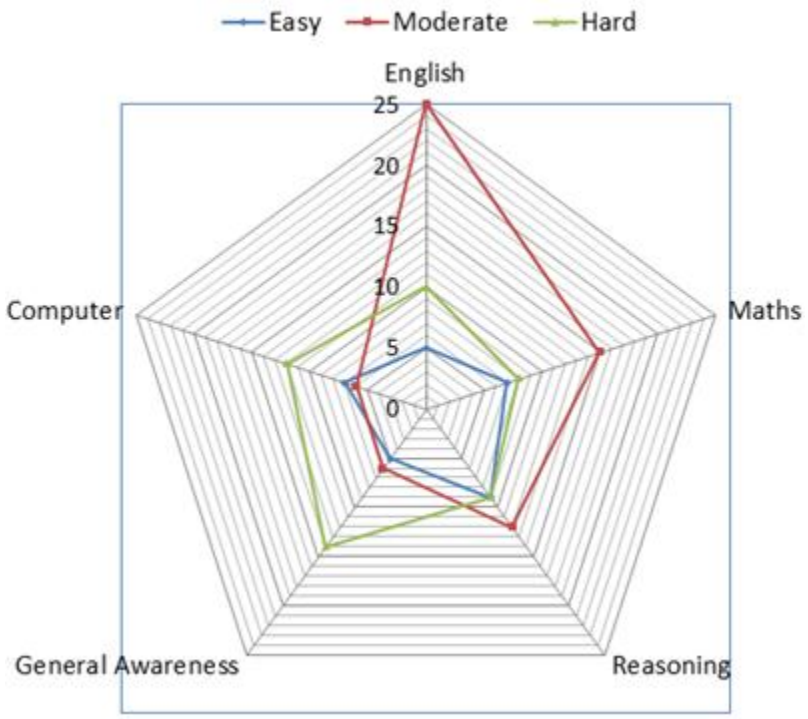
Date Interpretation Web Chart Questions Quiz for SBI PO Pre, IBPS PO Pre, SBI Clerk Mains, IBPS Clerk Mains and IBPS SO Pre Exams.

Data Interpretation Web Chart Quiz 4

Directions : Study the following web chart carefully and answer the questions given beside.

A private tutor has question banks of five subjects (English, Maths, Reasoning, General Awareness, and Computer). The questions are divided into three categories depending on their difficulty level.



1. The tutor has to make a paper of 60 questions. In how many ways he can choose the questions if 5% questions of the paper are from GA, 45% questions from Maths and at least 28 questions are from reasoning.

A. 2300 × 4060 × 848251 B. 2300 × 4060 × 904801 C. 2300 × 4060 × 906751
D. 2300 × 4060 × 926801 E. 2300 × 4060 × 925001

2. A Maths test is to be made using all of the easy and hard level questions only from its question bank. In how many ways the test can be made if no two easy questions are set next to each other?

A. 15120 × 8! B. 20160 × 9! C. 2520 × 8! D. 6720 × 9! E. 2520 × 7!

3. **A student has to answer 18 questions of reasoning from its question bank, choosing at least 10 from moderate level questions, at least 5 from hard level questions and 1 from easy level, in how many ways can the student answer 18 questions.**

A. 31590 B. 30456 C. 27724 D. 32724 E. 28832

4. **Find the number of ways in which the tutor can choose questions for an English test of 28 questions which contain 3 easy questions, 23 moderate questions and at most 4 hard questions from its question bank?**

A. 30000 B. 69000 C. 75000 D. 135000 E. 360000

5. **If an entire test paper is created from only easy level questions of the question bank then in how many different ways can the questions be arranged such that all the questions from Maths and reasoning are set together?**

A. 30! 17! B. 17! 16! C. 18! 17! D. 33! 16! E. 18! 16!

Correct Answers:

1	2	3	4	5
C	B	A	D	E

Explanations:

1. Question bank of English contains (5 + 25 + 10) 40 questions

Question bank of Maths contains (7 + 15 + 8) 30 questions

Question bank of GA contains (5 + 6 + 14) 25 questions

Question bank of Computer contains (7 + 6 + 12) 25 questions

Question bank of Reasoning contains (9 + 12 + 9) 30 questions

A paper of 60 questions are to be made that it has 5% questions from GA, 45% of questions from Maths and at least 28 questions from reasoning.

