

## Examrace

### Statistics MCQs – Sampling Distributions Part 3

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41. Independent random samples of 10 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 280$ ,  $\sigma_1 = 25$  and  $\mu_2 = 260$  and  $\sigma_2 = 30$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,152.5)
- b. N (20,152.5)
- c. N (10,180)
- d. N (10,185)
- e. N (20,180)

Answer: B

42. Independent random samples of 10 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 280$ ,  $\sigma_1 = 30$  and  $\mu_2 = 270$  and  $\sigma_2 = 30$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,152.5)
- b. N (20,152.5)
- c. N (10,180)
- d. N (10,185)
- e. N (20,180)

Answer: C

43. Independent random samples of 10 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 280$ ,  $\sigma_1 = 35$  and  $\mu_2 = 270$  and  $\sigma_2 = 30$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,152.5)
- b. N (20,152.5)

- c. N (10,180)
- d. N (10,212.5)
- e. N (20,180)

Answer: D

44. Independent random samples of 10 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 280$ ,  $\sigma_1 = 30$  and  $\mu_2 = 260$  and  $\sigma_2 = 30$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,152.5)
- b. N (20,152.5)
- c. N (10,180)
- d. N (10,185)
- e. N (20,180)

Answer: E

45. Independent random samples of 15 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 100$ ,  $\sigma_1 = 10$  and  $\mu_2 = 90$  and  $\sigma_2 = 12$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,16.27)
- b. N (10,24.60)
- c. N (20,17.67)
- d. N (20,14.73)
- e. N (30,21.67)

Answer: A

46. Independent random samples of 15 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 100$ ,  $\sigma_1 = 15$  and  $\mu_2 = 90$  and  $\sigma_2 = 12$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,16.27)
- b. N (10,24.60)
- c. N (20,17.67)
- d. N (20,14.73)
- e. N (30,21.67)

Answer: B

47. Independent random samples of 15 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 110$ ,  $\sigma_1 = 11$  and  $\mu_2 = 90$  and  $\sigma_2 = 12$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,16.27)
- b. N (10,24.60)
- c. N (20,17.67)
- d. N (20,14.73)
- e. N (30,21.67)

Answer: C

48. Independent random samples of 15 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 110$ ,  $\sigma_1 = 10$  and  $\mu_2 = 90$  and  $\sigma_2 = 11$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,16.27)
- b. N (10,24.60)
- c. N (20,17.67)
- d. N (20,14.73)
- e. N (30,21.67)

Answer: D

49. Independent random samples of 15 observations each are drawn from two normal populations. The parameters of these populations are:  $\mu_1 = 100$ ,  $\sigma_1 = 10$  and  $\mu_2 = 70$  and  $\sigma_2 = 15$ . The difference between the two sample means has a distribution which is equal to:

- a. N (10,16.27)
- b. N (10,24.60)
- c. N (20,17.67)
- d. N (20,14.73)
- e. N (30,21.67)

Answer: E

50. The standard deviation of salaries in the private sector is R4500, while in the public sector it is R3000. It is known that workers in the private sector have an average income of R8210 while public sector workers have an average salary of R7460. What is the

probability that the average income of a random sample of 80 private sector workers will exceed that of a random sample of 65 public sector workers?

- a. 0.8849
- b. 0.2296
- c. 0.3228
- d. 0.9515
- e. 0.9974

Answer: A

51. The standard deviation of salaries in the private sector is R4500, while in the public sector it is R3000. It is known that workers in the private sector have an average income of R7000 while public sector workers have an average salary of R7460. What is the probability that the average income of a random sample of 80 private sector workers will exceed that of a random sample of 65 public sector workers?

- a. 0.8849
- b. 0.2296
- c. 0.3228
- d. 0.9515
- e. 0.9974

Answer: B

52. The standard deviation of salaries in the private sector is R4500, while in the public sector it is R3000. It is known that workers in the private sector have an average income of R8210 while public sector workers have an average salary of R8500. What is the probability that the average income of a random sample of 80 private sector workers will exceed that of a random sample of 65 public sector workers?

- a. 0.8849
- b. 0.2296
- c. 0.3228
- d. 0.9515
- e. 0.9974

Answer: C

53. The standard deviation of salaries in the private sector is R4500, while in the public sector it is R3000. It is known that workers in the private sector have an average income

of R8500 while public sector workers have an average salary of R7460. What is the probability that the average income of a random sample of 80 private sector workers will exceed that of a random sample of 65 public sector workers?

- a. 0.8849
- b. 0.2296
- c. 0.3228
- d. 0.9515
- e. 0.9974

Answer: D

54. The standard deviation of salaries in the private sector is R4500, while in the public sector it is R3000. It is known that workers in the private sector have an average income of R8210 while public sector workers have an average salary of R6460. What is the probability that the average income of a random sample of 80 private sector workers will exceed that of a random sample of 65 public sector workers?

- a. 0.8849
- b. 0.2296
- c. 0.3228
- d. 0.9515
- e. 0.9974

Answer: E

55. It is known that the average height of South African women is 1.65m with a standard deviation of 0.1m, and that the average height of South African men is 1.68m with a standard deviation of 0.12m. What is the probability that the average height of a sample of 75 South African women will exceed that of a random sample of 80 South African men?

- a. 0.0455
- b. 0.0119
- c. 0.9545
- d. 0.9881
- e. 0.0113

Answer: A

56. It is known that the average height of South African women is 1.65m with a standard deviation of 0.1m, and that the average height of South African men is 1.69m with a

standard deviation of 0.12m. What is the probability that the average height of a sample of 75 South African women will exceed that of a random sample of 80 South African men?

- a. 0.0455
- b. 0.0119
- c. 0.9545
- d. 0.9881
- e. 0.0113

Answer: B

57. It is known that the average height of South African women is 1.65m with a standard deviation of 0.1m, and that the average height of South African men is 1.68m with a standard deviation of 0.12m. What is the probability that the average height of a sample of 75 South African women will be less than that of a random sample of 80 South African men?

- a. 0.0455
- b. 0.0119
- c. 0.9545
- d. 0.9881
- e. 0.0113

Answer: C

58. It is known that the average height of South African women is 1.65m with a standard deviation of 0.1m, and that the average height of South African men is 1.69m with a standard deviation of 0.12m. What is the probability that the average height of a sample of 75 South African women will be less than that of a random sample of 80 South African men?

- a. 0.0455
- b. 0.0119
- c. 0.9545
- d. 0.9881
- e. 0.0113

Answer: D

59. It is known that the average height of South African women is 1.63m with a standard deviation of 0.1m, and that the average height of South African men is 1.68m with a

standard deviation of 0.12m. What is the probability that the average height of a sample of 75 South African women will exceed that of a random sample of 80 South African men?

- a. 0.0455
- b. 0.0119
- c. 0.9545
- d. 0.9881
- e. 0.0024

Answer: E

60. It is believed that 70 % of first-year statistics students got A's for their final matric exams. If 100 first-year statistics students are randomly selected, what is the approximate probability that more than 80 of them got A's for matric?

- a. 0.0110
- b. 0.0060
- c. 0.4562
- d. 0.1151
- e. 0.9808

Answer: A

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