END TERM EXAMINATION

FIRST SEMESTER [B.COM] DECEMBER 2015

Paper Code: B.COM101	Subject: Financial Accounting
Time: 3 Hours	Maximum Marks: 75

Note: Attempt any five questions. All questions carry equal marks.

Q1 What is financial accounting? Discuss its nature and functions. Explain Accounting cycle.

Q2 Discuss various accounting concepts and fundamental accounting conventions.

Q3 What is capital expenditure? Differentiate between revenue expenditure and capital expenditure.

Q4 (a) What are books of accounts? Explain the process of preparing ledger and various subsidiary books from journal book.
(b) Prepare performa trial balance. Also discuss its advantages.

Q5 (a) Calculate Maximum Level, minimum level and recording level from the following data:

Re-order Quantity	1500 units
Re-order period	4 to 6 weeks
Maximum consumption	400 units per week
Normal consumption	300 units per week
Minimum consumption	250 units per week

(b) From the following particulars, calculate the economic order quantity:
Annual requirements:	1600 units
Cost of materials per unit:	Rs. 40
Cost of placing and receiving one order	Rs. 50
Annual carrying cost of Inventory:	10% of inventory value

Q6 Gangadhar and Co has been running a crusher from the year 2010. Written down value of Machinery is Rs. 1,20,000 as on 1st Jan, 2011. The firm has purchased a second machine for Rs. 40,000 on 1st April 2012 and has sold the same for Rs. 65,000 on 1st Jan, 2013. The firm has been following diminishing balance method from the beginning. Depreciation rate for the machine has been 10%. Accounts are closed at the end of calendar year. Show the Machinery Account for the years 2011 to 2013.

Q7 Write short notes on the following:-
(a) Bank reconciliation statement
(b) Accounting Standards.

Q8 The following is the trial balance of H.S Enterprises for the year ended 31st December, 2014. You are required to prepare a profit and Loss Account and Balance Sheet after taking into account the adjustments given below:

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Particular	Dr. Amount	Particulars	Cr. Amount
Cash in hand	500	Sales	1,50,300
Cash at bank	1,200	Purchase returns	5,000
Office furniture	6,000	Creditors	12,000
Debtors	15,000	Bills payable	8,000
Commission	1,200	Discount received	1,000
Bills Receivable	3,500	Dividend received	2,000
Power and Fuel	6,000	Rent received	3,500
Plant & Machinery	24,000	Capital	27,000
Office expenses	2,000		
Carriage expenses	1,200		
Carriage outwards	3,500		
Rent, rates and taxes	1,700		
Leasehold premises	25,000		
Wages	30,000		
Salaries	7,000		
Opening stock	12,000		
Sales returns	2,000		
Purchases	60,000		
Drawings	7,000		
Total	**2,08,000**	**Total**	**2,08,000**

Adjustments:
(a) Closing stock as on 31.12.2014 Rs. 18,000
(b) Depreciate plant and machinery at 10%
(c) Salaries outstanding Rs. 1,000, power and fuel outstanding Rs. 2,000
(d) Rs. 5,000 was spent on plant and machinery but wrongly included in wages.
(e) Provide for bad and doubtful debt for Rs.1,500
(f) Discount earned but not received Rs. 100
(g) Commission due but not recorded Rs. 200
(h) Rent received includes Rs. 500 received in advance.

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END TERM EXAMINATION

FIRST SEMESTER [B.COM] NOVEMBER-DECEMBER 2018

Paper Code: B.COM-103   **Subject: Financial Accounting**

(Batch 2017)

Time: 3 Hours   **Maximum Marks: 75**

Note: Attempt any five questions. All questions carry equal marks.

Q1 Define accounting. Explain and nature and objectives of accounting. How does it differ from book-keeping?

Q2 "Transactions and events are guided by Generally Accepted Accounting Principles (GAAP) subject to laws of land". Explain and illustrate.

Q3. (a) Discuss the different rules for journalising the transactions with appropriate examples.

(b) What are 'Contra Entries' in columnar cash book? How are these recorded?

Q4 State how the following must be dealt with in the final accounts of a firm for the year ending 31.3.2018, giving reasons:

(a) Cost of a second hand scooter purchased on 1.10.2017 for Rs. 2,500, which was destroyed in an accident on 30.11.2017, the insurance company paying Rs. 900 in full settlement in April, 2018.

