**Q1) What is the main difference between t-tests and z-tests?**

1. T-tests require a larger sample size than z-tests.
2. T-tests assume a known population variance while z-tests assume an unknown population variance.
3. Z-tests require a smaller sample size than t-tests.
4. Z-tests are used for testing two population means while t-tests are used for testing one population mean.

**Q2) In hypothesis testing, what is a Type 1 error?**

1. Rejecting a true null hypothesis
2. Failing to reject a false null hypothesis.
3. Rejecting a false alternative hypothesis
4. Failing to reject a true alternative hypothesis.

**Q3) What is the margin of error in a confidence interval?**

1. The width of the confidence interval
2. The maximum amount a point estimate can be off from the true population parameter.
3. The probability of making a Type 1 error
4. The probability of making a Type 2 error

**Q4) A researcher wants to compare the mean weight of two different groups of mice. One group has a sample size of 25 and the other group has a sample size of 50. Which test should the researcher use to compare the means?**

1. T-test
2. Z-test
3. Both tests can be used
4. Neither test can be used

**Q5) A researcher wants to estimate the probability of a hypothesis based on new evidence. Which statistical tool should they use?**

1. T-test
2. Z-test
3. Bayes theorem
4. Confidence interval

**Q6) A confidence interval is calculated for a sample mean with a sample size of 100 and a standard deviation of 10. The 95% confidence interval is found to be between 25 and 30. What is the margin of error?**

1. 2.5
2. 5
3. 7.5
4. 10

**Q7) A researcher wants to compare the mean height of two different groups of plants. One group has a sample size of 15 and the other group has a sample size of 20. The population variance is known to be 9. Which test should the researcher use to compare the means?**

1. T-test
2. Z-test
3. Both tests can be used
4. Neither test can be used

**Answers:**

**Q1)** Z-tests are used for testing two population means while t-tests are used for testing one population mean. (Option D)

**Q2)** Rejecting a true null hypothesis. (Option A)

**Q3)** The maximum amount a point estimate can be off from the true population parameter. (Option B)

**Q4)** T-test (Option A)

**Q5)** Bayes Theorem. (Option C)

**Q6)** 5 (Option B)

Explanation: The margin of error is calculated as half the width of the confidence interval, which is (30-25)/2 = 2.5. Therefore, the margin of error is 5

**Q7)** Z-test (Option B)