348. Three integers are chosen at random without replacement from the 1st 20 integers. The probability that their product is odd is

1. $\frac{3}{19}$ 2. $\frac{2}{19}$ 3. $\frac{1}{19}$ 4. $\frac{4}{19}$

349. Three integers are chosen at random without replacement from the 1st 20 integers. The probability that their product is even is

1. $\frac{16}{19}$ 2. $\frac{17}{19}$ 3. $\frac{18}{19}$ 4. $\frac{15}{19}$

350. The probability that a selected two digited number from two digited numbers formed with the digits 1, 2, 3, 4, 5; without repetition is

1. $\frac{1}{5}$ 2. $\frac{3}{5}$ 3. $\frac{4}{5}$ 4. $\frac{2}{5}$

351. Ten different letters of the English alphabet are given. Out of these a word is formed using 5 letters with replacement. The probability that atleast one letter is repeated in the word is

1. $\frac{10}{10^5}$ 2. $1-\frac{{}^{10}P_5}{10^5}$ 3. $\frac{{}^{10}P_5}{\angle 10}$ 4. $\frac{{}^{10}P_5}{10^5}$

352. 5 letters A, B, E, L, T are written on 5 tickets and then the tickets are arranged at random. The probability that the letters on the tickets arranged at random is the word TABLE is

1. 1 2. $\frac{1}{60}$ 3. $\frac{1}{120}$ 4. $\frac{1}{30}$

353. Seven persons sit in a row at random. The probability that three persons A, B and C sit in that order not necessarily side by side is

1. $\frac{3}{\angle 7}$ 2. $\frac{{}^7c_3}{\angle 7}$ 3. $\frac{1}{\angle 3}$ 4. $\frac{1}{\angle 7}$

354. Three persons A, B and C are to speak at a function with 5 other persons. If the persons speak in random order, the probability that A speaks before B and C speaks before A in that order is

1. $\frac{3}{\angle 8}$ 2. $\frac{{}^8c_3}{\angle 8}$ 3. $\frac{1}{\angle 3}$ 4. $\frac{1}{\angle 8}$

355. 9 persons sit in a row at random. The probability that 4 persons A, B, C and D sit in that order not necessarily side by side is

1. $\frac{4}{\angle 9}$ 2. $\frac{{}^9c_4}{\angle 9}$ 3. $\frac{1}{\angle 4}$ 4. $\frac{1}{\angle 9}$

356. There are m persons sitting in a row. Two of them are selected at random. The probability that the two selected persons are together

1. $\frac{{}^{m-1}c_2}{{}^mc_2}$ 2. $\frac{m-1}{{}^mc_2}$ 3. $\frac{m-3}{{}^mc_2}$ 4. $1-\frac{{}^{m-1}c_2}{{}^mc_2}$

357. There are m persons sitting in a row. Two of them are selected at random. The probability that the two selected persons are not together

1. $1-\frac{{}^{m-1}c_2}{{}^mc_2}$ 2. $1-\frac{m-1}{{}^mc_2}$ 3. $1-\frac{m-3}{{}^mc_2}$ 4. $\frac{m-3}{{}^mc_2}$

358. An elevator starts with m passengers and stops at n floors $(m \le n)$. The probability that no two persons alight at the same floor is

1. $\frac{m}{n}$ 2. $1-\frac{m}{n}$ 3. $\frac{{}^np_m}{n^m}$ 4. $1-\frac{{}^np_m}{n^m}$

359. An elevator contains 5 passengers and stops at 10 floors. The probability that no two passengers get down at the same floor is

1. $\frac{5}{10}$ 2. $1-\frac{5}{10}$ 3. $\frac{{}^{10}P_5}{10^5}$ 4. $1-\frac{{}^{10}P_5}{10^5}$

360. 5 persons entered the lift cabin on the ground floor of an eight floor house. Suppose each of them independently leave the cabin at any floor beginning with 1st floor, the probability of all the 5 persons leaving at different floor is

1. $\frac{{}^8P_5}{8^5}$ 2. $\frac{{}^7P_5}{7^5}$ 3. $\frac{5}{8}$ 4. $\frac{1}{8}$

361. If n distinct balls are placed in n cells, the probability that each cell will be occupied is

1. $\frac{1}{n^{n-1}}$ 2. $\frac{1}{n^n}$ 3. $\frac{\angle n}{n^n}$ 4. $1-\frac{\angle n}{n^{n-1}}$

362. If n objects are distributed at random to n persons, the probability that at least one of them will not get anything is

1. $\frac{\angle n}{n^n}$ 2. $1-\frac{\angle n}{n^n}$ 3. $\frac{1}{n^{n-1}}$ 4. $\frac{\angle n}{n^{n-1}}$

363. M telegrams are to be distributed at random over N communication channels $(N > M)$. The probability that not more than one telegram will be sent over each channel

1. $\frac{{}^NC_M}{N^M}$ 2. $\frac{{}^MC_N}{N^N}$ 3. $\frac{{}^NP_M}{N^M}$ 4. $\frac{{}^MP_N}{N^N}$

364. Consider a lottery that sells n^2 tickets and awards n prizes. If one buys n tickets the probability of his winning is i.e., getting at least one prize is

1. $\frac{n}{{}^{n^2}c_n}$ 2. $1-\frac{{}^{(n^2-n)}c_n}{{}^{n^2}c_n}$ 3. $\frac{(n^2-n)}{n^2}$ 4. $\frac{1}{{}^{n^2}c_n}$

365. The letters forming the word CLIFTON are placed at random in a row. The probability that the two vowels come together is

1. $\frac{1}{7}$ 2. $\frac{2}{7}$ 3. $\frac{3}{7}$ 4. $\frac{4}{7}$

366. 5 boys and 3 girls sit in a row at random. The probability that no two girls sit together is

1. $\frac{3}{14}$ 2. $\frac{5}{14}$ 3. $\frac{9}{14}$ 4. $\frac{7}{14}$

367. A party of 23 persons take their seats at a round table. The odds against two specified persons sitting together is

1. 1 to 11 2. 11 to 1 3. 10 to 1 4. 1 to 10

368. Dialling a telephone number to his daughter an old man forgets the last two digits and dialled at random remembering only that they are different. The probability that the number dialled is correct is

1. $\frac{1}{10}$ 2. $\frac{1}{45}$ 3. $\frac{1}{90}$ 4. $\frac{1}{135}$

369. 5 persons a, b, c, d, e are contesting in an election. Three persons are to be selected. If one of them d has been selected uncontested, the probability that c would be selected is

1. $\frac{1}{4}$ 2. $\frac{1}{2}$ 3. $\frac{1}{3}$ 4. $\frac{1}{5}$

370. From a set of integers 1 to 10, an integer is selected at random. The probability that the selected integer has no common factor other than 1 with 10 is

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

371. Three numbers are chosen at random from the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}. The probability that the smallest of the three numbers chosen is even is

1. $\frac{5}{12}$ 2. $\frac{7}{12}$ 3. $\frac{5}{6}$ 4. $\frac{1}{6}$

372. Three numbers are chosen at random from the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}. The probability that the smallest of the three numbers chosen is odd is

1. $\frac{5}{12}$ 2. $\frac{7}{12}$ 3. $\frac{5}{6}$ 4. $\frac{1}{6}$

373. The numbers 1, 2, 3, 4, ... n are arranged in a random order. The probability that the digits 1and 2 appear as neighbours in the order named is

1. $\frac{1}{n-2}$ 2. $\frac{1}{n-1}$ 3. $\frac{1}{n}$ 4. $\frac{1}{n(n-1)}$

374. The numbers 1, 2, 3, 4, ... n are arranged in a random order. The probability that the digits 1, 2 and 3 appear as neighbours in the order named is

1. $\frac{1}{n}$ 2. $\frac{1}{n-1}$ 3. $\frac{1}{n(n-1)}$ 4. $\frac{1}{n-2}$

375. The probability that in a random arrangement of the letters of the word UNIVERSITY the 2 Is come together is

1. $\frac{3}{5}$ 2. $\frac{2}{5}$ 3. $\frac{1}{5}$ 4. $\frac{4}{5}$

376. The probability that in a random arrangement of the letters of the word UNIVERSITY the 2 Is do not come together is

1. $\frac{3}{5}$ 2. $\frac{4}{5}$ 3. $\frac{5}{6}$ 4. $\frac{2}{5}$

377. Out of the digits 1 to 9, two are selected at random and one is found to be 2, the probability that their sum is odd is

