FOUNDATION EXAMINATION **SET 1**

MODEL QUESTION PAPER **TERM DEC-2025**

PAPER – 3 **SYLLABUS - 2022**

FUNDAMENTALS OF BUSINESS MATHEMATICS AND STATISTICS

Time Allowed: 1 Hour Full Marks: 100

Answer all questions. Each question carries 2 marks.

1.	If Q: W = 2:3, W:T = 4:5 and T: Y = 6:7, find Q: Y.		
	(a)	35: 51	O
	(b)	16: 35	O
	(c)	16: 51	O
	(d)	35: 51	O
2.	Find the fourth proportional to 6, 8, 9 is _____.		
	(a)	18	O
	(b)	12	O
	(c)	7	O
	(d)	13	O
3.	If $A \propto \frac{1}{B}$ and A = 7 when B = 3, then when B = $2\frac{1}{3}$, A is _____.		
	(a)	$\frac{3}{7}$	O
	(b)	3	O
	(c)	9	O
	(d)	1	O
4.	Using the properties of proportion, solve the following equation for y, given $\frac{341}{91} = \frac{y^3+3y}{3y^2+1}$		
	(a)	14	O
	(b)	11	O
	(c)	12	O
	(d)	10	O

5.	If 4, 6, p, 27, q is in continued proportion, find the values of p and q.		
	(a)	p = 9, q= 9	O
	(b)	p = 9, q= 81	O
	(c)	p = 81, q= 9	O
	(d)	p = 81, q = 81	O
6.	Find the next 5 terms for the series: 2, -4, 8, -16, 32		
	(a)	-64, 128, -256, 512, -1024	O
	(b)	64, -128, 256, -512, 1024	O
	(c)	64, 128, 256, 512, 1024	O
	(d)	-64, -128, -256, -512, -1024	O
7.	. Accumulated series of deposits as future sum money is classified as –		
	(a)	Annuity Fund	O
	(b)	Sinking Fund	O
	(c)	Marginal Fund	O
	(d)	Nominal Fund	O
8.	A sum of money double itself at 7% p.a. compound interest in _____.		
	(a)	10.27 years	O
	(b)	10.00 years	O
	(c)	12.07 years	O
	(d)	12.00 years	O
9.	Which one of the following is Discriminant of a quadratic equation?		
	(a)	$-b+b^2-4ac$	O
	(b)	$-b-b^2-4ac$	O
	(c)	b^2-4ac	O
	(d)	$\sqrt{b^2+4ac}$	O
10.	If b^2 – 4ac > 0, is a perfect square, the nature of roots would be _____.		
	(a)	Real and Equal	O

	(b)	Imaginary	O
	(c)	Unreal	O
	(d)	Real and Unequal	O
11.	In how many ways can 4 different cars, one of each of the 4 manufacturers, be parked in a parking lane?		
	(a)	20 ways	O
	(b)	22 ways	O
	(c)	24 ways	O
	(d)	26 ways	O
12.	Find the number of permutations for 11 bikes if 5 bikes are to be taken at a time.		
	(a)	54540	O
	(b)	55440	O
	(c)	44550	O
	(d)	45450	O
13.	Determine the number of ways in which a digit and a vowel can be selected from 10 digits and 26 letters of Alphabet?		
	(a)	50	O
	(b)	210	O
	(c)	105	O
	(d)	None of the Above	O
14.	Find the logarithm of 125 to the base $5\sqrt{5}$		
	(a)	6	O
	(b)	4	O
	(c)	3	O
	(d)	2	O

15.	State True or False: $\log_2 10 + \log_8 125 = 1$		
	(a)	Not possible	O
	(b)	True	O
	(c)	May be true	O
	(d)	None of the above	O
16.	Find t when $\log_t 3125 = 5$		
	(a)	5	O
	(b)	125	O
	(c)	25	O
	(d)	625	O
17.	What will be the value of $9^6 \times 9^{-4} \times 9^2 \times 9^3 \times 9^6$?		
	(a)	9^{13}	O
	(b)	9^{21}	O
	(c)	Both 'a' and 'b'	O
	(d)	None of the above	O
18.	Find the square of the difference of the roots of $115+5(x^2-12x) = 0$		
	(a)	24	O
	(b)	48	O
	(c)	26	O
	(d)	52	O
19.	A tin manufacturer has a revenue function given by: $R=11Q^2 - 110Q + 70$ and the cost function is given by: C = 22Q. Find the number of tins to be produced by the manufacturer.		
	(a)	2	O
	(b)	6	O
	(c)	10	O
	(d)	14	O

