REG-DISP-2223-ASM-SET 2-MATH
Suggested solutions

Multiple Choice Questions

1. B	2. B	3. B	4. D	5. C
6. C	7. B	8. B	9. C	10. B
11. B	12. D	13. C	14. A	15. D
16. A	17. B	18. C	19. A	20. A
21. D	22. B	23. A	24. A	25. D

1. B

   Inter-quartile range = 36 − 26 = 10.

2. B

   The numbers are distributed near the minimum side. So, the minimum, lower quartile and median should be closed to each other.
   The most probable answer is B.

3. B

   50% of the data lies between lower quartile and upper quartile.

4. D

   In the cumulative frequency curve, steeper $\Rightarrow$ more data in the corresponding class.
   So, the data is more concentrated in the lower part.
   Minimum, lower quartile, median and upper quartile will be closed to each other.

5. C

   The data is concentrated near larger weights.
   The maximum, upper quartile and median should appear closed to each other.
   The answer is C.

6. C

   A. ✓. Range = 21 − 16 = 5

   B. ✓. I.Q.R. = 20 − 18 = 2

   C. ✗. Percentage of members aged under 18 ≈ 25%.

   D. ✓ or ✗.
   ✗: total number of people is not a multiple of 4
   Then the percentage can never be 25%.
   ✓: total 8 people with ages 16, 18, 18, 19, 19, 19, 21, 21
   This example matches all info given in the question.

7. B

I. ✓.

II. ✗.

III. ✓. Range = maximum − minimum

8. B

Median, upper quartile and maximum are closed to each other.
So, the data should concentrate at higher values.
The answer is B.

9. C

Median = 90
Range = 100 − 40 = 60
Inter-quartile range = 100 − 60 = 40

10. B

Lower quartile = 15

11. B

I. ✓. Range = max − min, which can be obtained from the diagram.

II. ✗.

III. ✓. IQR = upper quartile − lower quartile

12. D

Each section consists of approximately 25% data.

	Score range	Proportion of data
A.	10 – 60	25%
B.	50 – 80	25% – 50%
C.	70 – 90	25% – 50%
D.	80 – 100	50%

13. C

I. ✓. Upper quartile of Class A > maximum of Class B.

II. ✓.

III. ✗.

14. A

I. ✓.

II. ✓.

III. ✗. Number of data cannot be obtained in box-and-whisker diagrams. It could happen that the total number of boys is 9 999 999 999 while there are only 5 girls.

15. D

No steps involved.

16. A

I. ✗. Mean is not obtainable through box-and-whisker diagram.

II. ✓.

III. ✗. Range = 90 − 45 = 45 kg

17. B

Inter-quartile range = 25 − 10

= 15

18. C

A. ✗. 25% of the passengers wait for more than 12 min.

B. ✗. 75% of the passengers wait for 2 to 12 min.

C. ✓.

D. ✗. 25% of the passengers wait for 8 to 12 min.

19. A

Interquartile range = 45 − 25 = 20

20. A

Upper quartile is the 4th datum (counted from the highest score).

Required probability $= \frac{3}{15}$

$= \frac{1}{5}$

21. D

I. ✓.

II. ✓.

III. ✓.

22. B

Inter-quartile range = 31 − 26

= 5

23. A

I. ✗. It may happen that the 58 kg person gains weight after training.

II. ✓. The new maximum is 3 kg less than the original upper quartile.
At least 25% of the members have lost 3 kg or more.

III. ✗. It may happen that the 90 kg person becomes 53 kg after training.

24. A

I. ✓.

II. ✓. Interquartile range = 26 − 20 = 6 °C

III. ✗. Range = 30 − 16 = 14 °C

25. D

The numbers are concentrated at the lower end
⇒ minimum, lower quartile and median will be closed to each other
⇒ options A or D
The numbers at the upper end are widely dispersed
⇒ upper quartile and maximum will not be closed to each other
⇒ option D