1. $\frac{3}{8}$ 2. $\frac{5}{8}$ 3. $\frac{7}{8}$ 4. $\frac{1}{8}$

378. Out of the digits 1 to 9 two are selected at random and one is found to be 2, the probability that their sum is even is

1. $\frac{3}{8}$ 2. $\frac{5}{8}$ 3. $\frac{7}{8}$ 4. $\frac{1}{8}$

379. Using the digits 1, 2, 3, 4, 9 a five digit number is formed. The probability of having 2 in the units place is

1. $\frac{2}{5}$ 2. $\frac{3}{5}$ 3. $\frac{4}{5}$ 4. $\frac{1}{5}$

380. Fifty tickets are serially numbered 1 to 50 one ticket is drawn from these at random. The probability that the number on it is a multiple of 3 or 4 is

1. $\frac{12}{25}$ 2. $\frac{14}{25}$ 3. $\frac{2}{5}$ 4. $\frac{1}{2}$

381. A number is chosen at random from among the 1st 50 natural numbers. The probability that the number chosen is either a prime number or a multiple of 5 is

1. $\frac{12}{25}$ 2. $\frac{1}{2}$ 3. $\frac{14}{25}$ 4. $\frac{1}{4}$

382. There are 100 cards numbered 1 to 100. The probability that a randomly chosen card has the digit 5 on it is equal to

1. $\frac{1}{5}$ 2. $\frac{1}{10}$ 3. $\frac{19}{100}$ 4. $\frac{1}{4}$

383. n persons are to sit in a row at random. The probability that two particular persons are together

1. $\frac{3}{n}$ 2. $\frac{2}{n}$ 3. $\frac{1}{n}$ 4. $\frac{4}{n}$

384. n persons are to sit in a row at random. The probability that two particular persons are never together

1. $\frac{2}{n}$ 2. $1-\frac{2}{n}$ 3. $\frac{^{n-1}c_2}{\angle n}$ 4. $\frac{1}{n}$

385. 6 boys and 5 girls are to sit in a row at random. The probability that boys and girls sit alternately is

1. $\frac{\angle 5\angle 5}{\angle 11}$ 2. $\frac{\angle 6\angle 6}{\angle 11}$ 3. $\frac{\angle 6\angle 5}{\angle 11}$ 4. $1-\frac{\angle 6\angle 5}{\angle 11}$

386. 4 red and 3 white roses of different sizes are strung in the form of a garland at random. The probability that no two white roses are together

1. $\frac{1}{3}$ 2. $\frac{1}{4}$ 3. $\frac{1}{5}$ 4. $\frac{1}{6}$

387. 5 telegrams are to be distributed at random over 10 communication channels. The probability that not more than one telegram will be sent over each channel

1. $\frac{^{10}c_5}{10^5}$ 2. $\frac{5!}{10^5}$ 3. $\frac{^{10}p_5}{10^5}$ 4. $\frac{5^{10}}{10^5}$

388. A letter lock contains 3 rings, each ring containing 4 letters. All possible trials are made to open the lock and the lock opens in only one way. The probability for the lock to open

1. $\frac{1}{2}$ 2. $\frac{1}{36}$ 3. $\frac{1}{64}$ 4. $\frac{1}{16}$

389. Out of the first 25 natural numbers 2 are chosen at random. The probability for one of the numbers is to be a multiple of 3 and the other to be a multiple of 5

1. $\frac{13}{100}$ 2. $\frac{1}{5}$ 3. $\frac{2}{15}$ 4. $\frac{1}{15}$

390. The probability that the birthdays of two boys A and B will fall on the same day of a month having 30 days is

1. $\frac{1}{29}$ 2. $\frac{2}{29}$ 3. $\frac{1}{30}$ 4. $\frac{1}{15}$

391. The key for a door to open is in a bunch of 10 keys. A man attempts to open the door by tring the keys at random discarding the wrong key. The probability that the door is opened in the 5th trial

1. 0.1 2. 0.3 3. 0.5 4. 0.7

392. 12 balls are distributed among 3 boxes. The probability that the 1st box contains 3 balls is

1. $\left(\frac{2}{3}\right)^{10}$ 2. $\frac{100}{9\times3^{10}}$ 3. $\frac{110}{9}\times\left(\frac{2}{3}\right)^{10}$ 4. $\frac{100}{9}$

393. If the letters of the word FLOWER are arranged at random, the probability that the order of the consonants is not changed

1. $\frac{50}{720}$ 2. $\frac{40}{270}$ 3. $\frac{30}{720}$ 4. $\frac{20}{720}$

394. One card is chosen at random from the cards numbered 1 to 100. The probability that exactly one 5 will appear on the card

1. $\frac{18}{100}$ 2. $\frac{19}{100}$ 3. $\frac{1}{100}$ 4. $\frac{17}{100}$

395. Dialling a telephone number to his daughter an old man forgets the last three digits and dialled at random remembering only that they are same. The probability that the number dialled is correct is

1. $\frac{1}{720}$ 2. $\frac{1}{10}$ 3. $\frac{1}{10^3}$ 4. $\frac{1}{135}$

396. There are 4 mathematics books, Junior inter volume 1 & 2, Senior inter volume 1 & 2 among 20 books. They are arranged in a row at random. The probability that all the mathematics books are arranged in that order not necessarily side by side is

1. $\frac{1}{16}$ 2. $\frac{1}{12}$ 3. $\frac{1}{24}$ 4. $\frac{1}{8}$

397. 7 balls are thrown into 4 bags numbered serially 1, 2, 3 & 4. Then the probability that none of them found in bag number 2 is

1. $\frac{3}{4}$ 2. $\frac{1}{4}$ 3. $\left(\frac{3}{4}\right)^7$ 4. $1-\left(\frac{1}{4}\right)^7$

398. In a single throw with a pair of dice, the total score of occurrence for which the probability is maximum is

1. 5 2. 6 3. 7 4. 8

399. The probability of getting different suit cards and different denomination cards when two cards are drawn from a pack is

1. $\frac{13}{17}$ 2. $\frac{13}{34}$ 3. $\frac{12}{17}$ 4. $\frac{6}{17}$

400. A five digited number is formed by the digits 1, 2, 3, 4, 5, 6, 7 and 8. The probability that the number has even digit at both ends is

1. $\frac{3}{14}$ 2. $\frac{3}{7}$ 3. $\frac{4}{7}$ 4. $\frac{5}{7}$

401. Four digit numbers are formed using each of the digits 1, 2, ..., 8 only once. One number from them is picked at random then the probability that the selected number contains unity is

1. $\frac{1}{2}$ 2. $\frac{1}{8}$ 3. $\frac{1}{4}$ 4. $\frac{1}{3}$

402. A box contains 2 black, 3 white, 4 red balls. One ball is drawn at random and kept aside. From the remaining balls another ball is drawn and kept aside the first. The process is repeated till all the balls are drawn from the box. The probability that balls drawn are in the sequence of 2 black, 3 white, 4 red balls is

1. $\frac{{}^2c_2.{}^3c_3.{}^4c_3}{{}^9c_3}$ 2. $\frac{1}{1260}$ 3. $\frac{1}{180}$ 4. $\frac{1}{630}$

403. It is given that a leap year has 53 Sundays, the probability that it has 53 Mondays is

1. $\frac{1}{2}$ 2. $\frac{1}{7}$ 3. $\frac{6}{7}$ 4. $\frac{2}{7}$

404. Eight persons numbered 1, 2, 3, ..., 8 to be seated round a circular table at random. The probability that the person numbered 1 sits between 2 and 3 is

1. $\frac{1}{21}$ 2. $\frac{1}{42}$ 3. $\frac{1}{56}$ 4. $\frac{1}{2}$

405. There are 2 locks on the door and the keys are among the six different ones you carry in your pocket. In a hurry you dropped one somewhere. The probability that you can still open the door is

1. $\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{2}{3}$ 4. $\frac{1}{4}$

406. In a shooting test, the probabilities for 3 persons A, B, C to hit the target are $\frac{1}{2},\frac{2}{3}$ and $\frac{3}{4}$. If all of them simultaneously aim at the target, the probability for exactly two persons hitting the target is

1. $\frac{1}{384}$ 2. $\frac{1}{12}$ 3. $\frac{11}{24}$ 4. $\frac{13}{24}$

407. If $A_1, A_2, A_3, ..., A_n$ are n independent events such that $P(A_k)=\frac{1}{k+1}, K=1,2,.....,n;$ then the probability that none of the n events occur is

