FOUNDATION EXAMINATION **SET 1**

MODEL QUESTION PAPER **TERM JUNE-2025**

PAPER - 3

FUNDAMENTALS OF BUSINESS MATHEMATICS & STATISTICS

Time Allowed: 1 Hour **Full Marks: 100**

Answer all questions. Each question carries 2 marks.

1.	A woman can complete a task by working 6 hours a day for 12 days. If she increases her working hours to 9 hours per day, how many days will it take her to finish the same task?		
	(a)	9 Days	O
	(b)	12 Days	O
	(c)	8 Days	O
	(d)	10 Days	O
2.	A Laptop depreciated in value each year at 20% of its previous value and at the end of third year, the value was ₹ 12,288. Find its original value.		
	(a)	24,000	O
	(b)	18,000	O
	(c)	20,000	O
	(d)	30,000	O
3.	If a student is travelling at a speed of 45 km/hr., how long should it take to travel 90 km?		
	(a)	3 hours	O
	(b)	2 hours	O
	(c)	100 minutes	O
	(d)	90 minutes	O
4.	An enterprise produced 500 units in the 2nd year of its existence and 800 units in its 6th year. If production follows an Arithmetic Progression (AP), what was the production in the 1st year?		
	(a)	425	O
	(b)	450	O
	(c)	475	O
	(d)	490	O

5.	Two numbers are in the ratio of 3:5, and if 10 is subtracted from each of them, the remainders are in the ratio of 1:5. Find the numbers.		
	(a)	9 and 15	O
	(b)	10 and 16	O
	(c)	15 and 25	O
	(d)	12 and 20	O
6.	DRS & Co. makes a monthly payment for ₹11,350 for one year at 11% annual interest, compounded monthly. Find the amount borrowed by them.		
	(a)	1,31,889	O
	(b)	1,22,025	O
	(c)	1,22,802	O
	(d)	1,38,284	O
7.	A Train covered 300 km at a speed of 60 km/h, and a Bus covered 180 km at a speed of 45 km/h. Which one of them took more time to cover the distance, and what was the time taken?		
	(a)	Bus, 6 hours	O
	(b)	Train, 6 hours	O
	(c)	Train, 5 hours	O
	(d)	Bus, 4 hours	O
8.	Find the next 6 terms for the series: 50, 67, 84, 101, 118, 135.		
	(a)	150, 167, 184, 201, 218, 235	O
	(b)	160, 177, 194, 211, 228, 245	O
	(c)	153, 170, 187, 204, 221, 238	O
	(d)	152, 169, 186, 203, 220, 237	O
9.	In a group of 50 people, 30 speak Hindi, 22 speak English and 8 speak neither Hindi nor English. How many people can speak both English and Hindi.		
	(a)	10	O
	(b)	17	O
	(c)	15	O
	(d)	12	O

10.	If logt + log(t-3) = 1. Find 't'.		
	(a)	-1	O
	(b)	-3	O
	(c)	-2	O
	(d)	0	O
11.	How many words can be formed by using the letters of the word 'ALLAHABAD', so that vowels will occupy even places.		
	(a)	80	O
	(b)	40	O
	(c)	120	O
	(d)	60	O
12.	Solve : $\log_{10}(8y + 3) = 3$		
	(a)	$\frac{992}{3}$	O
	(b)	$\frac{997}{8}$	O
	(c)	$\frac{1008}{3}$	O
	(d)	$\frac{1003}{8}$	O
13.	If Set B = {B, G, R, E, O, K} is a subset of Set A= {Q, E, R, T, Y, U, I, O, P, K, G, B}, find B′.		
	(a)	Set B′ = {Q, T, Y, U, I, P}	O
	(b)	Set B′ = {E, R, T, Y}	O
	(c)	Set B′ = {Q, E, G, B}	O
	(d)	Set B′ = {B, G, R, E}	O
14.	Find the number of permutations can be made by selecting 5 bikes from a set of 11 bikes?.		
	(a)	45,580	O
	(b)	60,720	O
	(c)	55,440	O
	(d)	50,400	O