(b) Cost of temporary shed erected for an exhibition on 1.7.2017, the exhibition being expected to be over by June, 2018; Rs. 17,000.

(c) Advertisement expenditure of Rs. 20,000 paid on 30.03.2018, the advertisement in respect of which has appeared in the magazines only in April 2018.

(d) Hire charges of Rs. 1,500 for a compressor, when the firm's own compressor was under break-down.

Q5 A company purchased a second hand machine on January 1, 2014 for Rs. 37,000 and immediately spent Rs. 3,000 on its erection. On July 1, 2015 it purchased another machine for Rs. 10,000 and on July 1, 2016, it sold off the first machine for Rs. 28,000 and bought another one for Rs. 25,000. On July 1, 2017, the second machine was sold off for Rs. 1,000.

Depreciation was provided on the machinery at 10% on the original cost annually on December 31 every year. In 2015, however the company changed the method of providing depreciation and adopted the written down value method, the rate of depreciation being 15% per annum.

Give the machinery account for four years commencing from the acquisition of machine.

Q6 What is the relevance of Inflation Accounting? Discuss the relative merits of the particular methods which have been developed in recent years to correct the distortion in accounting profits from a persistent and at time "run away inflation".

Q7 What is a debenture and its redemption? Describe the various methods for redemption of debentures. Give examples.

Q8 Reliance ltd. offered for public subscription 10,000 shares of Rs. 10 each at Rs. 11 per share. Money was payable as under:

Rs. 3 on application

Rs. 4 on allotment

Rs. 4 on first and final call

Applications were received for 12,000 shares and the directors made pro rata allotment. A, an applicant for 120 shares, could not pay allotment and call money. B, a holder of 200 shares, failed to pay the call. All these shares were later on forfeited.

Out of the forfeited shares, 150 shares (the whole of A's shares being included) were issued at Rs. 9 per share.

Pass the journal entries for the above transactions.

Q1 Write short notes on **any three** of the following:-   (5x3=15)

    (a) Coordination as essence of management

    (b) Types of Plans

    (c) Herzberg's Theory of Motivation

    (d) Johari Window

    (e) Lewin's concept of change management

Q2 Explain the principles of an organization. How 'Delegation' and 'Decentralization' are different from each other and how do they contribute to the effectiveness of the organization?   (15)

Q3 How contingency approach has helped in development of contemporary management thought? Explain with suitable example.   (15)

Q4 What are different leadership styles? How traits of a leader determines the particular leadership style?   (15)

Q5 Explain the process of perception. What types of perceptual errors can create problems in organizations?   (15)

Q6 Explain the various stages of group development. How are they different from the stages of team development?   (15)

Q7 What types of conflicts can arise in an organization? What are the various techniques through which we can resolve these conflicts?   (15)

....

(Please write your Exam Roll No.)   Exam Roll No. ....

END TERM EXAMINATION
FIRST SEMESTER [B.COM] DECEMBER 2015

Paper Code: B.COM103	**Subject: Management Process and Organizational Behaviour**
Time: 3 Hours	**Maximum Marks: 75**

Note: Attempt any five questions.

Q1 What is management? How is it different from administration? Describe Mintzberg's managerial roles. **(15)**

Q2 What is planning? What are the benefits of planning? Discuss in detail the process of planning. **(15)**

Q3 What is leadership? Assume you are a departmental manager in an organization. Using the Tannenbaum and Schmidt continuum identify, with reasons, our preferred style of leadership. Give an example of a situation in which you might need to adopt an alternative style of leadership. **(15)**

Q4 Explain Maslow's theory of motivation. Give examples of the extent to which the theory could meaningfully be applied to staff of any organization. **(15)**

Q5 Distinguish between formal and informal groups. Explain the importance and influence of group values and norms on group performance? As a manager, how can you develop effective group relationships? **(15)**

Q6 How is stress defined? What are the categories of stresses that can affect job stress? Describe some coping strategies for job stress for both the individual and organizational levels. **(15)**

Q7 Define organizational culture. How do organizations develop their cultures? What is the role of organizational culture in introducing change in any organization? Explain Kurt Lewin's change process. **(15)**

Q8 Write short notes on **any two** of the following:-   **(2x7.5=15)**
(a) Hawthorne Studies
(b) Likert's system of management
(c) Transactional Analysis
(d) Enhancing innovation and creativity in organizations

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END TERM EXAMINATION

FIRST SEMESTER [B. COM(HONS.)] NOVEMBER-DECEMBER 2018

Paper Code: B. COM (Hons)-105	Subject: Microeconomics
Time: 3 Hours	Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated.