1. $\frac{1}{n+1}$ 2. $\frac{n}{n+1}$

3. $\frac{n}{(n+1)(n+2)}$ 4. $\frac{1}{(n+1)!}$

408. Two fair dice are tossed. Let X be the event that the first die shows an even number and Y be the event that the second die shows an odd number. The two events X and Y are
1. mutually exclusive
2. independent and mutually exclusive
3. dependent4. independent

409. India plays two matches each with West Indies and Australia. In any match, the probabilities of India getting points 0, 1 and 2 are 0.45, 0.05 and 0.50 respectively. Assuming that the outcomes are independent, the probability of India getting atleast 7 points is
1. 0.8750 2. 0.0875 3. 0.0625 4. 0.0250

410. Three of the six vertices of a regular hexagon are chosen at random. The probability that the triangle, with the three vertices chosen is equilateral is equal to
1. $\frac{1}{10}$ 2. $\frac{1}{5}$ 3. $\frac{1}{2}$ 4. $\frac{1}{20}$

411. A coin is tossed 3 times. The probability of getting head and tail alternately is
1. $\frac{1}{8}$ 2. $\frac{1}{2}$ 3. $\frac{1}{4}$ 4. $\frac{1}{6}$

412. In shuffling a pack of 52 cards 3 cards are dropped at random. The probability that the missing cards should be of different suits is
1. $\frac{169}{425}$ 2. $\frac{261}{425}$ 3. $\frac{104}{425}$ 4. $\frac{6}{17}$

413. The odds in favour of getting atleast one time an even prime when a fair die is tossed three times is
1. 125:91 2. 1:5 3. 5:1 4. 91:125

414. From the first 100 natural numbers a number is chosen at random, the probability for it to be a composite number is
1. $\frac{74}{100}$ 2. $\frac{24}{100}$ 3. $\frac{25}{100}$ 4. $\frac{26}{100}$

415. Three cards are drawn from a pack of 52 cards. The probability that they are a king, a queen and an even numbered card is
1. $\frac{1}{1105}$ 2. $\frac{4}{1105}$ 3. $\frac{16}{1105}$ 4. $\frac{64}{1105}$

416. A bag contains 3 white, 3 black and 2 red balls. 3 balls are drawn one after another without replacement. The probability that the third ball drawn is red is
1. $\frac{1}{28}$ 2. $\frac{3}{28}$ 3. $\frac{5}{28}$ 4. $\frac{1}{4}$

417. In a single throw with two dice the total number of points whose probability is minimum is
1. 2 2. 8 3. 10 4. 11

418. From 101 to 1000 natural numbers a number is taken at random. The probability that the number is divisible by 17 is
1. $\frac{58}{900}$ 2. $\frac{58}{100}$ 3. $\frac{53}{900}$ 4. $\frac{53}{1000}$

419. When two fair coins and 3 cubical dice are thrown simultaneously, the total number of sample points in the sample space is
1. $2^2\times6^3$ 2. $2^3\times6^2$ 3. $2^4\times6^3$ 4. $2^3\times6^3$

420. The number of sample points in a sample space of particular colour in a full pack of cards is
1. 52 2. 26 3. 16 4. 12

421. In an over of 6 balls bowled by a bowler, the probability that he will get exactly three wickets on consecutive balls is (assume that the probability of getting a wicket is 0.5)
1. $\frac{4}{4^4}$ 2. $\frac{4}{4^5}$ 3. $\frac{1}{2^4}$ 4. $\frac{1}{32}$

422. When two dice are thrown simultaneously, the probability of getting the same even number on both the dice is
1. $\frac{1}{2}$ 2. $\frac{5}{12}$ 3. $\frac{1}{12}$ 4. $\frac{11}{12}$

423. From a set of 2×2 matrices having 0 or 1 in each place, a matrix is chosen. The probability that it is a unit matrix is
1. $\frac{1}{16}$ 2. $\frac{2}{16}$ 3. $\frac{3}{16}$ 4. $\frac{1}{4}$

424. From a pack of cards the cards numbered from 2 to 6 have been removed and three cards are drawn from the remaining pack. The probability that it will be a set of aces or kings or queens or jacks is
1. $\frac{3}{1240}$ 2. $\frac{1}{310}$ 3. $\frac{4.{}^4c_3}{{}^{52}c_3}$ 4. $\frac{7}{310}$

425. If A, B are subsets of a sample space S, then
1. $A\subseteq B\Leftrightarrow P(A)=P(B)$
2. $P(A)\ge P(B)\Rightarrow A\subset B$
3. $A\subseteq B\Rightarrow P(A)\le P(B)$
4. $A\subseteq B\Rightarrow P(A)\ge P(B)$

426. A number is chosen at random from the list of prime numbers less than 50. The chance that it is less than 24 is
1. $\frac{3}{5}$ 2. $\frac{2}{5}$ 3. $\frac{1}{5}$ 4. $\frac{4}{5}$

427. A number is chosen at random from the list of prime numbers less than 50. The chance that it has its square greater than 100 is
1. 1/5 2. 4/5 3. 3/5 4. 11/15

428. If war breaks out on the average once in 25 years, the probability that in 50 years at a stretch, there will be no war is
1. $\left(\frac{24}{25}\right)^{50}$ 2. $\left(\frac{1}{25}\right)^{50}$ 3. $\left(\frac{1}{24}\right)^{50}$ 4. $\left(\frac{23}{24}\right)^{50}$

429. A bag contains 5 black and 4 white balls. Two balls are drawn at random. The probability that they match is
1. $\frac{7}{12}$ 2. $\frac{5}{8}$ 3. $\frac{5}{9}$ 4. $\frac{4}{9}$

430. In a non leap year the probability of getting 53 Sundays or 53 Tuesdays or 53 Thursdays

1. $\frac{1}{7}$ 2. $\frac{2}{7}$ 3. $\frac{3}{7}$ 4. $\frac{4}{7}$

431. Two friends A and B have equal number of sons. There are 3 cinema tickets which are to be distributed among the sons of A and B. The probability that all the tickets go to sons of B is 1/20. The number of sons, each of them having is

1. 2 2. 4 3. 5 4. 3

432. From a pack of cards, 2 cards are chosen at random. The probability of the event of one card is 10 which is not hearts and another a hearts card is

1. $\frac{1}{34}$ 2. $\frac{1}{102}$ 3. $\frac{8}{663}$ 4. $\frac{33}{34}$

433. A ten digit number is formed using the digits from zero to nine, every digit being used exactly once. The probability that the number is divisible by 5 is

1. $\frac{14}{81}$ 2. $\frac{15}{81}$ 3. $\frac{16}{81}$ 4. $\frac{17}{81}$

434. E_1, E_2 are events of a sample space such that

$$P(E_1)=\frac{1}{4}, P\left(\frac{E_2}{E_1}\right)=\frac{1}{2}, P\left(\frac{E_1}{E_2}\right)=\frac{1}{4}. \text{ Then } P\left(\frac{\overline{E}_1}{E_2}\right)=$$

1. $\frac{1}{3}$ 2. $\frac{1}{4}$ 3. $\frac{2}{3}$ 4. $\frac{3}{4}$

435. In a class of 60 boys and 20 girls, half of the boys and half of the girls know cricket, then the probability of the event that a person selected from the class is either a boy or a girl who knows cricket is

1. $\frac{1}{2}$ 2. $\frac{3}{8}$ 3. $\frac{5}{8}$ 4. $\frac{7}{8}$

436. Twenty persons among whom A and B, sit at random around a round table, then the probability that there are any 6 persons between A and B is

1. $\frac{2}{19}$ 2. $\frac{17}{19}$

3. $\frac{{}^{18}c_6 \times 2!}{19!}$ 4. $\frac{{}^{18}c_6 \times 2! \times 12!}{19!}$

437. An urn contains 12 red balls and 12 green balls. Suppose two balls are drawn one after another without replacement, then the probability that the second ball drawn is green given that the first ball drawn is red is

