VCD/7/05/2022/FYBMS SEM-II/BUSINESS MATHS/ 2 ½ Hrs 75 M

1. Figure to the right indicate full marks.

2. Use of non-programmable calculator is allowed.

Q.1)) All Questions Compulsory (2 Mark each) **(40M)**

1) In how many year will Rs.6500 amount to Rs.7867 at 7% p. a simple interest?
a) n=4 b) n =2 c) n=3 d) n=5

2) A_____ is an arrangement of all part of a set objects in definite Order.
a) Permutation b) Function c) Combination d) Factorial

3) In EMI calculation ,the rate of interest is compound
a) Quarterly b) Yearly c) Monthly d) Six Monthly

4) A variable whose value depend on some other variable .
a) Independent variable b) Variable cost c) Fixed cost d) Dependent variable

5) Two task which cannot be done at the same time.
a) Complementary b) Permutation c) Mutually Exclusive task d) Fundamental Theorem

6) Solve the linear equation $X^2 + 3 = 12$
a) 3 b) 2 c) 1 d) 0

7) A matrix of order n x 1 is called as _____ matrix
a) unit b) column c) row d) square

8) A particular matrix defined in order to find the inverse of matrix .
a) Triangular matrix b) Row matrix c) Symmetric matrix d) Adjoint of matrix

9) The matrix all the value zero is called _____ .
a) Identity matrix b) Null matrix c) Transpose matrix d) unit matrix The product of price and demand is known as

10) The product of price and demand is known as
a)Marginal revenue b) Total revenue c) Average revenue

11) The derivative of a function w.r.t. x measures
a) rate of change of y w.r.t x b) change in y c)change in x d) rate of change of x w.r.t y

12) The point at which the demand quantity equal the supply quantity is called_____.
a) Equilibrium point b) Break-even point cCost function d) Profit function

13) A contingent annuity that in which the payments continue as long as a certain person is alive

a) Life Annuity b) Annuity Due c) Variable Annuity d) Perpetuity Annuity

14) The initial amount borrowed on lent is call
a) Present value b)Rate of Interest c)Sum Due d) Principal amount

15) The derivative of a derivative is called _____.
a) Anti-derivative b) Second order derivative c) Secondary derivative d) Super derivative

16) (uv) is differentiable at p
a) $(u+v)'(p) = u'(p)+v'(p)$ b) $(cu)'(p) = c\,u'(p)$ c) $(uv)'(p) = u'(p)\,v(p)+v'(p)\,u(p)$

d) $(u/v)'(p) = u'(p)\,v(p) - v'(p)\,u(p)\,/[v(p)]^2$

17) If third order difference of y are zero, y is a
a) linear function of x b) cubic function of x c) quadratic function of x d) original function of x

18) Taking h = 1 as interval of differencing , find $\Delta f(2)$ where $f(x) = 4X^3 - 3X + 2$
a) 34 b) 30 c) 73 d) 56

19) In how many way can 10 examination paper be arranged so that the best and the worst paper never come together
a) 8 .9! b) 8.8! c) 8.7! d) 9.8!

20) On solving 2p - 3q - 4r + 6r - 2q + p, the answer will be
a) 8q -5r b) 10p + 3q – 5 c) 3p - 5q + 2r d)7p + 5r

Q.2) Solve (Attempt any one) (10M)

a) Find the present value of Rs.40,00,000 required 4 year from now if the Compound interest rate is 5%

(OR)

b) If $A = \begin{bmatrix} 0.3 & 0.3 \\ 0.4 & 0.6 \end{bmatrix}$ is technology matrix and $D = \begin{bmatrix} 200 \\ 800 \end{bmatrix}$ is final demand vector then find the total output matrix

Q.3) Solve (Attempt any one) (10M)

a) Examine the Following Function for maxima and minima. $f(x) = 2x^3 - 9x^2 + 12x + 5$

(OR)

b) The Sales of company are given for some years. Estimet the sales for the year 2009,using Newton's backward integration formula .

X	2004	2006	2008	2010	2012
F(x)	40	43	48	52	57

Q.4) Write Short Notes (Attempt any Three) **(15M)**

a) Distinguish between Permutation and Combination

b) EMI using reduction balance method

c) Type of Matrices with examples.

d) Write a note on elasticity of demand

e) Explain the application of Derivatives in business management.