

**STATISTICS
QUESTION BANK**

4. A class has 12 boys and 28 girls.
- (a) Find the probability of choosing at random
- (i) a boy, (ii) a girl.
- (b) One girl leaves the class. Find the new probability of selecting at random
- (i) a boy, (ii) a girl.
5. A 20¢ coin and a 50¢ coin are tossed at the same time. If S is the sample space, list all the possible outcomes. Find the probability of obtaining
- (a) two tails, (b) a head and a tail.
6. Each letter of the word “*INDEPENDENT*” is written on individual cards. The cards are placed in a box and mixed thoroughly. A card is then picked at random from the box.
- (a) Find the probability of picking a card with
- (i) the letter P , (ii) the letter E ,
(iii) a vowel, (iv) a consonant.
- (b) One card with the letter E is removed from the box. Find the new probability of picking a card with
- (i) the letter P , (ii) the letter E ,
(iii) a vowel, (iv) a consonant.
7. A solid in the shape of a regular tetrahedron (four sides) has the colours red, blue, yellow and green on its faces. The numbers 2, 3, 4 and 5 are labelled on the red, blue, yellow and green faces respectively. The solid is tossed once. Find the probability that it lands on
- (a) the red face,
(b) the blue or yellow face,
(c) the face labelled with a prime number.
8. A roulette wheel has slots numbered from 0 to 36. Assuming that the wheel is fair, find the probability that the ball lands in the slot numbered
- (a) 13, (b) with a prime number,
(c) with a number less than 19, (d) with a number which is a multiple of 4,
(e) with an odd number.
9. A bag of sweets contains 7 toffees, 4 barley sugars and 10 chocolates.
- (a) Find the probability of selecting at random
- (i) a toffee,
(ii) a toffee or a chocolate,
(iii) a barley sugar or a chocolate.
- (b) One toffee is removed from the box. Find the new probability of selecting
- (i) a toffee,
(ii) a toffee or a chocolate,
(iii) a barley sugar or a chocolate.
10. A poker die has 6 faces representing the cards of an ordinary pack: 9, 10, J, Q, K and Ace, each of the same suit. The die is tossed once. Find the probability of obtaining a face representing
- (a) a picture card,
(b) a card “higher than” J, with Ace being the highest.

STATISTICS QUESTION BANK



- (a) On how many days was a record kept of the number of packets of chips sold?
 (b) Calculate the mean number of packets sold.
 (c) Find the difference between the mode and the median.

The table below shows the number of errors made by Peter in typing a report.

| | | | | | | | |
|-------------------------|---|---|----|---|---|---|---|
| <i>Number of errors</i> | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| <i>Number of pages</i> | 1 | 3 | 10 | 7 | 4 | 3 | 2 |

- (a) How many pages are there in Peter's report?
 (b) What was the percentage of pages with less than 3 errors?
 (c) What was the mode of the distribution?
 (d) Calculate the mean number of errors made by Peter.

In a Mathematics test, the mean score of 30 students was 12.4. Mary, one of the 30 students, scored 8 marks. It later transpired that her score was recorded wrongly. After correcting Mary's score, the new mean score of the 30 students became 12.6. What was Mary's actual score?

The following are the heights (in metres) of a group of basketball players:

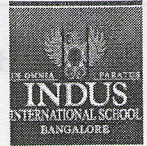
1.8, 1.9, 2.0, 1.7, 1.8, 1.9, 1.6, 2.0, 1.8, 1.9, 1.8.

- (a) Find
 (i) the modal height of the group,
 (ii) the median height of the group,
 (iii) the mean height of the group, correct to one decimal place.
 (b) When the 12th member joined the group, the mean height became 1.9 m exactly. What was the height of the 12th member?

PROBABILITY

- A card is drawn at random from a pack of 52 ordinary playing cards. Find the probability of drawing
 - a King,
 - a heart,
 - the King of diamonds,
 - a picture card.
- A fair die is tossed once. Find the probability of obtaining
 - an odd number,
 - a five or six,
 - a number less than four,
 - a number which is not a six.

STATISTICS QUESTION BANK



7. The marks out of ten scored by a class in a test are as given in the following table.

| | | | | | |
|---------------------------|---|---|----|----|----|
| <i>Marks</i> | 6 | 7 | 8 | 9 | 10 |
| <i>Number of students</i> | 2 | 5 | 10 | 12 | 6 |

- (a) How many pupils sat for the test?
 (b) Calculate the mean mark, correct to three significant figures.
 (c) Find the median mark.
 (d) Find the percentage of students who scored more than the median mark.

8. The table shows the number of fillings a class of 40 pupils had at the time of a dental inspection.

| | | | | | | | |
|---------------------------|---|---|---|-----|---|-----|---|
| <i>Number of fillings</i> | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| <i>Number of pupils</i> | 1 | 4 | 8 | x | 9 | y | 2 |

- (a) If the mean number of the fillings per pupil is 3.2, find the values of x and y .
 (b) If the mode is 4, find the largest possible value of x and calculate the mean number of fillings per pupil with x taking the largest value.

