第二部份：計算題（共4題/每題10分）

1. A recent national survey found that high school students watched an average (mean) of 6.8 DVDs per month. A random sample of 36 college students revealed that the mean number of DVDs watched last month was 6.2, with a standard deviation of 0.5. At the 0.05 significance level, can we conclude that college students watch fewer DVDs a month than high school students？ Please answer the following questions: (a) What are the null hypothesis and the alternate hypothesis？ (b) What is the decision ... of the test statistic？ (d) What is your decision regarding H_0？

第一部份：選擇題（共 20 題/每題 3 分）

1. What is the level of measurement for "student scores on the first statistics test"？
(A) Nominal (B) Ordinal (C) Interval (D) Ratio

2. Consider these values a sample: 7, 2, 6, 2, and 3. What is the sample variance？
(A) 5.1 (B) 5.3 (C) 5.5 (D) 5.7

3. Bank of Taiwan customers select their own three-digit personal identification number (PIN) for use at ATMs. What is the probability Mr. Lin and Mrs. Hwang select the same PIN？
(A) 0.3 (B) 0.5 (C) 0.01 (D) 0.001

4. An overnight express company must include five cities on its route. How many different routes are possible, assuming that it does not matter in which order the cities are included in the routing？
(A) 5 (B) 20 (C) 60 (D) 120

5. A population consists of 10 items, 6 of which are defective. In a sample of 3 items, what is the probability that exactly 2 are defective？ Assume the samples are drawn without replacement.
(A) 0.4 (B) 0.5 (C) 0.6 (D) 0.7

6. $P(A1) = 0.6$, $P(A2) = 0.4$, $P(B1|A1) = 0.05$, and $P(B1|A2) = 0.1$. What is the value of $P(A1|B1)$ by using Bayes' theorem？
(A) 0.4286 (B) 0.5286 (C) 0.6286 (D) 0.7286

7. A normal population has a mean of 20 and a standard deviation of 4. What is the Z value associated with 25.
(A) 0.95 (B) 1.05 (C) 1.15 (D) 1.25

8. Many retail stores offer their own credit cards. At the time of the credit application the customer is given a 10 percent discount on the purchase. The time required for the credit application process follows a uniform distribution with the times ranging from 4 minutes to 10 minutes. What is the likelihood a particular application will take less than 6 minutes？
(A) 0.33 (B) 0.44 (C) 0.55 (D) 0.66

9. A population is estimated to have a standard deviation of 10. We want to estimate the population mean within 2, with a 95 percent level of confidence, which corresponds to a Z value of 1.96. How large a sample is required?
(A) 87 (B) 97 (C) 107 (D) 117

10. For a random sample of 10 observations, the sample mean was 12 and the sample standard deviation was 3. Assumes the population mean is 10. What is the value of the t test statistic？