20.	$\frac{x^2}{16}+\frac{y^2}{4}=1$ is an Implicit function. The derivative of this function is ——		
	(a)	$\frac{x}{4y}$	O
	(b)	$-\frac{x}{4y}$	O
	(c)	$\frac{x}{2y}$	O
	(d)	$-\frac{x}{2y}$	O
21.	Raw data is _____.		
	(a)	Information which can be interpreted to take decision	O
	(b)	Information which can't be put to use directly	O
	(c)	Information which is not amenable to conversion	O
	(d)	Information which are useless	O
22.	Tabulation Condenses classified data so that _____.		
	(a)	Data may be more easily understood	O
	(b)	Data may be easily presented textually	O
	(c)	Data may be more easily synchronized	O
	(d)	More comprehensive secondary result could be obtained	O
23.	Which one of the following is a characteristic of a good classification?		
	(a)	Classification should be heterogeneous	O
	(b)	Classified groups must have overlapping data	O
	(c)	Classification should be stable	O
	(d)	Classification should not be inclusive	O
24.	Because of heavy rain on Sunday average rainfall of a city for the week increased to 0.6 inch from the average rainfall 0.3 inch measured from Monday to Saturday. The rainfall on Sunday was-		

	(a)	2.4 inch	O
	(b)	0.3 inch	O
	(c)	2.1 inch	O
	(d)	1.5 inch	O
25.	The pass result of 50 students who took up a class test is given below: Marks — No of Students 4 — 8 5 — 10 6 — 9 7 — 6 8 — 4 9 — 3 If the average marks for all the fifty students were 5.16, the average marks of the students who failed is _____.		
	(a)	0.42	O
	(b)	3.06	O
	(c)	4.74	O
	(d)	2.1	O
26.	The mean of a certain number of items is 42. If one more item 64 is added to the data, the mean becomes 44. The no of items in the original data is _____.		
	(a)	20	O
	(b)	10	O
	(c)	43	O
	(d)	440	O
27.	Which one of the following is not a feature of Arithmetic Mean (AM)?		
	(a)	AM is affected very much by extreme values;	O
	(b)	AM is widely used in the study of qualitative phenomenon;	O
	(c)	AM provides a good basis for comparison;	O
	(d)	AM is rigidly defined so different interpretation by different people are not possible;	O

28.	For a certain frequency table which has only been partly reproduced below for which the mean is 1.46 No of accidents — Frequency 0 — 46 1 — f_1 2 — f_2 3 — 25 4 — 10 5 — 5 If Σ f = 200 Unknown frequencies are		
	(a)	$f_1 = 0$, $f_2 = 114$;	O
	(b)	$f_1 = = 114$, $f_2 = 0$;	O
	(c)	$f_1 = = 76$, $f_2 = 38$;	O
	(d)	$f_1 = = 57$, $f_2 = 57$;	O
29.	$\sum_{x=1}^{20} x$ =54120; While computing this, it was observed that two entries were wrongly entered as 850 and 320 instead of 580 and 230. Correct value of x is _____.		
	(a)	2688;	O
	(b)	2746.5;	O
	(c)	2720;	O
	(d)	2662	O
30.	Which one of the following is a Positional Average?		
	(a)	Geometric Mean;	O
	(b)	Harmonic Mean;	O
	(c)	Mode;	O
	(d)	Progressive Average	O
31.	If b_{xy} and b_{yx} are regression coefficients of series X on series Y and regression coefficients of series Y on series X respectively then which one of the following is correct?		

	(a)	b_{xy} and b_{yx} will be either both positive or both negative	O
	(b)	b_{xy} will be positive and b_{yx} will be negative	O
	(c)	b_{xy} will be negative and b_{yx} will be positive	O
	(d)	Nothing can be said like this, it depends on X & Y values	O
32.	If = r = 0.52, $\sigma_X = 4.6$ & $\sigma_Y = 36.8$ then b_{XY} is equal to:		
	(a)	0.24	O
	(b)	4.16	O
	(c)	1	O
	(d)	0.065	O
33.	X = 1.36Y – 5.2 & Y = 0.61X + 1.51 are two regression equations. Correlation coefficient between X & Y is:		
	(a)	– 0.67	O
	(b)	– 0.911	O
	(c)	0.911	O
	(d)	0.67	O
34.	Consider the following results: N = 12, Σdx = 0, Σdy = 4, Σdx2 = 1344, Σdy2 = 215, Σdxdy = – 4360 Appropriate regression coefficient of y on x is -		
	(a)	-0.821	O
	(b)	1	O
	(c)	5.67	O
	(d)	-3.244	O
35.	Consider the following results: N = 6, $\Sigma y = 42$, $\Sigma y^2 = 318$, $b_{yx} = -\frac{11}{34}$, $\Sigma x^2 - \frac{1}{n}(\Sigma x)^2 = 34$ Then b_{xy} is		

