	RSA set1 Sept 20	
1	If A = {1,2,3,4} and B = {3,4,5,6} then A U B is given as {3,4} **{1,2,3,4,5,6}** {1,2} {5,6}	1
2	If two coins are tossed then the sample space is given as {HH, TT} {TH, TT} {HH, HT} {HH, HT, TH, TT}	1
3	Which of the following is not the Axiom of Probability? For any event A, P(A)≥0 Probability of the sample space S is P(S)=1. **Probability of the sample space S is P(S)<1.** If A1, A2, A3, ⋯ are disjoint events, then P(A1UA2UA3 ⋯)=P(A1)+P(A2)+P(A3)+⋯	1
4	If A and B are two events in a sample space S then probability of the joint event AB is given as **P(AB) = P(A)P(B/A)** P(AB) = P(B)P(B/A) P(AB) = P(A)P(2B) P(AB) = P(A)P(B/AB)	2
5	If A1, A2, A3, ⋯ is a partition of the sample space S, then as per Total Probability Theorem, for any event B we have P(B) = $\sum_i P(Ai).P(B/Ai)$ P(B) = $\sum_i P(Ai).P(Bi/A)$ P(B) = $\sum_i P(Ai).P(B.Ai)$ P(B) = $\sum_i P(Ai).P(B+Ai)$	1
6	If A1, A2, A3, ⋯ form a partition of the sample space S, and B is any event with P(A)≠0, then as per Baye's Theorem we have **P(Ai/B)** = $\frac{\boldsymbol{P(Ai).P(B/Ai)}}{\sum_i \boldsymbol{P(Ai).P(B/Ai)}}$ P(Ai/B) = $\frac{P(A/Bi)}{\sum_i P(Bi).P(A/Bi)}$ P(Ai/B) = $\frac{P(Bi)}{\sum_i P(Bi).P(A/Bi)}$ P(Ai/B) = $\frac{P(Bi)+P(A/Bi)}{\sum_i P(Bi).P(A/Bi)}$	1
7	If X is random variable representing the number of heads when three coins are tossed, what is the range of X X = {1, 2, 3, 4} **X = {0, 1, 2, 3}** X = {0, 1, 2} X = {0, 1, 2, 3, 4}	2
8	The full form of 'Pdf 'of random variable is **Probability Density Function** Probability Distribution Function Possibility Density Function Possibility Distribution Function	1

9	If random variable X= {0,1,2,3,4} and P(X) = {0.2, 0.2, 0.2, 0.2, 0.2, 0.2} what is the value of CDF at x=2, $F_X(x=3)$ 0.6 **0.8** 0.5 0.4	2
10	If random variable X= {0,1,2,3,4} and P(X) = {0.2, 0.2, 0.2, 0.2, 0.2, 0.2} what is the value of pdf at x=2, $f_X(x=3)$ 0.3 **0.2** 0.1 0	2
11	As per the property of pdf, the value of the pdf at any point is always _____ **Equal to or greater than zero** Equal to or greater than one Less than zero Less than qual to zero	1
12	The joint probability distribution of random variable X and Y is defined as $F_{X,Y}(x, y) = P(X \leq x, Y \leq y)$ $F_{X,Y}(x, y) = P(X \leq x).P(Y \leq y)$ $F_{X,Y}(x, y) = P(X \leq x)/P(Y \leq y)$ $F_{X,Y}(x, y) = P(X \leq x)+P(Y \leq y)$	1
13	If X = {0, 1, 2, 3} and P(X) = {0.2, 0.3, 0.3, 0.2} Find $P(1.5 < X < 3.5)$ 0.2 0.3 **0.5** 0	2
14	If X = {0, 1, 2, 3} and P(X) = {0.2, 0.3, 0.3, 0.2} Find $P[(0.5 < X < 2.5)/(1.5 < X < 3.5)]$ 0.2 0.3 **0.6** 0	2
15	If random variable Y = {0, -1, 2, -3} then E[X] will be 1.5 1 **-0.5** 2	2
16	If random variable X = {0, -1, 2, -3} then variance will be **3.25** 1 0.5 2	2
17	If random variable X = {0, 1, 2, 3} then standard deviation will be **1.18** 1 0.5 2	2
18	E[X - Y] equals E[X] + E[Y] **E[X] - E[Y]** E[X] . E[Y]	2

	E[X] / E[Y]	
19	If X and Y are independent random variables then **f(xy) = f(x).f(y)** f(xy) = f(x) + f(y) f(xy) = f(x) - f(y) f(xy) = f(x) / f(y)	2
20	Variance of random variable can be calculated as Var(X) = E[(X – E[X])^2] Var(X) = E[(X + E[X])^2] Var(X) = E[(X / E[X])^2] Var(X) = E[(X . E[X])^2]	1
21	Var[5X + 4] equals **25 Var[X]** **5** Var[X] 16 Var[X] 4 Var [X]	2
22	Let X be a random variable with probability distribution function f (x) = 0.2 for |x|<1 = 0.1 for 1 < |x| < 4 = 0 otherwise The probability P (0.5 < x < 5) is _____ 0.3 0.5 **0.4** 0.8	2
23	If E(X) = 2 and E(Y) = 4, then E(X– Y) =? **-2** 6 0 2	2
24	In a shooting test, the probability of hitting the target is 1/2 for A, 2/3 for B and 3/4 for C. If all of them fire at the target. Find the probability that at least one of them hits the target **0.95833** 0.45833 0.75833 0.85833	2
25	A lot consist of 10 good articles, 4 articles with minor defect and 2 with major defect. 2 articles are drawn from the lot at random without replacement. Find the probability that both are good articles **3/8** 4/8 5/8 6/8	2
26	The pdf of random variable is given as f(x) = 1/3 ….. 3 ≤ x ≤ 6 find the average value of random variable X **4.5** 1.5 2.5 3.5	2

27	The n th order moment of the random variable X is defined as $E[X^n]$ E[nX] E[X/n] E[X+n]	1
28	The relation between Moment generating function and pdf of random variable is of **Laplace Transform** Z Transform Fourier Transform Cosine Transform	1
29	Given two random variables X and Y, the marginal CDF of X can be calculated from the joint probability distribution of X,Y as $P(X \leq x, Y \leq \infty)$ **$P(X \leq \infty, Y \leq y)$** $P(X \leq \infty, Y \leq \infty)$ $P(X \leq x, Y \leq y)$	1
30	Random Process is defined as the rule that assigns _____ to the outcome of random experiment **Time function** Number Alphabet Letter	1
31	In random variable, _____ Time parameter time t is variable and parameter sample space S is variable **Time parameter time t is fixed and parameter sample space S is variable** Time parameter time t is variable and parameter sample space S is v fixed Time parameter time t is fixed and parameter sample space S is fixed	1
32	In Ergodic process, Ensemble averages and time averages are **Equal** Ensemble averages less time averages Ensemble averages greater time averages Not related	1
33	In Markov chains, future values depend on Future values Present values only Past values only **Present and past values**	1