15.	Find the base when 3 is the logarithm of 729.		
	(a)	9	O
	(b)	11	O
	(c)	7	O
	(d)	3	O
16.	Simplify $3(a^1)^2 b^1 / 6b^2(a^3)^1$		
	(a)	1/2 × ab	O
	(b)	1/(2 ab)	O
	(c)	2 ab	O
	(d)	None of the above	O
17.	Out of 18 points in plane, no three are in the same straight line except 5 points which are collinear. Then the number of straight lines obtained by joining them is _____		
	(a)	147	O
	(b)	163	O
	(c)	144	O
	(d)	159	O
18.	If A= {8, 11, 14, 17}; B= {5, 7, 9, 15}; C= {19, 21, 17, 15}. Find A ∩ (B∩C).		
	(a)	A ∩ (B ∩ C) = {8, 5, 7, 9, 15}	O
	(b)	A ∩ (B∩C) = {8, 11, 14, 15, 17}	O
	(c)	A ∩ (B ∩ C) = {11, 19, 21, 17, 15}	O
	(d)	A∩ (B ∩ C) = {11, 19, 21, 15, 8}	O
19.	Given: $C(x) = 9x + 350$ and $P = 14$. Find the condition of getting break-even point		
	(a)	$7x - 350 = 0$	O
	(b)	$-14x - 350 = 0$	O
	(c)	$9x - 350 = 0$	O
	(d)	$5x - 350 = 0$	O

20.	$F(x) = -\frac{x^3}{3}+4x^2-15x$		
	(a)	Maximum, $x = 1$; Minimum, $x = 3$	O
	(b)	Maximum, $x = 5$; Minimum, $x = 3$	O
	(c)	Maximum, $x = -3$; Minimum, $x = -5$	O
	(d)	No curvature	O
21.	Dichotomous Classification is		
	(a)	When data is classified according to presence or absence of two attributes	O
	(b)	When data is classified into two groups containing all the attributes	O
	(c)	When data is classified according to presence of two attributes	O
	(d)	When data is classified into two groups according to presence or absence of one attribute	O
22.	Which of the following could be classified as a discrete variable?		
	(a)	Number of children in a family	O
	(b)	Temperature in Celsius	O
	(c)	Amount of rainfall in a year	O
	(d)	Height of a person	O
23.	Which of the following would not be an example of temporal classification?		
	(a)	Data on annual rainfall	O
	(b)	Population statistics by decade	O
	(c)	Sales data categorized by product type	O
	(d)	Unemployment rates over different years	O
24.	$\overline{X}$ of 20 terms was found to be 35. But afterwards it was detected that two terms 42 and 34 were misread as 46 and 39 respectively. Find correct X.		
	(a)	34.55	O
	(b)	36.67	O
	(c)	31.63	O
	(d)	35.51	O

25.	The mean of 2 numbers. is 20 and their S.D 5, What are the two numbers?		
	(a)	20 and 12	O
	(b)	25 and 15	O
	(c)	22 and 18	O
	(d)	30 and 10	O
26.	In a moderately skewed frequency distribution, the mean is 30, the median is 20, and the coefficient of variation is 70%. What is the Karl Pearson's coefficient of skewness?		
	(a)	1.51	O
	(b)	2.23	O
	(c)	2.57	O
	(d)	1.43	O
27.	The mean daily salary paid to all employees in a certain company was ₹600. The mean daily salaries paid to the male and female employees were ₹620 and ₹520 respectively. Male to female employees ratio in the company is		
	(a)	3:2;	O
	(b)	4:5;	O
	(c)	5:7;	O
	(d)	4:1;	O
28.	Which is the value of M.D, when Q3 = 40 & Q1 =15.		
	(a)	15	O
	(b)	14	O
	(c)	12	O
	(d)	13	O
29.	The mean of wages in factory A of 100 workers is ₹720 per week. The mean wages of 30 female workers in the factory is ₹650 per week. Find out average wage of male workers in the factory:		
	(a)	850	O
	(b)	700	O
	(c)	750	O
	(d)	800	O

30.	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)	30	O
	(c)	10	O
	(d)	40	O
31.	In a bi-variate analysis if two regression equations are $8x - 10y + 66 = 0$ & $40x - 18y - 214 = 0$. Then $\overline{x}$, $\overline{y}$ the mean of the series x & y care respectively		
	(a)	13,17	O
	(b)	17,17	O
	(c)	8,18	O
	(d)	9,13	O
32.	Consider the following results: $N = 12$, $\Sigma dx = 0$, $\Sigma dy = 4$, $\Sigma dx^2 = 1344$, $\Sigma dy^2 = 215$, $\Sigma dxdy = -4360$ Appropriate regression coefficient is		
	(a)	1	O
	(b)	– 3.244	O
	(c)	– 0.821	O
	(d)	5.67	O
33.	The regression equation of profit (X) on sales (Y) of a certain firm is $3Y - 5X + 108 = 0$. The average sales of the firm was ₹44,000 and the variance of profits is $9/16^{th}$ of the variance of sales. Find the average profit.		
	(a)	25,220.40	O
	(b)	26,421.60	O
	(c)	32,500	O
	(d)	28,527.50	O
34.	$X = 1.36Y - 5.2$ & $Y = 0.61X + 1.51$ are two regression equations. Correlation coefficient between X & Y is.		

