INDIAN SCHOOL AL WADI AL KABIR

WORKSHEET 2025-26

CLASS XI PROBABILITY

Questions of 1 mark each

Q.1 In a leap year the probability of having 53 Sundays or 53 Mondays is:

A	$\frac{5}{7}$	**B**	$\frac{3}{7}$	C	$\frac{2}{7}$	**D**	$\frac{1}{7}$

Q.2 From 4 red flags, 2 white flags, and 4 black flags, four flags are selected at random. Let p be the probability of getting at least 2 red flags. Then $7p$ is:

A	$\frac{23}{6}$	**B**	$\frac{23}{7}$	C	$\frac{21}{7}$	**D**	$\frac{21}{6}$

Q.3 Three-digit numbers are formed using the digits 1,3,4,6,0. A number is chosen at random out of these numbers. What is the probability that this number has the same digits?

A	$\frac{1}{625}$	**B**	$\frac{1}{6}$	**C**	$\frac{2}{25}$	**D**	$\frac{1}{25}$

Q.4 Three squares of chess board are selected at random. The probability of getting 2 squares of one colour and other of a different colour is

A	$\frac{16}{22}$	**B**	$\frac{16}{21}$	**C**	$\frac{1}{8}$	**D**	$\frac{1}{22}$

Q.5 The probability of happening of an event A is 0.5 and that of B is 0.3. If A and B are mutually exclusive events then the probability of neither A nor B is

A	0.2	**B**	0.02	**C**	0.8	**D**	None of these

Q.6 From digits $\{0,2,4,5\}$, without repetition 4 -digit numbers are formed. Let p be the probability that a randomly chosen such number is even. Then $6p$.

A	$\frac{14}{9}$	**B**	$\frac{9}{22}$	**C**	$\frac{14}{3}$	**D**	$\frac{16}{22}$

Q.7 **Assertion (A)**: The probability of drawing a king card of red colour from a pack of 52 playing card is $\frac{1}{26}$.
Reason (R): Let E be an event associated with a random experiment. Then $P(E) + P(E') = 1$.

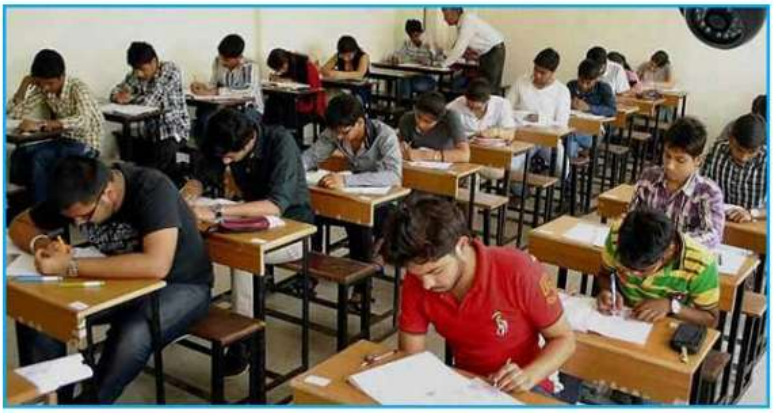
Questions of 2 mark each

Q.8 If the letters of the word **ALGORITHM** are arranged at random in a row what is the probability the letters **GOR** must remain together as a unit?

Q.9 Find the probability of at most two tails or at least two heads in a toss of three coins

Q.10 Out of 10 points in a plane 4 are collinear. Find the probability that 3 points selected at random form a triangle.

Questions of 3 marks each	
Q.11	Suppose an integer from 1 through 1000 is chosen at random, find the probability that the integer is a multiple of 2 or a multiple of 9.
Q.12	In a class of 60 students, 30 drinks coffee, 32 drinks tea and 24 drinks both. If one of these students is selected at random, find the probability that (i) The student drinks either tea or coffee. (ii) The student drinks neither. (iii) The student drinks tea but not coffee.
Q.13	A school assigns roll numbers as a string of exactly 4 characters. Each character can be one of the 26 letters from alphabet or one of the ten digits. All such roll numbers are equally likely. If one roll number is chosen at random, what is the probability that it contains at least one repeated character?
Q.14	2 cards are drawn form a well-shuffled deck of 52 cards. Find the probability of getting (i) A king of red colour and a king of black colour (ii) At least one jack
Q.15	Two dice are thrown together. Find the probability of getting a total of at least 6.
Q.16	If A, B and C are three mutually exclusive and exhaustive events of an experiment such that $3P(A) = 2P(B) = P(C)$, then find the value of P(A).
Q.17	In a contest, the probability that contestant X will win the "Creativity" prize is 0.55, the probability that she will win the "Innovation" prize is 0.42, and the probability that she will win both is 0.18. What is the probability that: (i) she will win at least one of the two prizes; (ii) she will win exactly one of the prizes.
Questions of 5 marks each	
Q.18	If 4-digit numbers greater than 6000 are randomly formed from the digits 0, 1, 5, 7 and 8 then what is the probability of forming a number divisible by 5 when (i) the digits are repeated? (ii) the repetition of digits is not allowed?
Q.19	From a group of 15 students (9 boys and 6 girls), a committee of 5 students is chosen at random. Find the probability that the committee contains: (i) Exactly 2 boys (ii) At least 2 boys (iii) At most 2 boys
CASE STUDY QUESTION (4 MARK)	
Q.20	Two students, Anil and Vijay, appeared in a highly competitive examination. Anil has been preparing part-time while managing a job, which has left him with limited preparation time. On the other hand, Vijay, though dedicated, has struggled with certain key concepts. Based on their preparation and past performance, the probability that Anil will qualify the examination is estimated to be 0.05, and the probability that Vijay will qualify is estimated at 0.10. Additionally, the probability that both students will qualify together, due to their independent preparation and individual strengths, is calculated as 0.02.



