## NATIONAL MANAGEMENT COLLEGE, THUDUPATHI.

## PAPER - 3: BUSINESS MATHEMATICS, LOGICAL REASONING AND STATISTICS

Time Allowed : 1 hour	Maximum Marks: 50
DATE – 27.01.23	

ANSWER ALL.

**1.** A representative value of the class interval for the calculation of mean, standard deviation, mean deviation etc is

	(a) class int	erval (b)class lir	nit (c)class n	nark (d)none				
2.	Relative frequencies add up to:							
	(a) Total frequency	(b) 100	(c) 1	(d) cannot be determi	ned.			
3.	For a moderately s	kewed distribution,	ed distribution, which of the following relationship holds					
	(a) Mean - Mode =	3 (Mean - Median)	(c) Media	n - Mode = 3 (Mean- Media	n)			
	(b) Mean - Median	= 3 (Mean - Mode)	(d) Mean	- Median = 3 (Median - Moo	de)			
4.	"The H.M., A.M. ar	nd G.M. of a set of 2	observations are 10	.2, 16 and 14 respectively".				
	This statement is							
	(a) True	(b) False	(c) Both (a	a) & (b) (d) None of the	ese			
5.	The chance of gett	ing 7 or 11 in a throw	v of 2 dice is:					
	(a) 7/9	(b) 5/9	(c) 2/9	(d) None of the	ese			
6.	If the probability o	f a horse A winning a	se A winning a race is 1/6 and the probability of a horse B winni					
	(a) 5/12	(b) 7/12	(c) 1/12	(d)None of the	se			
7.	. Which measure of dispersion is based on all the observations?							
	(a) Mean deviation	I	(b) Standard devi	ation				
	(c) Quartile deviati	on	(d) (a) and (b) bu	ut not (c)				
8.	Tom speaks truth i	n 30 percent cases a	nd Dick speaks truth	n in 25 percent cases. What	is the			
	probability that the	ey would contradict	each other :					
	(a) 0.325	(b) 0.400	(c) 0.925	(d) 0.075				
۵	In Histogram if the	classes are of upequ	ial width then the h	eights of the				

**9.** In Histogram if the classes are of unequal width then the heights of the rectangles must be proportional to the frequency densities.

(a) True		(	b)false	(c	)both	(d)none			
10. An urn contains 4 re	d and 6	green balls	s, another u	irn contain	s 2 red and	d 5 green balls. An urn			
was selected at rand	was selected at random and then a ball was drawn from it. If it was found to be red then the								
probability that it ha	probability that it has been drawn from first urn is								
(a) 7/12	(t	o) 3/7	(	c) 2/3		(d) None of these			
<b>11.</b> The probability that	a studer	nt passes ii	n statistics t	test is 2/3 a	and the pro	obability that he			
passes both statistic	s and m	athematics	s test is 14/	45. The pro	bability th	nat he passes at least			
one test is 4/5. Wha	t is the p	probability	that he pas	sses in Mat	hematics?				
(a) 4/9	(t	o) 3/5	(	c)1/5		(d) 1/10			
<b>12.</b> There were 50 stude	ents in a	class. 10 fa	ailed whose	e average m	narks were	e 2.5. The total marks			
of class were 281.Fir	of class were 281. Find the average marks of students who passed?								
(a) 6.4	(t	o) 25	(	c) 256		(d) 86			
<b>13.</b> There are 6 positive	and 8 ne	egative nu	mbers. Fou	r numbers	are selecte	ed at random without			
replacement and mu	ultiplied.	Find the p	probability t	hat the pro	oduct is po	ositive			
(a) 420/1001	(t	o) 409/100	1 (	c) 70/1001		(d) 505/1001			
14. Frequency Distribution of weights of 16 students									
	C.I	44-48	49-53	54-58	Total				
	F	4	5	7	16				
Find width of class interval for the 2 <sup>nd</sup> class interval									