1. $\frac{6}{23}$ 2. $\frac{12}{23}$ 3. $\frac{11}{23}$ 4. $\frac{17}{23}$

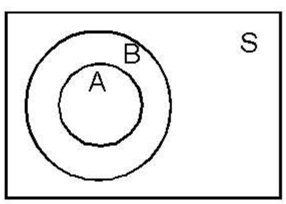
KEY

1. 3	2. 3	3. 3	4. 3	5. 3
6. 3	7. 3	8. 1	9. 3	10. 2
11. 3	12. 2	13. 3	14. 2	15. 3
16. 3	17. 4	18. 2	19. 3	20. 3
21. 1	22. 3	23. 1	24. 3	25. 3
26. 4	27. 2	28. 3	29. 2	30. 3
31. 2	32. 3	33. 3	34. 4	35. 3
36. 4	37. 3	38. 3	39. 1	40. 1
41. 2	42. 3	43. 2	44. 1	45. 2
46. 3	47. 2	48. 3	49. 3	50. 3
51. 3	52. 3	53. 2	54. 3	55. 3
56. 3	57. 3	58. 4	59. 1	60. 1
61. 2	62. 3	63. 2	64. 4	65. 3
66. 2	67. 2	68. 3	69. 3	70. 3
71. 3	72. 4	73. 3	74. 3	75. 2
76. 3	77. 3	78. 4	79. 3	80. 3
81. 2	82. 2	83. 2	84. 1	85. 1
86. 3	87. 2	88. 2	89. 2	90. 3
91. 1	92. 3	93. 2	94. 2	95. 3
96. 3	97. 3	98. 2	99. 3	100. 3
101. 2	102. 3	103. 3	104. 3	105. 2
106. 2	107. 3	108. 2	109. 3	110. 1
111. 1	112. 2	113. 2	114. 3	115. 3
116. 3	117. 2	118. 3	119. 3	120. 3
121. 3	122. 2	123. 3	124. 3	125. 3
126. 2	127. 3	128. 3	129. 3	130. 4
131. 4	132. 4	133. 1	134. 3	135. 3
136. 3	137. 3	138. 2	139. 2	140. 2
141. 3	142. 3	143. 3	144. 3	145. 3
146. 3	147. 2	148. 3	149. 2	150. 3
151. 2	152. 2	153. 2	154. 3	155. 3
156. 3	157. 3	158. 3	159. 1	160. 3
161. 3	162. 2	163. 3	164. 1	165. 3
166. 3	167. 3	168. 2	169. 3	170. 3
171. 2	172. 2	173. 2	174. 3	175. 3
176. 2	177. 3	178. 3	179. 3	180. 1
181. 2	182. 2	183. 3	184. 1	185. 2
186. 2	187. 3	188. 3	189. 2	190. 3
191. 3	192. 2	193. 3	194. 2	195. 3
196. 4	197. 3	198. 2	199. 1	200. 2
201. 2	202. 1	203. 3	204. 2	205. 3
206. 2	207. 3	208. 1	209. 3	210. 2
211. 1	212. 3	213. 3	214. 3	215. 1
216. 2	217. 1	218. 3	219. 3	220. 3
221. 3	222. 3	223. 2	224. 3	225. 3
226. 2	227. 2	228. 2	229. 2	230. 2
231. 2	232. 3	233. 3	234. 2	235. 3
236. 2	237. 2	238. 1	239. 2	240. 3
241. 3	242. 3	243. 2	244. 3	245. 2
246. 4	247. 3	248. 3	249. 2	250. 3
251. 3	252. 3	253. 2	254. 3	255. 2
256. 3	257. 3	258. 2	259. 3	260. 2
261. 3	262. 3	263. 2	264. 1	265. 2
266. 3	267. 2	268. 3	269. 4	270. 3
271. 4	272. 2	273. 1	274. 2	275. 2
276. 1	277. 2	278. 3	279. 2	280. 1
281. 2	282. 3	283. 2	284. 1	285. 1
286. 3	287. 3	288. 2	289. 3	290. 2
291. 3	292. 4	293. 3	294. 3	295. 1
296. 1	297. 3	298. 3	299. 1	300. 2
301. 3	302. 4	303. 3	304. 3	305. 3
306. 3	307. 3	308. 3	309. 3	310. 2
311. 3	312. 1	313. 3	314. 2	315. 3
316. 2	317. 3	318. 2	319. 3	320. 2

321. 3	322. 2	323. 3	324. 3	325. 3
326. 3	327. 2	328. 2	329. 3	330. 2
331. 3	332. 3	333. 3	334. 3	335. 3
336. 2	337. 3	338. 2	339. 2	340. 3
341. 3	342. 3	343. 1	344. 3	345. 3
346. 3	347. 3	348. 2	349. 2	350. 3
351. 2	352. 3	353. 3	354. 3	355. 3
356. 2	357. 2	358. 3	359. 3	360. 2
361. 3	362. 2	363. 3	364. 2	365. 2
366. 2	367. 3	368. 3	369. 2	370. 2
371. 1	372. 2	373. 3	374. 3	375. 3
376. 2	377. 2	378. 1	379. 4	380. 1
381. 1	382. 3	383. 2	384. 2	385. 3
386. 3	387. 3	388. 3	389. 1	390. 3
391. 1	392. 3	393. 3	394. 1	395. 2
396. 3	397. 3	398. 3	399. 3	400. 1
401. 1	402. 2	403. 1	404. 1	405. 3
406. 3	407. 1	408. 4	409. 2	410. 1
411. 3	412. 1	413. 4	414. 1	415. 3
416. 4	417. 1	418. 3	419. 1	420. 2
421. 3	422. 3	423. 1	424. 2	425. 3
426. 1	427. 4	428. 1	429. 4	430. 3
431. 4	432. 1	433. 4	434. 4	435.4
436.1	437.2			

HINTS

12.



$A \subset B \Rightarrow A \cup B^C = \phi \Rightarrow P\left(A \cap B^C\right) = 0$

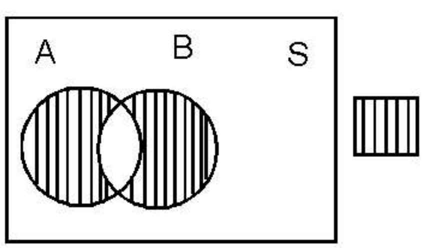
13. $P\{A \cap (B \cup C)\} = P\{(A \cap B) \cup (A \cap C)\}$

$= P(A \cap B) + P(A \cap C) - P(A \cap B \cap C)$

14. $P(A \cup B) = 1 - P(A \cup B)^C$

$\Rightarrow P(A \cup B) = 1 - P\left(\bar{A} \cap \bar{B}\right)$

21.



$P\left\{\left(A \cap \bar{B}\right) \cup \left(\bar{A} \cap B\right)\right\} = P\left(A \cap \bar{B}\right) + P\left(\bar{A} \cap B\right) =$

$\left(A \cap \bar{B}\right) \cup \left(\bar{A} \cap B\right) = (A \cup B) - (A \cap B)$

$P(A) - (A \cap B) + P(B) - P(A \cap B)$

$= P(A \cup B) - P(A \cap B)$

26. $A \subset B \Rightarrow A \cup B = B \Rightarrow P(A \cup B) = P(B)$

34. n(3 or 5) = n(3) + n(5) - n(3 & 5)

n(3 & 5) = The integral part of $\dfrac{17}{L.C.M.\ of\ 3\&5}$

39. $n(S) = {}^8C_1 . {}^7C_1;$

n(E)=(6, 8), (8,6), (7,8), (8,7) = 4; $P(E) = \dfrac{1}{14}$

40. $n(S) = {}^{10}C_4;$

n(E)=4 odd or 4 even or 2 odd and 2 even;

$P(E) = \dfrac{11}{21}$

53. P (All the three belong to the same sex)

$= P(M_1M_2M_3) + P(F_1F_2F_3)$

$= \dfrac{1}{2}.\dfrac{1}{2}.\dfrac{1}{2} + \dfrac{1}{2}.\dfrac{1}{2}.\dfrac{1}{2} = \dfrac{2}{8} = \dfrac{1}{4}$

54. P (2 are males and one is a female)

$= P(F_1M_2M_3) + P(M_1F_2M_3) + P(M_1M_2F_3)$

$= \dfrac{1}{8} + \dfrac{1}{8} + \dfrac{1}{8} = \dfrac{3}{8}$

56. $n(S) = {}^{12}C_4, n(E) = {}^6C_2, P(E) = \dfrac{1}{33}$

57. P(A) + P(B) + P(C) = 1

74. March = 31 days = 4 weeks + 3 days
One of the last 3 days of the month must be a wednesday for that month to have five wednesdays.