∴ Questions of GA in the paper = 5% of 60 = 3 and Questions of Maths in the paper = 45% of 60 = 27

The different ways that we can choose questions to form such paper are:

i. 3GA × 27Maths × 28reasoning × 2(Computer +English) = ${}^{25}C_3 \times {}^{30}C_{27} \times {}^{30}C_{28} \times {}^{65}C_2$

⇒ 3GA × 27Maths × 28reasoning × 2(Computer +English) = 2300 × 4060 × 435 × 2080

ii. 3GA × 27Maths × 29reasoning × 1(Computer +English) = $^{25}C_3 \times {}^{30}C_{27} \times {}^{30}C_{29} \times {}^{65}C_1$

⇒ 3GA × 27Maths × 28reasoning × 1(Computer +English) = 2300 × 4060 × 30 × 65

iii. 3GA × 27Maths × 30reasoning = $^{25}C_3 \times {}^{30}C_{27} \times {}^{30}C_{30}$

⇒ 3GA × 27Maths × 30reasoning = 2300 × 4060 × 1

∴ Total number of ways in which a paper of 60 questions can be made so that it has 3 GA questions, 27 Maths questions and at least 28 reasoning questions = (2300 × 4060 × 435 × 2080) + (2300 × 4060 × 30 × 65) + (2300 × 4060 × 1)

⇒ Required ways = 2300 × 4060 (435 × 2080 + 30 × 65 + 1)

⇒ Required ways = 2300 × 4060 (904800 + 1950 + 1)

⇒ Required ways = 2300 × 4060 × 906751

Hence, the total number of ways in which a paper of 60 questions can be made so that it has 3 GA questions, 27 Maths questions and at least 28 reasoning questions is 2300 × 4060 × 906751

Hence, option C is correct.

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2. Question bank of Maths contains 30 questions.

Out of 30 questions, 7 are easy, 15 are moderate and 8 are hard.

8 hard level questions can be set in 8! Ways

In 8 places of hard questions, there are 9 places in which 7 easy questions are to be set, so that no two easy questions are set to each other

_H1_H2_H3_H4_H5_H6_H7_H8_

⇒ Easy questions can be set in 9P7 ways

⇒ Easy questions can be set in $\frac{9!}{(9-7)!}$ ways

∴ Number of ways in which the test can be made if no two easy questions are set next to each other = 8! × 9!/2! = 20160 × 9!

Hence, 20160 × 9! Ways in which the test can be made if no two easy questions are set next to each other

Hence, option B is correct.

3. Question bank of reasoning contains 30 questions.

Out of 30 questions, 9 are of easy level, 12 are of moderate level and 9 are of hard level questions.

The student has to answer 18 questions.

According to the given information:

Numbers of possibilities are:

i. 12 from moderate level, 5 from hard level and 1 from easy level = $^{12}C_{12} \times {}^{9}C_5 \times {}^{9}C_1$

ii. 10 from moderate level, 7 from hard level and 1 from easy level = $^{12}C_{10} \times {}^{9}C_7 \times {}^{9}C_1$

iii. 11 from moderate level, 6 from hard level and 1 from easy level = $^{12}C_{11} \times {}^{9}C_6 \times {}^{9}C_1$

$\therefore$ Required number of ways = $(^{12}C_{12} \times {}^{9}C_5 \times {}^{9}C_1) + (^{12}C_{10} \times {}^{9}C_7 \times {}^{9}C_1) + (^{12}C_{11} \times {}^{9}C_6 \times {}^{9}C_1)$

$\Rightarrow$ Required number of ways = $(1 \times 126 \times 9) + (66 \times 36 \times 9) + (12 \times 84 \times 9)$

$\Rightarrow$ Required number of ways = $(1134) + (21384) + (9072)$

$\Rightarrow$ Required number of ways = 31590

Hence, in 31590 ways a student can answer 18 questions of reasoning from its question bank, choosing at least 10 from moderate level questions, at least 5 from hard level questions and 1 from easy level.

Hence, option A is correct.

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4. Question bank of English contains 40 questions.

Out of 40 questions, 5 are of the easy level, 25 are of moderate level and 10 are of hard level questions.

The tutor has to choose questions for an English test of 28 questions which contain 3 easy questions, 23 moderate questions and at most 4 hard questions

The test can be prepared in following way:

3 easy question, 23 moderate questions, 2 hard question = $^{5}C_3 \times {}^{25}C_{23} \times {}^{10}C_2$

$\Rightarrow$ Number of ways in which the test can be prepared = $10 \times 300 \times 45$

$\Rightarrow$ Number of ways in which the test can be prepared = 135000

Hence, in 135000 ways a tutor can choose questions for an English test of 28 questions which contain 3 easy questions, 23 moderate questions and at most 4 hard questions.

Hence, option D is correct.

5. Question bank contains 5 easy level English questions, 7 easy level Maths questions, 9 easy level Reasoning questions, 5 easy level G.A questions and 7 easy level computer questions

⇒ There are a total of 33 easy level questions.

But all Maths and Reasoning questions are set next to each other

⇒ 16 questions are grouped and can be considered as 1 question

∴ We can assume a total of (33 – 16 + 1) 18 questions which need to be arranged.

⇒ 18 questions can be arranged in 18! Ways

Now, the number of ways in which Maths and reasoning question can be arranged = 16!

∴ Required number of ways = 18! 16!

Hence, in 18! 16! Ways questions can be arranged if Maths and reasoning questions are always set next to each other.

Hence, option E is correct.