(a) 4 (b) 5 (c) 46 (d) 48

**15.** Find Q.D of the following data:

	Х	2	3	4	5	6	
	F	3	4	8	4	1	
(a) 1/4	(b) 1/	2		(c)	1		(d) 0

16. Histogram is useful to determine graphically the value of

(a) Arithmetic mean (b) Mode (c) Median (d) None of

the above

<b>17.</b> Data are said to be	if the	e inv	vestiga	tor hin	nself is r	esponsib	le for the collection of the
data.							
(a) Primary data	(b) Se	cond	dary Da	ata			
(c) a (or) b	(d) No	ne o	of the a	bove			
<b>18.</b> Which of the following is	s position	nal a	verage	?			
(a) Median	(b) GN	1		(	c) HM	(d)	AM
19. If in a moderately skewe	ed distrib	utio	n the v	alues	of mode	e and mea	an are 32.1 and 35.4
respectively, then the va	alue of th	e me	edian i	s			
(a) 33.3		(b)	) 34		(0	c) 34.3	(d) 33
<b>20.</b> If the variance of 5, 7, 9	and 11 is	4, t	hen th	e coeff	ficient o	f variatio	n is
(a) 25	(b) 15				(c) 17		(d) 19
<b>21.</b> A coin is tossed six times	s, then th	e pr	obabil	ity of c	btainin	g heads a	nd tails alternatively is
(a)1/2	(b) 1/3	32			(0	c) 1/64	(d)
1/16							
22. SD of first five consecuti	ve natura	al nu	mbers	is			
$(a)\sqrt{10}$	(b) √8			(	c) √3		(d) $\sqrt{2}$
23. 1 <sup>st</sup> quartile is 142, Semi-	Inter qua	rtile	e range	is 18.	Then m	edian is	
(a)151		(b)	160		(0	c) 178	(d)
None of these							
<b>24.</b> If the mean of the follow	ving distri	ibut	ion is 6	5 then	the valu	ie of P is	
	Х	2	4	6	10	P+5	
	Y	3	2	3	1	2	
(a) 7		(b)	5		(	c) 11	(d) 8
25 series is con	ntinuous.						
(a) Open ended	(b) E	Exclu	usive	(	c) Close	ended	(d) Unequal call
intervals							

The curve obtained by joining the points , whose x coordinates are the upper limits of the class-intervals and y coordinates are corresponding cumulative frequencies is called

27) Sum of the squares of deviations is minimum when deviations are taken from

(a) Mean (b) Median (c) Mode (d) An arbitrary value

28) Measures of central tendency are known as

(a)differences (b)averages (c)both (d) none

29) (Q 3 – Q1)/(Q 3 + Q1) is

(a) coefficient of Quartile Deviation (b) coefficient of Mean Deviation

(c) coefficient of Standard deviation (d)none

30) Data collected on religion from the census reports are:

- (a)Primary data (b)Secondary data
- (c) Sample data (d) (a) or (b)

31) ) In continuous probability distribution F(x) is called

- a. Frequency distribution function
- b. Cumulative distribution function
- c. Probability density function
- d. None

32) ) If X follows normal distribution with  $\mu$  = 50 and  $\sigma$  = 10 , what is the value of P(x ≤ 60 / x > 50) ?

a) 0.8413 b) 0.6828 c) 0.1587 d) 0.7256

33) If the two quartiles of N( $\mu$ ,  $\sigma^2$ ) are 14.6 and 25.4 respectively, what is the standard deviation of the distribution ?

a) 9 b)6 c)10 d)8

34) the total area of the normal curve is

- a. One
- b. 50 percent
- c. 0.50
- d. Any value between 0 and 1

35 what is the probability that a leap year selected at random would contain 53 Saturdays ?

A)1/7 B)2/7 C)1/12 D)1/4

36) ) Most of the commonly used frequency curves are

(a) Mixed		(b) Inverted J-shaped					
(c) U-shaped		(d) Bell-shaped					
37) If every observatio (a) SD increa (c) QD increa	on is increased by 5 then ase by 5 ases by 5	: (b) (d)	MD increased by 5 None affected				
38) The mean of a dis coefficient of variatio	tribution is 14 and the st n?	andard devia	tion is 5. What is the val	lue of the			
(a) 60.4%		(b)	70%				
(c) 35.7%		(d)	27.8%				
39) Sum of the squares	of deviations is minimur	n when devia	tions are taken from				
(a) Mean		(b)	Median				
(c) Mode		(d)	An arbitrary value				
completion of operation returned to the base at a speed of 35 kmph. The average speed per hour in per direction is obtained as Speed.							
(a) Avg. of	(b) HM of	(c) GM of	(d) Half of				
41) ) If the events A and	Bare mutually exclusive	e then					
(A) P (A + B) = P (A) + P	(B) (B) P (A	. + B) = P (A) –	Р (В)				
(C) P (A + B) = P (A) P (B	) (D) P (A	(+ B) = 0					
42) When of the following is uni-parametric distribution?							
(a) Normal	(b) Poisson	(c) Binomial	(d) Hyper g	eometric			
43) ) If the probability of solving a problem by two students George and James are $1/2$ and $1/3$ respectively then what is the probability of the problem to be solved.							
a)2/3	b)1/3	c)1	d)1/2				
44) ) All possible outcomes of a random experiment forms the							
a)Sample space	b)Events	c)Both	d)None of	these			

45) If X and Y are two independent variables such that $X \sim B(n1, p)$ and $Y \sim B(n2, p)$ then the parameter of $Z = X + Y$ are:								
(a) $(n1 + n2, p)$	) (b) (n)	l - n2, p)	(c) (n1 + n2, 2/p)	(d) None of these				
46) If x and y are related as $3x+4y=20$ and the Q.D of x is 12. Then the Q.D of y is								
a)16	b)14	c)10	d)9					
47) . Normal Distribution is also known as								
a) Cauchy's Dis	stribution		b) Laplacian Distribution					
c) Gaussian Dis	stribution		d) Lagrangian Distribution					
48) . For a Poisson variate X, P (X = 1) = P (X = 2). What is the mean of X?								
(a) 1.00. (b) 1.50.			(c) 2.00.	(d) 2.50.				
49) Binomial distribution is symmetrical if								
(a) p > q (b) p < q			(c) p = q	(d) none				
50) . For a event A which is certain, P (A) is equal to								
(a) 1	(b) 0	(c) –1	(d) none					