$P(W_5) = \dfrac{3}{7}$

76. Probability to select a calender month = $\dfrac{1}{12}$

$P(E) = \dfrac{1}{12} \times \dfrac{1}{7} = \dfrac{1}{84}$

79. $P(A \cup B) = 1 - P\left(\bar{A}\right).P\left(\bar{B}\right)$

84. $P(A) = \dfrac{3}{6}, P(B) = \dfrac{2}{4}, P(C) = 1$

95. $P\left(\bar{A}\right) + P\left(\bar{B}\right) = 2 - \left[P(A) + P(B)\right]$

$= 2 - \left[P(A \cup B) + P(A \cap B)\right]$

105. $P(A) + P(B) \le 1 \Rightarrow P(B) \le P\left(\bar{A}\right)$

106. $P(A) + P(B) \le 1 \Rightarrow P(A) \le P\left(\bar{B}\right)$

107. $P(A) = 0.5, P\left(A \cup \bar{B}\right) = 0.7,$

$P\left(A \cup \bar{B}\right) = 1 - P\left(\bar{A}\right).P(B)$

119. Tossing of 2 coins, 5 times
= Tossing of $2 \times 5 = 10$ coins

128. $n(S)=2^4$, Heads exceed tails in number means the number of heads must be 3 or 4.

$n(E)={}^4C_3+{}^4C_4=5 \qquad P(E)=\frac{5}{16}$

131. $n(S)=2^3=8;\ n(E)={}^3C_2+{}^3C_2=6,\ P(E)=\frac{3}{4}$

139. $P(E)=\frac{2}{3}$

163. $n(S)=6^2=36, n(A)=4; A=|a-b|=4$
i.e., (1, 5), (2, 6), (5, 1), (6, 2)

164. ace = face marked with 1

168. $P(E)=P(M_2\cap M_3)=\frac{3}{6}.\frac{2}{6}=\frac{1}{6}$

1 2

M_2 is 2, 4, 6 and M_3 is 3, 6;

$P(A\cup B)=1-P(\bar{A}).P(\bar{B})$

171. $P(A)=\frac{a}{1-r}=\frac{\frac{5}{36}}{1-\frac{31}{36}.\frac{5}{6}}=\frac{30}{61}$

a=P(A getting 6); b = P(B getting 7)
r = (1 - a)(1 - b)

173. $P(8):P(9)=\frac{5}{36}:\frac{4}{36}=5:4$

192. P (Sum even $\cup$ Sum < 5)

$=P(S_e)+P(S_{<5})-P(S_e\cap S_{<5})=\frac{18}{36}+\frac{6}{36}-\frac{4}{36}=\frac{5}{9}$

207. Doublets and sum less than 9 are the out comes (1, 1)(2, 2)(3,3)(4,4) $P(E)=\frac{4}{36}=\frac{1}{9}$

228. $n(S)=\frac{52.51.50.49}{4.3.2.1}$, $\quad n(E)=13.13.13.13=(13)^4$;

$P(E)=\frac{(13)^4}{{}^{52}C_4}$

230. $n(S)={}^{52}C_4; n(E)={}^{12}C_3\,{}^1C_1={}^{12}C_3$

$P(E)=\frac{{}^{12}C_3}{{}^{52}C_4}$ (King card of spade suit must have to be drawn).

236. $P(H)=\frac{13}{52}=P(D); P(B)=\frac{26}{52}=\frac{1}{2}$

The six cards can be drawn at random in any order $\frac{6!}{2!2!2!}$ ways. Here H = heart, D = diamond, B = black card.

$P(E)=\left(\frac{1}{4}\right)^2.\left(\frac{1}{4}\right)^2.\left(\frac{1}{2}\right)^2.\frac{6!}{2!2!2!}=\frac{90}{4^5}$

245. $n(S)={}^{52}C_2$; $n(\bar{E})=$ not even one ace of hearts $={}^{51}C_2$; $P(E)=1-\frac{{}^{51}C_2}{{}^{52}C_2}$

281. $n(S)={}^{10}C_2; n(\bar{E})={}^7C_2$

$P(E)=1-\frac{{}^7C_2}{{}^{10}C_2}=1-\frac{21}{45}=1-\frac{7}{15}=\frac{8}{15}$

298. $n(S)={}^NC_n, n(E)={}^RC_r.{}^{(N-R)}C_{n-r}$

$P(E)=\frac{{}^RC_r.{}^{(N-R)}C_{n-r}}{{}^NC_n}$

301. Arrangement starts with white ball only.

$P(E)=\frac{4!3!}{7!}=\frac{1}{35}$

315. If n persons sit circularly then the odds against two specified persons sitting together is (n-3):2.
Hence the answer is 7:2

317. Arrange the letters other than S letters first

$n(S)=\frac{8!}{4!2!}; n(E)=\frac{4!}{2!}\frac{{}^5P_4}{4!}\Rightarrow P(E)=\frac{1}{14}$

319. No two boys sit together and also no two girls sit together $n(S)=12!; n(E)=2.6!.6!$

324. $n(S)=6^{10}; n(E)={}^{10}C_4\times 5^6$

334. $n(S)=12^6; n(E)={}^{12}P_6$

337. $n(S)={}^{10}C_2, n(E)={}^5C_1\,{}^5C_1$

338. $n(S)={}^{10}C_2, n(E)={}^5C_2+{}^5C_2$

341. $n(S)={}^8C_2, n(E)=2; P(E)=\frac{1}{14}$

343. $n(S)={}^8C_2, n(E)={}^2C_2; P(E)=\frac{3}{28}$

344. $n(S)={}^8C_2, n(E)={}^2C_2; P(E)=\frac{1}{28}$

347. $n(S)={}^4C_2+{}^5C_2; n(E)={}^5C_2, P(E)=\frac{5}{8}$

350. $n(S)=5^2; n(E)={}^5P_2$

356. $n(S)={}^mC_2; n(E)=(m-1)$

360. Begining with the 1st floor there are 7 floors $n(S)=7^5; n(E)={}^7P_5$

368. $n(S)=90; n(E)=1$

369. $n(S)={}^4C_2; n(E)={}^3C_1.{}^1C_1$

370. Required numbers are prime numbers less than 10 i.e., $P(E)=\frac{4}{10}$

373. $n(S)=n!; n(E)=(n-1)!; P(E)=\frac{1}{n}$

374. $n(S)=n!;n(E)=(n-2)!;P(E)=\frac{1}{n(n-1)}$

389. $n(S)={}^{25}C_2;n(E)=(8\times5-1)=39$

$\therefore n(E)=\frac{13}{100}$

398. $n(S)=6\times6;n(A)=6$. Maximum number of out-comes are for score 7

399. $n(s)={}^{52}c_2,n(A)={}^4C_2.{}^{13}c_1.{}^{12}c_1$

400. $n(s)={}^8P_5,n(A)=4.3.{}^6P_3$

401. $n(s)={}^8P_4,n(A)={}^7C_3.4!$

402. $\frac{2}{9}.\frac{1}{8}.\frac{3}{7}.\frac{2}{6}.\frac{1}{5}.\frac{4}{4}.\frac{3}{3}.\frac{2}{2}.\frac{1}{1}$

403. Given that one of the last two days must be a Sunday. Sun-Mon: Sat-Sun

404. $n(s)=7!\,[213]+5\ digits,\qquad n(A)=5!\times2!$

$1unit+5units=6units$

405. $n(s)={}^6C_1,\ n(A)={}^4C_1$

406. Required probability =

$P(A\cap B\cap\overline{C})+(P(A\cap\overline{B}\cap C)+P(\overline{A}\cap B\cap C)$

407. $P(\overline{A_k})=1-\frac{1}{1+k}=\frac{k}{1+k}$

$P(\overline{A_1})P(\overline{A_2})....P(\overline{A_n})=\frac{1}{n+1}$

408. Independent

409. $\{W.W\ A\ A\times$ no of orders$\}$,
p(particular order) $\times$ no. of orders 2221 or 2222

410. $\frac{2}{{}^6C_3}$

411. HTH , THT

412. $n(s)={}^{52}C_3,$

$n(A)={}^4C_3\times{}^{13}C_1\times{}^{13}C_1\times{}^{13}C_1$

413. $p(x\ge1)=1-p(x=0)$

414. $n(s)={}^{100}C_1,n(A)=100-25-1=74$

415. $n(s)={}^{52}C_3,\ n(A)={}^4C_1\times{}^4C_1\times{}^{20}C_1$

416. $P(R,W\quad or\quad B,R)+P(W\quad or\quad B,R,R)$

$+P(W\quad or\quad B,\quad W\quad or\quad B,R)$

$=\frac{2}{8}.\frac{6}{7}.\frac{1}{6}+\frac{6}{8}.\frac{2}{7}.\frac{1}{6}+\frac{6}{8}.\frac{5}{7}.\frac{2}{6}$

