

F.Y.BMS - Sem II - A.T.K.T Exam - Sept'22

26.9.22

Busi Maths.



MALINI KISHOR SANGHVI COLLEGE OF COMMERCE & ECONOMICS		
SUBJECT: BUSINESS MATHEMATICS		
CLASS: F.Y.B.M.S.	SEM-II ATKT	SEAT
NO.		
Name:		

- Note:**
- (i) All Questions are compulsory with internal choice.
 - (ii) Simple Calculator is allowed.
 - (iii) Graph papers will be provided on request.

Q1. Attempt any 15 QUESTIONS from given 20 and write your correct option number in answer book.

[15]

Q. No	Question	Option 1	Option 2	Option 3	Option 4
1	If a task can be done in m ways and having done the first task, another task in n ways, then the two-tasks can be done in _____ ways	m + n	m x n	m / n	0
2	There are 4 routes for travelling from Mumbai to Goa. In how many different ways can a person go from Mumbai to Goa and return, if for returning any of the route is taken.	4	8	16	1
3	In a library there are 5 mathematics and 4 Statistics books. In how many ways can a student borrow one mathematics and one statistics book.	9	20	5	4
4	How many different 3 digit numbers can be formed by using the digits 1,2,3,4,5 if no digit being repeated ?	1	60	125	120
5	In how many ways can 6 models stand in a line for fashion show?	3!	4!	5!	6!
6	The simple interest on Rs. 6000 for 4 years @5% p.a. is	400	1200	1250	850
7	Rs. 8000 will amount to Rs.8840 at 3.5% p.a. simple interest in the years	2	3	4	5
8	Future value is also known as	discoun- ted value	accumu- lated value	absolut e value	Pure value
9	An annuity in which each payment is made at the end of time period is called	annuity due	immedi- ate annuity	life annuity	none of these
10	In EMI calculation, the rate of interest is compounded	monthly	quarterly	annually	daily
11	If m= number of times the interest is compounded per year. If m=4, the interest is compounded	semi annually	quarterly	monthly	annually
12	For Simple Interest, if I= Pni then the formula for Amount (A) is	A= P(1+ni)	A= P(1-ni)	A= P(1+i) ⁿ	A= P(1+n) ⁱ



13	For Compound Interest, the formula for Amount (A) is	$A = P(1+ni)$	$A = P(1-ni)$	$A = P(1+i)^n$	$A = P(1+n)^i$
14	A sequence of payment made at successive time period or interval of time is known as	Annuity	Simple Interest	Present Value	Future Value
15	A matrix of order 1 X n is known as:	Row matrix	Column matrix	Square matrix	Diagonal Matrix
16	A matrix of order n X n is known as:	Row matrix	Column matrix	Square matrix	Diagonal Matrix
17	If A is m X n matrix and B is o X p matrix. Then AB can be calculated if	m=n	n=o	m=p	o=p
18	Rate of change of revenue is called as	total revenue	average revenue	marginal revenue	absolute revenue
19	Break-even point is the point at which	demand = price	demand = revenue	price = supply	demand = supply
20	For which of the following derivative of y with respect to x is y	$y = x^2$	$y = e^x$	$y = 1$	$y = x$

Q:2 Solve the following: (ANY-ONE)

15 Marks

[A]

- i. Mr. ABC estimates that after 3 years he would require Rs.50,00,000 for his new business. He wishes to put aside money now, invested in an instrument giving interest 7% p.a. compounded half-yearly to meet his requirement then. How much money should he invest presently?
- ii. Kartik purchased a TV set and paid Rs. 5,000 immediately, another Rs. 5000 after a year and Rs.5000 after 2 years and thus became debt free. Find the price of TV set if compound interest charged was 3.5%.

OR

[B]

- i. The compound interest and the simple interest on a sum of money at a certain rate for 2 years is Rs.3000 and Rs.3090 respectively. Find sum and the rate.
- ii. A company decides to set aside a certain sum at the end of each year to create a sinking fund, which should amount to Rs.5 lakhs in 4 years at 12% p.a. Find the amount to be kept aside each year.

Q:3 Solve the following: (ANYONE)

15 Marks

[A]

- i. In how many different ways can 6 people be photographed, if only 4 can be seated at a time?



- ii. The number of baseball games that must be scheduled in a league with n teams is given by $G(n) = \frac{n^2 - n}{2}$ where each team plays every other team exactly once. Suppose there 10 teams participating tournament, find the number of games need to be schedule. A league schedules 15 games. How many teams are in the league?

OR

[B]

- i. How many words can be formed of the letter ARTICLE, so that the vowels occupy only the even position.
- ii. The supply function is given by $S = S(p) = 10 + 3p$. State and give a verbal description of slop and intercept. What is quantity supplied when price is Rs.15. Find the inverse supply function.

Q:4 Solve the following: (ANY-ONE)

15 Marks

[A]

- i. Given the following matrices:

$$A = \begin{pmatrix} 2 & 4 \\ 8 & 3 \end{pmatrix} \quad B = \begin{pmatrix} -1 & 2 \\ 7 & 7 \end{pmatrix} \text{ calculate } AB \text{ and } BA. \text{ Verify whether } AB=BA?$$

- ii. Solve the following system of equations by finding the inverse of associated matrix A.

$$2x + 3y = 8, \quad 3x + 2y = 7 \quad A = \begin{pmatrix} 2 & 3 \\ 3 & 2 \end{pmatrix}$$

OR

[B]

- i. Given the following matrices:

$$A = \begin{pmatrix} 2 & 4 \\ 8 & 3 \end{pmatrix} \quad B = \begin{pmatrix} -1 & 2 \\ 7 & 7 \end{pmatrix} \text{ calculate } 2A + 3B.$$

- ii. Find the invers of the following matrix.

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 1 & 2 & 4 \\ 1 & 3 & 4 \end{pmatrix}$$

Q:5 Solve the following: (ANY-ONE)

15 Marks

[A]

- i. Find the derivative of $y = (x) = 2x^3 + 3 \log x - 1$ with respect to x .
- ii. If the inverse demand function is given by $p = 20 - 2D$. Find total revenue function, average revenue function and marginal revenue function, also their values when $x = 5$.

OR

[B]

- i. Find the derivative of $y = f(x) = (3e^x + 2)(2x^2 - x)$ with respect to x .
- ii. If the total cost function is given by $C = C(x) = 4x^2 + 3x + 10$, Find the average cost and the marginal cost when $x = 3$.