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Uva Wellassa University

End Semester Examination – August/September 2011

SCT 202-2 Statistical Methods

One (01) hour



Total three (03) Questions

Answer all questions

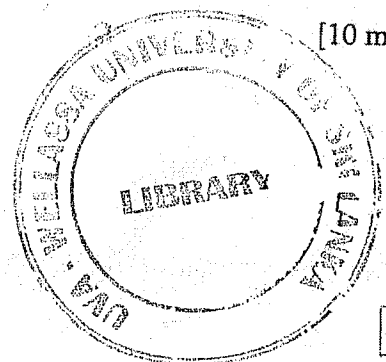
Part C: Essay Questions

1. A geologist has examined seismic data and the other geologic formations in the area of a proposed site for oil wells. Based on this information, the geologist reports a 65% chance of finding oil. The oil company decides to go ahead and start drilling. As drilling the drilling progresses, sample cores are taken from the well and studied by the geologist. These sample cores have a history of predicting oil when there is oil about 85% of the time. However, about 6% of the time the sample cores will predict oil when there is no oil.
- Find the probability that the sample cores will predict oil for this well.
 - It is given that the sample cores predict oil for this well. Find the probability that oil will be found in this well.
 - The company wishes to drill 6 wells in this area and studied the sample for oil. Find the probability at least 3 well will predict oil.
 - What is the expected number of oil wells which will be found in this site?

[20 marks]

2. The Auro cosmetic company believes that it holds a 35% share of the market in skincare products in the country. This claim was question by a competitor, the JNT cosmetic house. JNT consequently commissioned a market research company to undertake a survey of females who use skincare products. The market research company sampled 360 females who use skincare products. Of the respondents, 252 indicated that they do not use Auro products exclusively. Find a 95% confidence interval for the market share for Auro skincare products.

[10 marks]



... Incorporated (IMI) has developed two new letter arrangements for
boards. The company wishes to see if there is any association between the
of letters on the key board and the time it takes a student to learn to type. Table 01
the key board versus time to learn to type.

Table 01: key board versus time to learn to type

Key board	21-40 hours	41-60 hours
A	25	30
B	30	71
standard	35	49

At the 5% significance level, is there any association between the arrangement of letters on the key board and the time it takes a student to learn to type?

[20 marks]