417. 2 out comes. One out come for score 2. One come for score 12

418. $n(A)=\left[\frac{1000}{17}\right]-\left[\frac{100}{17}\right]=53$ where [ ] denotes integral part

419. $n(s)=2^2\times6^3$

420. each colour contains 26 cards

421. $n(s)=2^6,\ n(A)=4$

422. $n(s)=36,$

$n(A)=3;\{(2,2),\ (4,4),\ (6,6)\}$

423. $n(s)=2^4=16,\ n(E)=1$

424. $n(s)={}^{32}C_3,\ n(A)=4.{}^4C_3$

425. Based on theory

426. $n(s)=15,\ n(A)=9$

427. $n(s)=15,\ n(A)=11$

428. $p=\frac{1}{25},\ q=\frac{24}{25},\ n=50,\ p(x=0)$

429. Required probability = $\frac{{}^5C_2+{}^4C_2}{{}^9C_2}$

430. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

431. $\frac{{}^nC_3}{{}^{2n}C_3}=\frac{1}{20}$

432. $n(s)={}^{52}C_2,\ n(A)={}^3C_1\times{}^{13}C_1$

433. $n(s)={}^{10}p_{10}-{}^9p_9,n(A)=9!+9!-8!$

434. $P\left(\frac{E_1}{E_2}\right)+P\left(\frac{\overline{E}_1}{E_2}\right)=1$

LEVEL-2

1. Two events A and B have probability 0.25 and 0.50 respectively. The probability that both A and B occur simultaneously is 0.14. Then the probability that neither A nor B occurs is

1. 0.39 2. 0.25 3. 0.89 4. 0.50

2. If $P(A\cap B)=0.16$, then $P(\overline{A}\cup\overline{B})$ is equal to

1. 0.92 2. 0.14 3. 0.84 4. 0.42

3. If $P(A)=\frac{3}{8},P(B)=\frac{5}{8}$ & $P(A\cap B)=\frac{1}{4}$, then $P\left(\frac{\overline{A}}{B}\right)=$

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

4. If A and B are two independent events such that $P(A)=\frac{1}{3}$ and $P(B)=\frac{3}{4}$, then $P\left\{\frac{B}{(A \cup B)}\right\}=$

1. $\frac{7}{10}$ 2. $\frac{8}{10}$ 3. $\frac{9}{10}$ 4. $\frac{6}{10}$

5. If A and B are two independent events such that $P(A)=\frac{1}{3}$ and $P(B)=\frac{3}{4}$, then $P\left(\frac{A}{(A \cup B)}\right)=$

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

6. If A and B are two events such that $P(A \cup B)=\frac{3}{4}, P(A \cap B)=\frac{1}{4}$ & $P(\overline{A})=\frac{2}{3}$, then $P(\overline{A} \cap B)=$

1. $\frac{1}{12}$ 2. $\frac{2}{12}$ 3. $\frac{7}{12}$ 4. $\frac{5}{12}$

7. An electric bulb will last for 150 days or more with a probability 0.7 and it will last for at the most 160 days with probability 0.8. The probability that the bulb will last between 150 and 160 days is

1. 0.1 2. 0.3 3. 0.5 4. 0.4

8. A student is to appear for two tests in which his respective probabilities of succeeding are 0.5 & 0.7 and losing both the tests is 0.2. The probability that the student will succeed in the 2nd test when he has already succeeded in the 1st test is

1. 0.2 2. 0.4 3. 0.6 4. 0.8

9. In a class of 125 students, 70 passed in mathematics, 55 in statistics and 30 in both. The probability that a student selected at random from that class, has passed in only one subject is

1. $\frac{13}{25}$ 2. $\frac{3}{25}$ 3. $\frac{17}{25}$ 4. $\frac{8}{25}$

10. The Intermediate Board has to select an examiner from a list of 100 persons. 40 of them women and 60 men; 50 of them knowing Telugu and 50 are not; 75 of them are teachers and the remaining are not. The probability that the University selects a telugu knowing woman teacher is

1. $\frac{1}{20}$ 2. $\frac{3}{20}$ 3. $\frac{17}{20}$ 4. $\frac{2}{20}$

11. A class consists of 80 students, 25 of them are girls and 55 boys. 10 of them are rich and remaining poor, 20 of them are fair complexioned. The probability of selecting a fair complexioned rich girl from that class is

1. $\frac{200}{512}$ 2. $\frac{250}{512}$ 3. $\frac{500}{512}$ 4. $\frac{5}{512}$

12. Three groups of children contain respectively 3 girls & 1 boy; 2 girls & 2 boys; 1 girl & 3 boys. One child is selected at random from each group. The chance that the three selected children consists of one girl and 2 boys is

1. $\frac{9}{32}$ 2. $\frac{11}{32}$ 3. $\frac{13}{32}$ 4. $\frac{7}{32}$

13. If the probabilities of n independent events $A_1, A_2, A_3, \ldots\ldots A_n$ are $P_1, P_2, P_3, \ldots . P_n$. The probability that at least one of the events will happen

1. $P_1P_2P_3 \ldots . P_n$

2. $(1-P_1)(1-P_2)(1-P_3) \ldots .(1-P_n)$

3. $1-(1-P_1)(1-P_2)(1-P_3) \ldots .(1-P_n)$

4. 1- $P_1P_2P_3 \ldots . P_n$

14. A couple has 2 children. The probability that both are boys, if it is known that at least one of the children is a boy is

1. $\frac{2}{3}$ 2. $\frac{1}{3}$ 3. $\frac{1}{4}$ 4. $\frac{3}{4}$

15. A couple has 2 children. The probability that both are boys, if it is known that elder child is a boy is

1. $\frac{2}{3}$ 2. $\frac{1}{3}$ 3. $\frac{1}{2}$ 4. $\frac{3}{4}$

16. The odds that a book will be reviewed favourably by three independent critics are 5 to 2, 4 to 3 and 3 to 4 respectively. The probability that of the three reviewers a majority will be favourable

1. $\frac{134}{343}$ 2. $\frac{109}{343}$ 3. $\frac{209}{343}$ 4. $\frac{309}{343}$

17. In a group of equal number of men and women, 10% of men and 45% of women are unemployed. The probability that a person selected at random from that group is employed

1. $\frac{11}{40}$ 2. $\frac{29}{40}$ 3. $\frac{18}{40}$ 4. $\frac{9}{40}$

18. In a locality there are 150 youth out of whom 80 are university students and 70 are males. The probability that a randomly selected youth is a male university student, given that there are 35 female non-university students

1. $\frac{70}{150}$ 2. $\frac{35}{70}$ 3. $\frac{35}{80}$ 4. $\frac{35}{150}$

19. H is one of the 6 horses entered for a race and is to be ridden by one of the two jokeys A and B. It is 2 to 1 that A rides H in which case all the horses are likely to win. If B rides H, his chance is trebled. Then the odds against H winning is

1. 4 to 13 2. 13 to 4 3. 13 to 5 4. 13 to 7

20. $\frac{2}{3}$ of students of a class are boys and the rest girls. It is given that the probability of a girl getting 1st class is 0.25 and the same for a boy is 0.28. From that class a student is selected at random. The probability that the student is a 1st class student

1. 0.25 2. 0.26 3. 0.27 4. 0.28

21. In a class there are 10 men & 20 women. Out of them half of the number of men & half of the number of women have brown eyes. Out of them if a person is chosen at random, the chance that for the person chosen to be a man or brown eyed person is

1. $\frac{1}{3}$ 2. $\frac{2}{3}$ 3. $\frac{3}{4}$ 4. $\frac{1}{4}$

22. S is a sample space. $S=\{X \in N / 1 \le X \le 100\}$ and $E=\{X/(X+1)(X-1) \in S\}$, then P(E) =

1. $\frac{3}{100}$ 2. $\frac{7}{100}$ 3. $\frac{9}{100}$ 4. $\frac{6}{100}$

23. A letter is taken out at random from the word ASSISTANT and an other from STATISTICS. The probability that they are the same letters is

1. $\frac{13}{90}$ 2. $\frac{17}{90}$ 3. $\frac{19}{90}$ 4. $\frac{15}{90}$

24. A and B are two independent events. The probability that both A and B occur is $\frac{1}{6}$ and the probability that neither of them occur is $\frac{1}{3}$. The probability of occurence of A is

1. $\frac{1}{4},\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{1}{3},\frac{1}{2}$ 4. $\frac{1}{4}$