(i) Find the probability that at least one of them will qualify the exam.

(ii) Find the probability that at least one of them will not qualify the exam.

(iii)(a) Find the probability that both Anil and Vijay will not qualify the exam.

OR

(b) Find the probability that only one of them will qualify the exam.

ANSWER KEY

Q.1	**B)** $\frac{3}{7}$	**Q.2**	**A)** $\frac{23}{6}$	**Q.3**	$D)\ \frac{1}{25}$
Q.4	$B)\ \frac{16}{21}$	**Q.5**	A) 0.2	**Q.6**	C) $\frac{14}{3}$
Q.7	A and R are true but R is not the correct explanation of A	**Q.8**	$\frac{1}{72}$ [Hint: $\frac{7!}{9!}$]	**Q.9**	$\frac{7}{8}$ [Hint: $P(A \cup B)$]
Q.10	$\frac{29}{30}$ [Hint: $\frac{\binom{10}{3}-\binom{4}{3}}{\binom{10}{3}}$]	**Q.11**	Multiples of 2: $\lfloor 1000/2 \rfloor = 500$ Multiples of 9: $\lfloor 1000/9 \rfloor = 111$ Multiples of 18 (both): $\lfloor 1000/18 \rfloor = 55$ $n(A \cup B) = n(A) + n(B) - n(A \cap B)$ $500 + 111 - 55 = 556$ $P = \frac{556}{1000} = \frac{139}{250}$ $\frac{139}{250}$		
Q.12	(i) $\frac{19}{30}$ $[P(C \cup T) = P(C) + P(T) - P(C \cap T)]$ (ii) $\frac{11}{30}$ $[P((C \cup T)^c) = 1 - P(C \cup T)]$ (iii) $\frac{2}{15}$ $[P(T \setminus C) = P(T) - P(C \cap T)]$	**Q.13**	$\frac{1231}{7776}\left[\text{ Hint: } 1 - \frac{36 \times 35 \times 34 \times 33}{(36)^4}\right]$		

Q.14	(i) $\frac{2}{663}\left[\frac{{}^{2}C_1 \cdot {}^{2}C_1}{{}^{52}C_2}\right]$ (ii) $\frac{33}{221}\left[1-\frac{{}^{48}C_2}{{}^{52}C_2}\right]$	**Q.15**	$1-P(\text{sum}<6)=1-\frac{10}{36}=\frac{13}{18}$.	**Q.16**	$\frac{2}{11}\left[\begin{array}{r}\text{Hint :Let } P(C)=x \\ \frac{x}{3}+\frac{x}{2}+x=1\end{array}\right]$
Q.17	(i) 0.79 $[P(C \cup I)=P(C)+P(I)-P(C \cap I)]$ (ii) 0.61 $[P(\text{ exactly one })=P(C \cup I)-P(C \cap I)]$	**Q.18**	(i) $\frac{2}{5}$ [With repetition: total 250, favorable 100] (ii) $\frac{1}{2}$ [Without repetition: total 48, favorable 24]		
Q.19	(i) $\frac{240}{1001}\left[\frac{{}^{9}C_2 \cdot {}^{6}C_3}{{}^{15}C_5}\right]$ (ii) $\frac{954}{1001}\left[\frac{{}^{9}C_2 \cdot {}^{6}C_3+{}^{9}C_3 \cdot {}^{6}C_2+{}^{9}C_4 \cdot {}^{6}C_1+{}^{9}C_5 \cdot {}^{6}C_0}{{}^{15}C_5}\right]$ (iii) $\frac{287}{1001}\left[\frac{{}^{9}C_0 \cdot {}^{6}C_5+{}^{9}C_1 \cdot {}^{6}C_4+{}^{9}C_2 \cdot {}^{6}C_3}{{}^{15}C_5}\right]$				
Q.20	(i) $P(A \cup B)=P(A)+P(B)-P(A \cap B)=0.05+0.10-0.02=0.13$ (ii) $P(A' \cup B')=P((A \cap B)')=1-P(A \cap B)=1-0.02=0.98$ (iii) (a) $P(A' \cap B')=P((A \cup B)')=1-P(A \cup B)=1-0.13=0.87$ (b) $=P((A-B) \cup (B-A))=P(A-B)+P(B-A)=P(A \cup B)-P(A \cap B)=0.13-0.02=0.11$				