	(a)	$-\frac{11}{34}$	O
	(b)	$\frac{11}{24}$	O
	(c)	$-\frac{34}{11}$	O
	(d)	$-\frac{11}{24}$	O
36.	If b_{xy} & b_{yx} are regression coefficients between X on Y and Y on X respectively and r is the correlation coefficient between X and Y, then:		
	(a)	$(b_{xy}+b_{yx})/2 \leq r$	O
	(b)	$(b_{xy}+b_{yx})/)/2 \leq r^2$	O
	(c)	$(b_{xy}+b_{yx})/2 \geq r$	O
	(d)	$(b_{xy}+b_{yx})/2 \geq r^2$	O
37.	In a regression equation:		
	(a)	Regression coefficient represents the increment in the value of the independent variable for a unit change in the value of the dependent variable	O
	(b)	Regression coefficient represents the increment in the value of the dependent variable for a unit change in the value of the independent variable	O
	(c)	Regression coefficient represents the mean value of the independent variable for a unit change in the value of the dependent variable	O
	(d)	Regression coefficient represents the mean value of the dependent variable for a unit change in the value of the independent variable	O
38.	In a bivariate regression analysis $\Sigma XY = 1355.25$, $(\Sigma X)(\Sigma Y) = 6396$, $\Sigma X^2 = 591.50$ & $\Sigma X = 52$. If there are 5 items, then b_{yx} is _____.		
	(a)	1	O
	(b)	0.97	O
	(c)	0.667	O
	(d)	1.5	O

39.	If P (A) = 0.3, P(B) = 0.2 and P (C) = 0.1, then assuming A, B and C are independent events, the probability of occurrence of at least one of the three events is:		
	(a)	0.7	O
	(b)	0.8	O
	(c)	0.006	O
	(d)	0.496	O
40.	In IPL Kolkata Knight Riders plays 70% of their games at night (8 O'clock slot) and 30% during the day (4 O clock slot). The team wins 50% of their night games and 90% of their day games. According to today's newspaper they own yesterday. The probability that the game was played at night is:		
	(a)	0.4667	O
	(b)	0.5645	O
	(c)	0.35	O
	(d)	0.5	O
41.	If p: q are the odds in favour of an event, then the probability of that event is :		
	(a)	p/q	O
	(b)	p/ (p + q)	O
	(c)	q/ (p + q)	O
	(d)	None of these	O
42.	4 coins are tossed. The probability that there are 2 heads is :		
	(a)	1/2	O
	(b)	3/8	O
	(c)	1/8	O
	(d)	None of these	O
43.	A bag contains 10 red and 10 green balls. A ball is drawn from it. The probability that it will be green is:		
	(a)	1/10	O
	(b)	1/3	O

	(c)	1/2	O
	(d)	None of these	O
44.	Probability of throwing an even number with an ordinary six faced die is:		
	(a)	1/2	O
	(b)	1	O
	(c)	0	O
	(d)	-1/2	O
45.	A bag contains 30 balls numbered from 1 to 30. One ball is drawn at random. The probability that the number of the drawn ball will be multiple of 3 or 7 is :		
	(a)	7/15	O
	(b)	13/30	O
	(c)	1/2	O
	(d)	None of these	O
46.	Consider the following series of observation: Year 1 2 3 4 5 6 7 8 9 10 11 Sales (₹) 2 6 1 5 3 7 2 6 4 8 3 4-year centred moving average against year 6 is _____.		
	(a)	5.125	O
	(b)	3.875	O
	(c)	3.625	O
	(d)	4.375	O
47.	From the following series find out a three-year weighted moving average against year 4 with weights 1,4,1 is: Year 1 2 3 4 5 6 7 Values 12 14 15 17 18 20 23		
	(a)	20.17	O
	(b)	16.83	O

	(c)	18.17	O
	(d)	15.17	O
48.	From the following data the four year centred moving average against year 6 Year 1 2 3 4 5 6 7 8 9 Sales (₹) 36 43 43 34 44 54 34 24 14		
	(a)	40.25	O
	(b)	40.625	O
	(c)	35.25	O
	(d)	40	O
49.	From the following four year centered moving average against year 4 is Year 1 2 3 4 5 6 7 Import (₹ m) 229 231 206 191 195 184 193		
	(a)	190.671	O
	(b)	199.875	O
	(c)	192.375	O
	(d)	210	O
50.	From the following find the Simple average (AM) of Relative Quantity index Item Base Year Quantity Current Year Quantity A 8 12 B 10 11 C 15 10		
	(a)	111.45	O
	(b)	108.89	O
	(c)	32.45	O
	(d)	115.46	O