25. A and B are two independent events such that $P(\overline{A} \cap B)=\frac{8}{25}$ and $P(A \cap \overline{B})=\frac{3}{25}$, then P(A)=

1. $\frac{1}{5}$ 2. $\frac{3}{5}$ 3. $\frac{1}{5}$ or $\frac{3}{5}$ 4. $\frac{1}{2}$

26. If a number x is selected from the 1st 100 natural numbers at random, then the probability that $x+\frac{100}{x}>50$ is

1. $\frac{9}{20}$ 2. $\frac{1}{2}$ 3. $\frac{11}{20}$ 4. $\frac{5}{20}$

27. In the game A and B had to play, the probability of A's winning is $\frac{2}{5}$, if he had lost the previous game and $\frac{3}{5}$ if he had won the previous game. In the middle of series of games, the probability of A's winning two games in succession is

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

28. An unbiased coin is tossed n times. The probability that head will present itself, odd number of times is

1. $\frac{1}{4}$ 2. $\frac{1}{3}$ 3. $\frac{1}{2}$ 3. $\frac{1}{5}$

29. An unbiased coin is tossed n times. The probability that head will present itself, even number of times is

1. $\frac{1}{4}$ 2. $\frac{1}{3}$ 3. $\frac{1}{2}$ 3. $\frac{1}{5}$

30. Two coins are tossed. The probability that two heads result, given that there is at least one head is

1. $\frac{1}{5}$ 2. $\frac{1}{4}$ 3. $\frac{1}{3}$ 4. $\frac{2}{3}$

31. Three unbiased coins are tossed, the probability that 3 heads will result, if it is known that there will be at least one head is

1. $\frac{5}{7}$ 2. $\frac{3}{7}$ 3. $\frac{1}{7}$ 4. $\frac{2}{7}$

32. 5 unbiased coins are tossed. The probability that 4 heads result, if it is known that there will be atleast 3 heads is

1. $\frac{1}{16}$ 2. $\frac{3}{16}$ 3. $\frac{5}{16}$ 4. $\frac{2}{16}$

33. If a coin is tosed 10 times, the probability of getting heads as many times in the 1st 8 tosses as in the last 2 tosses

1. $\frac{1}{2^8}$ 2. $\frac{1}{2^{10}}$ 3. $\frac{45}{2^{10}}$ 4. $\frac{15}{2^{10}}$

34. If a coin is tossed 6 times. The probability of getting heads as many times in the 1st 4 tosses as in the last 2 tosses is

1. $\frac{5}{64}$ 2. $\frac{7}{64}$ 3. $\frac{15}{64}$ 4. $\frac{5}{32}$

35. There are 12 unbiased coins in a bag. Out of them 4 coins have head on both the sides. One coin is selected from the bag at random and tossed. The probability of getting a head is

1. $\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{2}{3}$ 4. $\frac{1}{4}$

36. A, B and C toss a coin one after another. Who ever gets head 1st will win the game. If A starts the game the probability of A's winning is

1. $\frac{1}{7}$ 2. $\frac{2}{7}$ 3. $\frac{4}{7}$ 4. $\frac{3}{7}$

37. For a biased die, the probability for different faces to turn up are givenbelow:

Face:	1	2	3	4	5	6
Pr*obability*:	0.10	0.32	0.21	0.15	0.05	0.17

Such a die is tossed once and you are told that face 1 or 2 has turned up. The probability that it is face 1 is

1. $\frac{16}{21}$ 2. $\frac{5}{21}$ 3. $\frac{4}{7}$ 4. $\frac{3}{7}$

38. A magical die is so loaded that the probability of any face appearing is proportional to the number of points on its face. The probability of an odd number appearing is

1. $\frac{2}{7}$ 2. $\frac{3}{7}$ 3. $\frac{4}{7}$ 4. $\frac{5}{7}$

39. A magical die is so loaded that the probability of any face appearing is proportional to the number of points on its face. The probability of an even number appearing is

1. $\frac{2}{7}$ 2. $\frac{3}{7}$ 3. $\frac{4}{7}$ 4. $\frac{5}{7}$

40. A die is loaded such that 6 turning upwards is twice as often as 1 and three times as any other face. The chance that we get a face with one point when we throw such a die is

1. $\frac{6}{17}$ 2. $\frac{3}{17}$ 3. $\frac{2}{17}$ 4. $\frac{5}{17}$

41. A fair die is thrown untill a face with less than 5 points is obtained. The probability of obtaining not less than 2 points on the last throw is

1. $\frac{1}{4}$ 2. $\frac{1}{2}$ 3. $\frac{3}{4}$ 4. $\frac{1}{8}$

42. A man throws a die untill he gets a number bigger than 3. The probability that he gets a 5 in the last throw is

1. $\frac{1}{5}$ 2. $\frac{1}{4}$ 3. $\frac{1}{3}$ 4. $\frac{1}{8}$

43. Two symmetrical dice are thrown at a time. If the sum of the points on them is 8, the probability that one of them will show a face with 3 points is

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

44. Two symmetrical dice are thrown. The probability that the sum of the numbers appearing is 11, if 5 appears on the 1st die

1. $\frac{1}{18}$ 2. $\frac{1}{6}$ 3. $\frac{1}{3}$ 4. $\frac{1}{9}$

45. A and B are to throw 2 dice. If A throws a sum of 9 points, then B's chance of throwing a higher sum is

1. $\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{1}{6}$ 4. $\frac{5}{9}$

46. A six faced die is so biased that it is twice as likely to show an even number as an odd number when thrown. It is thrown twice. The probability that the sum of the numbers thrown is odd is

1. $\frac{1}{3}$ 2. $\frac{4}{9}$ 3. $\frac{5}{9}$ 4. $\frac{6}{9}$

47. A six faced die is so biased that it is twice as likely to show an even number as an odd number when thrown. It is thrown twice. The probability that the sum of the numbers thrown is even is

1. $\frac{1}{3}$ 2. $\frac{4}{9}$ 3. $\frac{5}{9}$ 4. $\frac{6}{9}$

48. In a simultaneous throw of two dice, the probability of A or B, if A=a sum of 11 points; B=an odd number of points on each die

1. $\frac{2}{36}$ 2. $\frac{1}{4}$ 3. $\frac{11}{36}$ 4. $\frac{1}{36}$

49. Two dice are thrown. The probability that a multiple of 2 occurs on one die and a multiple of 3 on the other die

1. $\frac{1}{3}$ 2. $\frac{1}{6}$ 3. $\frac{11}{36}$ 4. $\frac{5}{36}$

50. Two dice are thrown. The probability of getting a sum of 7 points, if it is known that the two dice are showing different numbers is

1. $\frac{1}{6}$ 2. $\frac{1}{5}$ 3. $\frac{1}{4}$ 4. $\frac{1}{8}$

51. Two symmetrical dice are rolled. The probability that at least one of the two numbers is greater than 4 is

1. $\frac{4}{9}$ 2. $\frac{5}{9}$ 3. $\frac{7}{9}$ 4. $\frac{3}{9}$

52. Two symmetrical dice are rolled. If the numbers thrown up on them are different, the probability of getting an even number as the sum of the numbers is

1. $\frac{1}{5}$ 2. $\frac{2}{5}$ 3. $\frac{3}{5}$ 4. $\frac{4}{5}$

53. A symmetrical die is thrown 3 times and the sum of points thrown is found to be 15. The chance that the 1st throw was a four is

1. $\frac{1}{3}$ 2. $\frac{1}{4}$ 3. $\frac{1}{5}$ 4. $\frac{1}{6}$

54. A symmetrical die is thrown 3 times. It was found that the 1st throw was a 4. The probability that the sum of points on them is 15 is

1. $\frac{1}{2}$ 2. $\frac{1}{4}$ 3. $\frac{1}{18}$ 4. $\frac{1}{9}$

55. Three dice are rolled. If no two dice show the same face, the probability that one is an ace

1. $\frac{1}{4}$ 2. $\frac{1}{3}$ 3. $\frac{1}{2}$ 4. $\frac{1}{8}$

56. 3 six faced dice are rolled together. The probability that exactly two of the three numbers are equal

1. $\frac{1}{12}$ 2. $\frac{1}{4}$ 3. $\frac{5}{12}$ 4. $\frac{1}{6}$

57. Two persons each make a single throw with a die. The probability that they get a equal value is P_1. Four persons each make a single throw with a die and the probability of three being equal is P_2, then