9. A gardener sowed 5 seeds into each of 100 plant pots. The number of seeds germinating in each pot was recorded and the results are as given in the table below.

| | | | | | | |
|------------------------------------|----|----|----|----|----|---|
| <i>Number of seeds germinating</i> | 0 | 1 | 2 | 3 | 4 | 5 |
| <i>Number of pots</i> | 10 | 30 | 25 | 20 | 10 | 5 |

10. (a) How many seeds did the gardener sow altogether?
 (b) What fraction of the seeds germinated?
 (c) Calculate the mean, median and mode of the distribution.

A record was kept of the number of packets of potato chips sold each day in a store and the results are as follows:

| | | | | | | | |
|--------------------------|----|----|----|-----|-----|-----|-----|
| <i>Number of packets</i> | 32 | 57 | 82 | 107 | 132 | 157 | 182 |
| <i>Number of days</i> | 3 | 5 | 8 | 7 | 10 | 6 | 1 |

STATISTICS QUESTION BANK



- (c) Repeat (b) using the class intervals 164 – 165, 166 – 167 and so on.
Leave your answer to 4 significant figures.

- (d) Are the values of the mean of the distribution found in (a), (b) and (c) the same? Which is the actual mean? What do the answers for (b) and (c) tell you?

4. The following table shows the time taken for 100 lorries to travel between two towns using a certain route.

| Time taken (t min) | Number of lorries |
|-----------------------|-------------------|
| $116 < t \leq 118$ | 1 |
| $118 < t \leq 120$ | 6 |
| $120 < t \leq 122$ | 23 |
| $122 < t \leq 124$ | 28 |
| $124 < t \leq 126$ | 27 |
| $126 < t \leq 128$ | 9 |
| $128 < t \leq 130$ | 5 |
| $130 < t \leq 132$ | 1 |

- (a) Calculate the mean travelling time.

(b) Median (c) Mode

5. The table below shows the distribution of ages of the members of a club.

| Age (years) | 20 – 24 | 25 – 29 | 30 – 34 | 35 – 39 | 40 – 44 | 45 – 49 | 50 – 54 |
|-------------|---------|---------|---------|---------|---------|---------|---------|
| Frequency | 22 | 48 | 60 | 36 | 22 | 10 | 2 |

Calculate the mean age of the members of the club [Median, Mode]

6. A machine in a factory broke down 100 times in a certain year. The length of time taken to repair the machine each time was recorded. The table below shows the distribution of the lengths of time (t minutes) taken to repair the machine

| Repair time | Frequency |
|------------------|-----------|
| $0 < t \leq 10$ | 3 |
| $10 < t \leq 20$ | 13 |
| $20 < t \leq 30$ | 30 |
| $30 < t \leq 40$ | 25 |
| $40 < t \leq 50$ | 14 |
| $50 < t \leq 60$ | 8 |
| $60 < t \leq 70$ | 4 |
| $70 < t \leq 80$ | 2 |
| $80 < t \leq 90$ | 1 |

- (a) Calculate the mean length of time taken to repair

the machine

(b) Calculate the median

(c) Calculate the mode

STATISTICS QUESTION BANK

1. The masses of 100 pebbles (in grams) picked up by a boy from a beach are as follows:

| Mass of pebbles (x g) | Frequency |
|-----------------------|-----------|
| $55 < x \leq 65$ | 2 |
| $65 < x \leq 75$ | 3 |
| $75 < x \leq 85$ | 9 |
| $85 < x \leq 95$ | 23 |
| $95 < x \leq 105$ | 26 |
| $105 < x \leq 115$ | 21 |
| $115 < x \leq 125$ | 10 |
| $125 < x \leq 135$ | 5 |
| $135 < x \leq 145$ | 1 |

2. The heights of 40 plants were measured correct to the nearest centimetre. Copy and complete the table below and hence, calculate the mean height of these 40 plants.

| Heights (cm) | Mid-point (x) | Frequency (f) | fx |
|--------------|---------------|---------------|---------------|
| 1-10 | 5.5 | 4 | |
| 11-20 | | 6 | |
| 21-30 | | 14 | |
| 31-40 | | 6 | |
| 41-50 | | 10 | |
| | | $\Sigma f =$ | $\Sigma fx =$ |

3. Thirty bulbs were life-tested and their lifespans to the nearest hour are as follows:

167 171 179 167 171 165 175 179 169 168 171 177 169 171 177

173 165 175 167 174 177 172 164 175 179 179 174 174 168 171

- (a) Find the mean lifespan by dividing their sum by 30.
 (b) Find the mean lifespan by grouping the lifespans using the class intervals 164 – 166, 167–169 and so on.