	(a)	– 0.67	O
	(b)	– 0.911	O
	(c)	0.67	O
	(d)	0.911	O
35.	If R = 0.8, $\sum D^2 = 33$, find N		
	(a)	10	O
	(b)	11	O
	(c)	12	O
	(d)	13	O
36.	If the regression equation relates one dependent variable with more than one independent variable, it is called:		
	(a)	Simple Regression	O
	(b)	Partial Regression	O
	(c)	Multiple Regression	O
	(d)	Complex Regression	O
37.	Which of the following best describes Partial Regression?		
	(a)	A regression analysis where the relationship between one dependent variable and multiple independent variables is studied.	O
	(b)	A regression analysis between a single independent variable and dependent variable.	O
	(c)	A regression analysis in which all variables are considered simultaneously.	O
	(d)	A regression analysis where the relationship of more than two variables is studied but only two variables are analyzed at a time, keeping others constant.	O
38.	Suppose it is 11 to 5 against a person *A* who is now 38 years of age living till he is 73 and 5 to 3 against B who is 43 living till he is 78. Find the chance that at least one of these persons will be alive 35 years hence.		
	(a)	55%	O
	(b)	57%	O
	(c)	43%	O
	(d)	49%	O

39.	Two cards are drawn at random one by one without replacement from a well-shuffled pack of 52 cards. What is the probability that both are red:		
	(a)	$\frac{26}{52}$	O
	(b)	$\frac{25}{102}$	O
	(c)	$\frac{25}{51}$	O
	(d)	$\frac{26}{102}$	O
40.	A survey reveals that 80% of the football team's matches are played in the evening (7 PM slot) and 20% during the afternoon (3 PM slot). The team wins 60% of their evening games and 85% of their afternoon games. According to today's newspaper, the team won their last match. What is the probability that the match was played in the evening?		
	(a)	0.7385	O
	(b)	0.7291	O
	(c)	0.7371	O
	(d)	0.7413	O
41.	Three events A, B & C are mutually exclusive, equally likely & exhaustive. What is the Probability of complementary of event A		
	(a)	$\frac{1}{3}$	O
	(b)	0	O
	(c)	$\frac{2}{3}$	O
	(d)	None of these	O
42.	The odds in favour of a certain event are 2 to 5 and the odds against another event independent of the former are 5 to 6. Find the chance that at least one of the events will happen.		
	(a)	0.655	O
	(b)	0.675	O
	(c)	0.645	O
	(d)	0.695	O

43.	In a scenario where A speaks the truth 70% of the time and B speaks the truth 80% of the time, what percentage of the time are they likely to contradict each other?		
	(a)	36%	O
	(b)	50%	O
	(c)	45%	O
	(d)	38%	O
44.	An ordinary die is tossed twice and the difference between the number of spots turned up is noted. What is the probability that the difference between the numbers rolled is 3?		
	(a)	1/6	O
	(b)	1/36	O
	(c)	1/9	O
	(d)	1/18	O
45.	If an unbiased coin is tossed once, then the two events head and tall are		
	(a)	Mutually exclusive	O
	(b)	Exhaustive	O
	(c)	Equally likely	O
	(d)	All these	O
46.	In 2022, the average price of a commodity was 20% more than in 2021 but 50% more than in 2023. Find price relatives by using 2021 & 2022 as base year.		
	(a)	62.67	O
	(b)	91.65	O
	(c)	72.77	O
	(d)	90.88	O
47.	Net monthly income of an employee was ₹ 8,000 P.M in 2003. The consumer price index number was 80 in 2003. It became 300 in 2023. Calculate the additional D.A to be paid to the employee if he has to be compensated.		
	(a)	₹20,000	O
	(b)	₹22,000	O
	(c)	₹21,000	O
	(d)	₹25000	O

48.	Which of the following describes Paasche's index?		
	(a)	The index uses fixed quantities from the base year and compares them with current year prices.	O
	(b)	The index uses current year quantities and compares them with base year prices.	O
	(c)	The index uses both current year prices and base year quantities.	O
	(d)	The index calculates the average of all prices and quantities.	O
49.	The price of a commodity in 2020 was ₹30, and in 2021, the price increased to ₹36. The quantity in 2020 was 20 units and in 2021 it was 22 units. Calculate Fisher's Ideal Index for 2021 using 2020 as the base year.		
	(a)	125	O
	(b)	130	O
	(c)	135	O
	(d)	145	O
50.	In 2020, the price of a commodity was ₹10, and in 2021, the price increased to ₹15. The quantity of the commodity in 2020 was 20 units, and in 2021, it was 25 units. Calculate the price index for 2021 using Laspeyre's Method with 2020 as the base year.		
	(a)	175	O
	(b)	125	O
	(c)	250	O
	(d)	150	O