1. $P_1 = P_2$ 2. $P_1 < P_2$ 3. $P_1 > P_2$ 4. $P_1 = 2P_2$

58. The chance of throwing a sum of 6 points with 4 dice is

1. $\frac{6}{6^4}$ 2. $\frac{10}{6^4}$ 3. $\frac{15}{6^4}$ 4. $\frac{5}{6^4}$

59. An ordinary die has four blank faces. One face marked 2, an other marked 3. Then the probability of obtaining a total of exactly 12 in 5 throws is

1. $\frac{15}{6^4}$ 2. $\frac{10}{6^4}$ 3. $\frac{5}{6^4}$ 4. $\frac{6}{6^4}$

60. A and B throw a symmetrical die each. The odds in favour of A not throwing a number greater than B is
1. 1 to 5 2. 5 to 1 3. 7 to 5 4. 5 to 7

61. If two dice are thrown simultaneously, the odds in favour of the event of getting a prime number on one of them and an even number on the other is
1. $\frac{13}{36}$ 2. $\frac{15}{36}$ 3. $\frac{17}{19}$ 4. $\frac{1}{2}$

62. When two dice are thrown one after an other, the chance that the number of points on the 1st is smaller than the number of points on the second is
1. $\frac{1}{2}$ 2. $\frac{7}{18}$ 3. $\frac{3}{4}$ 4. $\frac{5}{12}$

63. Two symmetrical dice are rolled once. The probability that both the dice will show 4 is p. The probability for the sum is 8 is q. Then p:q is
1. 4:5 2. 1:5 3. 5:1 4. 5:4

64. A symmetrical die is thrown 1st and secondly two symmetrical dice are thrown together. The probability that 1st throw was a face with 6 points upward & the second throw was a sum of 6 points
1. $\frac{1}{36}$ 2. $\frac{5}{36}$ 3. $\frac{5}{216}$ 4. $\frac{1}{216}$

65. Three faces of a fair die are yellow, two faces red and one blue. The die is thrown twice. The probability that 1st throw will give an yellow face and the second a blue face is
1. $\frac{1}{6}$ 2. $\frac{1}{9}$ 3. $\frac{1}{12}$ 4. $\frac{1}{3}$

66. Five cards are drawn at random from a well shuffled pack of 52 playing cards. The probability that four of them may have the same face value is
1. $\frac{{}^{13}c_1 \times {}^{4}c_1 \times {}^{48}c_1}{{}^{52}c_5}$ 2. $\frac{{}^{13}c_1 \times {}^{48}c_1}{{}^{52}c_5}$
3. $\frac{{}^{13}c_5}{{}^{52}c_5}$ 4. $\frac{{}^{13}c_4 \times {}^{4}c_1}{{}^{52}c_5}$

67. Six cards are drawn at random from a well shuffled pack of 52 playing cards. The probability that four of them may have the same face value is
1. $\frac{{}^{4}c_1 \times {}^{13}c_1 \times {}^{48}c_2}{{}^{52}c_6}$ 2. $\frac{{}^{13}c_1 \times {}^{48}c_2}{{}^{52}c_6}$
3. $\frac{{}^{4}c_1 \times {}^{13}c_1 \times {}^{48}c_2}{{}^{52}c_{13}}$ 4. $\frac{{}^{4}c_1 \times {}^{13}c_1}{{}^{52}c_{13}}$

68. A person draws a card from a well shuffled pack of 52 playing cards. Replaces it and shuffles the pack. He continues doing so until he draws a spade. The chance that he fails first two times is
1. $\frac{1}{16}$ 2. $\frac{9}{16}$ 3. $\frac{9}{64}$ 4. $\frac{9}{32}$

69. The probability of getting 9 cards of the same suit by a particular hand at a game of bridge is
1. $\frac{{}^{13}c_9}{{}^{52}c_{13}}$ 2. $\frac{{}^{13}c_9 \times {}^{39}c_4}{{}^{52}c_{13}}$
3. $\frac{{}^{4}c_1 \times {}^{13}c_9 \times {}^{39}c_4}{{}^{52}c_{13}}$ 4. $\frac{{}^{4}c_1 \times {}^{13}c_9}{{}^{52}c_{13}}$

70. The probability of getting 13 cards of the same suit by a particular hand at a game of bridge is
1. $\frac{{}^{13}c_{13}}{{}^{52}c_{13}}$ 2. $\frac{{}^{4}c_1}{{}^{52}c_{13}}$ 3. $\frac{{}^{4}c_1 \times {}^{13}c_{12}}{{}^{52}c_{13}}$ 4. $\frac{{}^{4}c_1 \times {}^{13}c_{11}}{{}^{52}c_{13}}$

71. In a hand at whist, the probability that 4 queens are held by a specified player is
1. $\frac{4 \times {}^{48}c_9}{{}^{52}c_{13}}$ 2. $\frac{{}^{48}c_9}{{}^{52}c_{13}}$ 3. $\frac{4 \times {}^{48}c_{13}}{{}^{52}c_{13}}$ 4. $\frac{2 \times {}^{48}c_{13}}{{}^{52}c_{13}}$

72. In a game of bridge, the probability of a particular player having all the 13 cards with different face values is
1. $\frac{13^4}{{}^{52}c_{13}}$ 2. $\frac{4^{13}}{{}^{52}c_{13}}$ 3. $\frac{\angle 13}{{}^{52}c_{13}}$ 4. $\frac{\angle 4}{{}^{52}c_{13}}$

73. In a game of bridge the probability of a particular player having only one ace is
1. $\frac{{}^{4}c_1}{{}^{52}c_{13}}$ 2. $\frac{{}^{4}c_1 \times {}^{48}c_{12}}{{}^{52}c_{13}}$ 3. $\frac{{}^{48}c_{12}}{{}^{52}c_{13}}$ 4. $\frac{{}^{52}c_{12}}{{}^{52}c_{13}}$

74. The probability that a particular hand of thirteen bridge cards selected at random contains exactly 2 red cards is
1. $\frac{{}^{26}c_2}{{}^{52}c_{13}}$ 2. $\frac{{}^{26}c_{11}}{{}^{52}c_{13}}$ 3. $\frac{{}^{26}c_2 \times {}^{26}c_{11}}{{}^{52}c_{13}}$ 4. $\frac{{}^{13}c_2}{{}^{52}c_{13}}$

75. In a hand at whist, the probability that 4 kings are held by a specified player is
1. $\frac{4 \times {}^{48}c_9}{{}^{52}c_{13}}$ 2. $\frac{{}^{48}c_9}{{}^{52}c_{13}}$ 3. $\frac{4 \times {}^{48}c_{13}}{{}^{52}c_{13}}$ 4. $\frac{{}^{48}c_{13}}{{}^{52}c_{13}}$

76. In a game of bridge, the player A has received two aces. The probability that his partner has not been dealt even one ace is
1. $\frac{{}^{48}c_{13}}{{}^{52}c_{13}}$ 2. $\frac{{}^{37}c_{13}}{{}^{52}c_{13}}$ 3. $\frac{{}^{37}c_{13}}{{}^{39}c_{13}}$ 4. $\frac{{}^{48}c_{13}}{{}^{39}c_{13}}$

77. In a game of bridge, the player A has received two aces. The probability that his partner has been dealt, exactly one ace is
1. $\frac{{}^{4}c_1 \times {}^{48}c_{12}}{{}^{52}c_{13}}$ 2. $\frac{{}^{2}c_1 \times {}^{48}c_{12}}{{}^{52}c_{13}}$
3. $\frac{{}^{2}c_1 \times {}^{37}c_{12}}{{}^{39}c_{13}}$ 4. $\frac{{}^{4}c_1 \times {}^{37}c_{12}}{{}^{39}c_{13}}$

78. In a game of bridge, the player A has received two aces. The probability that his partner has been dealt with the other two aces is
1. $\frac{{}^{2}c_2 \times {}^{48}c_{11}}{{}^{52}c_{13}}$ 2. $\frac{{}^{2}c_2 \times {}^{37}c_{11}}{{}^{39}c_{13}}$
3. $\frac{{}^{2}c_2 \times {}^{37}c_{11}}{{}^{52}c_{13}}$ 4. $\frac{{}^{2}c_2 \times {}^{48}c_{11}}{{}^{39}c_{13}}$

79. Two cards drawn one after another at random without replacement. The probability that both of them may have the same face value is
1. $\frac{1}{221}$ 2. $\frac{1}{169}$ 3. $\frac{1}{17}$ 4. $\frac{1}{19}$