FOM 11 Chapter 5 Practice Test
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 DIF: Grade 11 REF: Lesson 5.1
   TOP: Exploring data KEY: range
2. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.1
   TOP: Exploring data KEY: mean
3. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons
   KEY: frequency distribution | histogram | frequency polygon
4. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons
   KEY: frequency distribution | histogram | frequency polygon
5. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons
   KEY: frequency distribution | histogram | frequency polygon
6. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons
   KEY: frequency distribution | histogram | frequency polygon
7. ANS: B PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons
   KEY: frequency distribution | histogram | frequency polygon
8. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons KEY: frequency distribution | histogram
9. ANS: B PTS: 1 DIF: Grade 11 REF: Lesson 5.2
   TOP: Frequency tables, histograms, and frequency polygons KEY: frequency distribution
10. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.3
    OBJ: 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
    KEY: mean | standard deviation
11. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.3
    OBJ: 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
    KEY: mean
12. ANS: B PTS: 1 DIF: Grade 11 REF: Lesson 5.3
    OBJ: 1.2 Calculate, using technology, the population standard deviation of a data set. | 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
    KEY: standard deviation
13. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.4
    OBJ: 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: The normal distribution
    KEY: normal distribution | mean | standard deviation

14. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: The normal distribution
KEY: normal curve
15. ANS: B PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.7 Solve a contextual problem that involves the interpretation of standard deviation. | 1.9 Solve a contextual problem that involves normal distribution. TOP: The normal distribution
KEY: normal distribution | mean | standard deviation
16. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.7 Solve a contextual problem that involves the interpretation of standard deviation. | 1.9 Solve a contextual problem that involves normal distribution. TOP: The normal distribution
KEY: normal distribution | mean | standard deviation
17. ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.4 Determine if a data set approximates a normal distribution, and explain the reasoning.
TOP: The normal distribution KEY: normal distribution
18. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution
19. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution
20. ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution
21. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution
22. ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution
23. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence interval | confidence level
24. ANS: C PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence interval | confidence level

25. ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence interval | confidence level
26. ANS: A PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence interval | confidence level
27. ANS: D PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence interval | confidence level

SHORT ANSWER

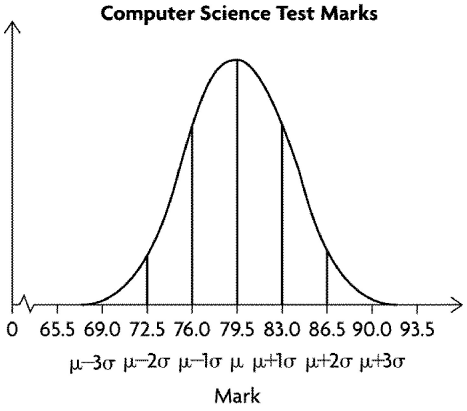
28. ANS:
Company B

PTS: 1 DIF: Grade 11 REF: Lesson 5.3
OBJ: 1.2 Calculate, using technology, the population standard deviation of a data set. | 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
KEY: mean | standard deviation
29. ANS:
18.6

PTS: 1 DIF: Grade 11 REF: Lesson 5.3
OBJ: 1.2 Calculate, using technology, the population standard deviation of a data set. | 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
KEY: standard deviation
30. ANS:
159.6

PTS: 1 DIF: Grade 11 REF: Lesson 5.3
OBJ: 1.3 Explain, using examples, the properties of a normal curve, including the mean, median, mode, standard deviation, symmetry and area under the curve. TOP: Standard deviation
KEY: mean

31. ANS:



PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.7 Solve a contextual problem that involves the interpretation of standard deviation. | 1.9 Solve a contextual problem that involves normal distribution. TOP: The normal distribution
KEY: normal distribution | mean | standard deviation | normal curve

32. ANS:
Yes. The graph of the data has a rough bell shape.

PTS: 1 DIF: Grade 11 REF: Lesson 5.4
OBJ: 1.4 Determine if a data set approximates a normal distribution, and explain the reasoning.
TOP: The normal distribution KEY: normal distribution | mean | standard deviation

33. ANS:
–1.25

PTS: 1 DIF: Grade 11 REF: Lesson 5.5
OBJ: 1.8 Determine, with or without technology, and explain the z-score for a given value in a normally distributed data set. TOP: Applying the normal distribution: z-scores
KEY: z-score | standard normal distribution

34. ANS:
90%

PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence level | confidence interval

35. ANS:
±4%

PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: margin of error | confidence level | confidence interval

PROBLEM

36. ANS:
a) The confidence level is 19 times out of 20 or 95%.
22% – 4.4% = 17.6%
22% + 4.4% = 26.4%
The confidence interval is 17.6% to 26.4%.
b) 0.176(450 000) = 79 200
0.264(450 000) = 118 800
The number of people who are undecided should be in the range of 79 200 to 118 800.

PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 1.6 Explain, using examples that represent multiple perspectives, the application of standard deviation for making decisions in situations such as warranties, insurance or opinion polls. | 1.9 Solve a contextual problem that involves normal distribution. | 2.3 Make inferences about a population from sample data, using given confidence intervals, and explain the reasoning. TOP: Confidence intervals
KEY: mean | range | standard deviation | margin of error | confidence level | confidence interval

37. ANS:
a) 72.5 – 0.12 = 72.38
72.5 + 0.12 = 72.62
The confidence interval for the mean mass of the smart phones is 72.38 g to 72.62 g.
b) If the confidence level is constant, then as the sample size increases, the margin of error decreases. The correct order is:

Sample Size	Margin of Error (g)
40	0.20
100	0.15
200	0.09

PTS: 1 DIF: Grade 11 REF: Lesson 5.6
OBJ: 1.9 Solve a contextual problem that involves normal distribution. | 2.1 Explain, using examples, how confidence levels, margin of error and confidence intervals may vary depending on the size of the random sample. | 2.2 Explain, using examples, the significance of a confidence interval, margin of error or confidence level. TOP: Confidence intervals
KEY: mean | margin of error | confidence level | confidence interval