(p_1 - p_2)^2} \qquad n = 2 * \left[\frac{\left(Z_\alpha - Z_\beta\right)^2 * \sigma^2}{(\mu_1 - \mu_2)^2}\right]$$

Measures of Disease Frequency:

Denominator for incidence risk: initial NAR – ½ WD

Approximate denominator for incidence rate: ½ * (initial NAR + final NAR) *ITC

AR = # individuals exposed who became ill / total # individuals exposed

CFR = # dying from disease Y / # sick from disease Y

Measures of Effect:

RD = [a/(a+b)] – [c/(c+d)]
= P(D+ | E+) - P(D+ | E-)
= $I_1 - I_0$

AP = RD / P(D+ | E+)
= $(I_1 - I_0) / I_1$
= (RR-1) / RR *or* (OR-1)/OR)

PAR = p(D+) – p(D+ | E-)
= $I - I_0$

PAF = PAR / p(D+)
= [P(E+)*(RR-1) / [P(E+)*(RR-1)+1]]*100
= $(I - I_0) / I$
= AP(e) * P(E+ | D+) in C-C studies