Examrace

Statistics MCQs – Hypothesis Testing for Two Populations Part 3

41. It is known that the population variances of final exam marks for first year statistics students at a particular South African university are 45.3 for female students and 52.1 for male students. Samples of 27 female and 31 male first year statistics students from the university are selected and the sample mean exam marks are calculated. For females, the sample mean mark is 57.3 % and for males the sample mean mark is 56.4 % . If we wish to test whether females have, on average, higher exam marks than males, what would the p-value of the hypothesis test in this case be?

a. 0.15

b. 0.06

c. 0.31

d. 0.87

e. 0.95

Answer: C

42. It is known that the population variances of final exam marks for first year statistics students at a particular South African university are 45.3 for female students and 52.1 for male students. Samples of 27 female and 31 male first year statistics students from the university are selected and the sample mean exam marks are calculated. For females, the sample mean mark is 57.3 % and for males the sample mean mark is 59.4 % . If we wish to test whether females have, on average, higher exam marks than males, what would the p-value of the hypothesis test in this case be?

a. 0.15

b. 0.06

c. 0.31

d. 0.87

e. 0.95

Answer: D

43. It is known that the population variances of final exam marks for first year statistics students at a particular South African university are 45.3 for female students and 52.1 for male students. Samples of 27 female and 31 male first year statistics students from the university are selected and the sample mean exam marks are calculated. For females, the sample mean mark is 52.3 % and for males the sample mean mark is 55.4 % . If we wish to test whether females have, on average, higher exam marks than males, what would the p-value of the hypothesis test in this case be?

a. 0.15

b. 0.06

c. 0.31

d. 0.87

e. 0.95

Answer: E

44. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % . The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . What would be the value of the pooled variance?

a. 149.02

b. 152.44

c. 139.07

d. 147.92

e. 121.19

Answer: A

45. A random sample of 16 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % . The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . What would be the value of the pooled variance?

a. 149.02

b. 152.44

c. 139.07

d. 147.92

e. 121.19

Answer: B

46. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % . The sample mean mark for the females was 54.5 % with a standard deviation of 10.9 % . What would be the value of the pooled variance?

a. 149.02

b. 152.44

c. 139.07

d. 147.92

e. 121.19

Answer: C

47. A random sample of 10 male and 14 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % . The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . What would be the value of the pooled variance?

a. 149.02

b. 152.44

c. 139.07

d. 147.92

e. 121.19

Answer: D

48. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 10.1 % . The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . What would be the value of the pooled variance?

a. 149.02

b. 152.44

c. 139.07

d. 147.92

e. 121.19

Answer: E

49. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % .

The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . We wish to test whether the average marks for test 1 for males and females differ, at the 5 % significance level. If we assume equal underlying population variances, what is the value of the test statistic?

a. 0.33

b. 0.36

c. 0.63

d. 1.39

e. 2.12

Answer: A

50. A random sample of 16 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 56.2 % and the standard deviation was 12.8 % . The sample mean mark for the females was 54.5 % with a standard deviation of 11.7 % . We wish to test whether the average marks for test 1 for males and females differ, at the 5 % significance level. If we assume equal underlying population variances, what is the value of the test statistic?

a. 0.33

b. 0.36

c. 0.63

d. 1.39

e. 2.12

Answer: B

51. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 58.0 % and the standard deviation was 15.1 % . The sample mean mark for the females was 54.5 % with a standard deviation of 10.9 % . We wish to test whether the average marks for test 1 for males and females differ, at the 5 % significance level. If we assume equal underlying population variances, what is the value of the test statistic?

a. 0.33

b. 0.36

c. 0.63

d. 1.39

e. 2.12

Answer: C

52. A random sample of 10 male and 14 female students' class test 1 marks were recorded. The sample mean mark for the males was 59 % and the standard deviation was 12.8 % . The sample mean mark for the females was 52 % with a standard deviation of 11.7 % . We wish to test whether the average marks for test 1 for males and females differ, at the 5 % significance level. If we assume equal underlying population variances, what is the value of the test statistic?

a. 0.33

b. 0.36

c. 0.63

d. 1.39

e. 2.12

Answer: D

53. A random sample of 10 male and 12 female students' class test 1 marks were recorded. The sample mean mark for the males was 61 % and the standard deviation was 10.1 % . The sample mean mark for the females was 51 % with a standard deviation of 11.7 % . We wish to test whether the average marks for test 1 for males and females differ, at the 5 % significance level. If we assume equal underlying population variances, what is the value of the test statistic?

a. 0.33

b. 0.36

c. 0.63

d. 1.39

e. 2.12

Answer: E

54. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 1.19 and the sample variance was 74. For the control group, the sample size was 31, the sample mean was 3.54 and the sample variance was 80. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the test statistic for this hypothesis test?

a. -1.03

b. 0.44

c. -0.80

d. -0.66

e. 0.13

Answer: A

55. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 4.52 and the sample variance was 64. For the control group, the sample size was 31, the sample mean was 3.54 and the sample variance was 80. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the test statistic for this hypothesis test?

a. -1.03

b. 0.44

c. -0.80

d. -0.66

e. 0.13

Answer: B

56. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 1.19 and the sample variance was 74. For the control group, the sample size was 31, the sample mean was 2.99 and the sample variance was 75. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the test statistic for this hypothesis test?

a. -1.03

b. 0.44

c. -0.80

d. -0.66

e. 0.13

Answer: C

57. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 1.99 and the sample variance was 85. For the control group, the sample size was 31, the sample mean was 3.54 and the sample variance was 80. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the test statistic for this hypothesis test?

a. -1.03

b. 0.44

c. -0.80

d. -0.66

e. 0.13

Answer: D

58. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 1.19 and the sample variance was 74. For the control group, the sample size was 31, the sample mean was 0.89 and the sample variance was 82. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the test statistic for this hypothesis test?

a. -1.03

b. 0.44

c. -0.80

d. -0.66

e. 0.13

Answer: E

59. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 1.19 and the sample variance was 74. For the control group, the sample size was 31, the sample mean was 3.54 and the sample variance was 80. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the pooled variance for this test?

a. 77.16

b. 72.42

c. 74.53

d. 82.37

e. 78.21

Answer: A

60. A new Grade 9 maths curriculum is to be tested. A number of students in a Grade 9 maths course at a particular high school were randomly divided into two groups. The experimental group received teaching according to the new curriculum while the control group did not. All the students were given a test of computational skill (out of a total of 5 points) after the course and the results were as follows: for the experimental group, the sample size was 28, the sample mean was 4.52 and the sample variance was 64. For the control group, the sample size was 31, the sample mean was 3.54 and the sample variance was 80. We wish to test at the 5 % level of significance whether there is any difference in the mean test scores. We assume that the underlying population variances are equal. What is the value of the pooled variance for this test?

a. 77.16

b. 72.42

c. 74.53

d. 82.37

e. 78.21

Answer: B