Statistics and Probability for AI

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. The mean of 2, 4, 6, 8 is:
(a) 6 **(b)** 20 **(c)** 4 **(d)** 5

2. What is the mean of 31, 11, 38, 21, 3, 25, 25?
(a) 23 **(b)** 154 **(c)** 25 **(d)** 22

3. What is the median of 32, 11, 32, 16, 9?
(a) 16 **(b)** 32 **(c)** 17 **(d)** 20

4. What is the mode of 21, 30, 22, 9, 38, 31, 38?
(a) 21 **(b)** 30 **(c)** 38 **(d)** 27

5. What is the range of 22, 5, 2, 17, 32, 32, 16?
(a) 30 **(b)** 34 **(c)** 31 **(d)** 32

6. A bag has 5 green, 6 blue, 4 white balls. One ball is picked without looking. What is the probability that it is blue?
(a) 2/5 **(b)** 1/3 **(c)** 7/15 **(d)** 1/6

7. A bag has 3 white, 7 green, 3 red balls. One ball is picked without looking. Which word best describes the event that it is green?
(a) impossible **(b)** equally likely **(c)** unlikely **(d)** likely

8. What comes next in the pattern 5, 12, 19, 26, 33, …?
(a) 41 **(b)** 66 **(c)** 40 **(d)** 35

Section B — Short answer — 8 × 2 = 16 marks

9. What is statistics? Give two real-life uses.

10. Find the mean of 3, 36, 11, 12, 3.

11. Find the median of 29, 34, 37, 37, 22, 33.

12. Find the mode and the range of 18, 16, 36, 19, 16, 23, 11, 37.

13. A bag has 7 green, 7 yellow, 1 white balls. One ball is picked without looking. What is the probability that it is not white? Give a fraction in lowest terms.

14. A bag has 2 green, 8 yellow, 9 blue balls. One ball is picked without looking. What is the probability that it is blue or green? Give a fraction in lowest terms.

15. A class counts passing cars by colour: blue 14, red 25, black 7, white 2. (a) Which colour is the mode? (b) How many cars were counted?

16. Write the next term of 4, 9, 16, 25, 36, … and the rule.

Section C — Word problems — 4 × 4 = 16 marks

17. Explain how statistics is used in disaster management, sports and disease prediction.

18. Points scored by the players of a team in a match: 35, 39, 36, 17, 33, 5, 36, 24, 36. Find (a) the mean (b) the median (c) the mode (d) the range.

19. A bag has 1 yellow, 1 red, 7 white balls. One ball is picked without looking. Find, as fractions in lowest terms, the probability that it is (a) red (b) not red (c) red or yellow.

20. During a car-spotting activity, a class records: grey 13, blue 4, red 25, black 23. (a) How many cars were spotted? (b) Which colour was seen most often? (c) What percentage of the cars were grey?

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Answer key

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Q	Answer	Working
1	**(d) 5**	—
2	**(d) 22**	154 ÷ 7
3	**(a) 16**	in order: 9, 11, 16, 32, 32
4	**(c) 38**	38 appears most often
5	**(a) 30**	32 − 2
6	**(a) 2/5**	6 of the 15 balls
7	**(d) likely**	probability 7/13
8	**(c) 40**	add 7 each time
9	**The science of collecting, organising and analysing data; used in weather forecasting, sports analysis, disease prediction and disaster management.**	—
10	**13**	65 ÷ 5
11	**33.5**	in order: 22, 29, 33, 34, 37, 37; average of the middle two
12	**16; 26**	16 appears most often; 37 − 11
13	**14/15**	14 of the 15 balls
14	**11/19**	9 + 2 of 19
15	**(a) red; (b) 48**	14 + 25 + 7 + 2
16	**49; squares of 2, 3, …**	squares of 2, 3, …
17	**Disasters: past rainfall and river data to predict floods; sports: player statistics to plan strategy; disease: case data to spot outbreaks early.**	—
18	**(a) 29; (b) 35; (c) 36; (d) 34**	in order: 5, 17, 24, 33, 35, 36, 36, 36, 39
19	**(a) 1/9; (b) 8/9; (c) 2/9**	9 balls in all
20	**(a) 65; (b) red; (c) 20%**	13 ÷ 65 × 100

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