PBIO 504 Homework 7 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A study of the association of breast cancer with duration of oral contraceptive (OC) use compared a group of women with breast cancer to a group of women of similar ages who were admitted to the same hospital for non-cancer diseases. From interviews it was determined who had used OC in the past and for how long. The following data were gathered. If the underlying hypothesis is correct, then there should be an obvious trend in the odds ratios showing a change in estimated risk with increasing years of OC exposure (i.e. a “dose-response” relationship).

Duration of OC use breast cancer patients hospital controls

Never used them 235 273

< 1 year 27 26

1-4 years 43 29

> 4 years 46 23

Calculate the odds ratio (OR) and 95% CI for each level of OC duration, using never users as the common reference group.

For < 1 year: OR \_\_\_\_\_\_\_ 95% CI \_\_\_\_\_\_\_\_\_\_\_\_\_

For 1-4 years: OR \_\_\_\_\_\_\_ 95% CI \_\_\_\_\_\_\_\_\_\_\_\_\_

For > 4 years: OR \_\_\_\_\_\_\_ 95% CI \_\_\_\_\_\_\_\_\_\_\_\_\_

What do you conclude?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Is there a dose-response trend? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you disregard the duration of OC use, and lump together all the OC users, what is the odds ratio and the corresponding 95% CI? Is this result statistically significant?

OR\_\_\_\_\_\_ 95% CI \_\_\_\_\_\_\_\_\_\_\_\_

Your conclusion: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A study was conducted in a local hospital to assess maternal smoking as a possible risk factor for having a low birth weight baby (<2500 grams). The comparison group was mothers who had a normal size baby. A laboratory analysis of the mother’s blood was performed at the time of delivery in the hospital to detect nicotine and the following data were observed.

Group nicotine detected not detected \_\_ total

Low birth weight 20 5 25

Normal weight 88 210 298\_

Total 108 215 323

What is the odds ratio for having a low birth weight baby for the two groups of mothers?

Find the 95% CI for the OR.

Is there a relationship between the agent and the disease? – explain your conclusion.