Q1   Define the following (any five)   (5x5=25)

   (a) Law of demand vs. Law of quantity demanded

   (b) Promotional Elasticity of Demand

   (c) Fixed Cost

   (d) Monopolistic market

   (e) Production function

   (f) Ordinal approach Vs Cardinal approach

   (g) MRTS and MRS

   (h) Substitution effect and income effect

Q2   Given the market demand function QDx=500-50Px, derive   (12.5)
   (i) The market demand schedule
   (ii) The market demand curve

   Explain the different methods of measuring price elasticity of demand.
   Find the arc elasticity of demand between Rs. 4 and Rs. 6, Rs. 6 and Rs.
   4 and midway between these two prices, in the above schedule.

<center>OR</center>

   From the table given below, calculate the cross elasticity of demand
   between X and Y. What is the relationship between the two goods?

commodity	Before		After	
	Price (Rs/Unit)	Qty (Unit/Week)	Price (Rs/Unit)	Qty (Unit/Week)
X	100	15	100	10
Y	300	30	200	40

Q3   With the help of diagrams show the relationships between Average Total
   Cost (ATC), Average Fixed Cost (AFC), Average Variable Cost (AVC) and
   Marginal Cost (MC) in the short-run. How is MC related to Marginal
   Product of Labor (MP$_L$)?   (12.5)

<center>OR</center>

   Explain that long-run marginal cost curve is derived from short run
   marginal cost curves but does not envelop them.

Q4   Show that in a Cobb-Douglas production function q = f(x,y)=Ax^{a}y^{1-a},
   where A and α are positive constants and 0< α < 1 and x and y are the
   input, if all the inputs are expanded in the same proportion, output is
   expanded in that proportion.   (12.5)

<center>P.T.O.</center>

BCOM-105
P$_1$/$_2$

-2-

<center>OR</center>

   What is the long-run expansion path of a firm? With the help of
   diagrams, show the relationship between long-run total cost and the
   expansion path.

Q5   Explain with the help of a diagram, how a firm under perfect competition
   uses information about revenue and cost to make a profit-maximizing
   output decision in the short-run.   (12.5)

<center>OR</center>

   Given the demand function p=90-q and cost function TC = 10 + 2q +3q^2.
   Calculate profit maximizing output of a monopolist firm. What would be
   the impact of a tax of Rs. 8 per unit of output on price and profit
   respectively.

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BCOM-105
P$_2$/$_2$

END TERM EXAMINATION

FIRST SEMESTER [B.COM (HONS.)] NOVEMBER-DECEMBER 2017

Paper Code: B.COM-105	Subject: Microeconomics
Time: 3 Hours	Maximum Marks:75

Note: Attempt all questions as directed Internal choice is indicated. All questions carry equal marks.

Q1   Attempt **any four**
- a) Difference between business economics and economics
- b) Concept of opportunity cost
- c) Movement along vs. Shift in demand curve
- c) Income elasticity of demand
- d) Indifference curve and Iso-quant curve
- e) Production function
- f) Short run cost and long run cost
- g) Oligopoly market

Q2   What is the contribution and application of business economics to Business? Explain

OR

What do you understand by market forces? How these forces determine the equilibrium in the market?

Q3   What is the ordinal utility approach? Why an indifference curve is convex to the origin? What shape will it take if both of goods are "Economic Bads"?

OR

With the help of the indifference curve and the budget line explain the concept of the equilibrium of consumer. Why is the consumer not at the equilibrium at points where the indifference curve intersects the budget line?

Q4   State and explain the law of variable proportions and its phases

OR

What are the relationship between Total Product(TP), Average Product(AP), and Marginal Product(MP)? Using these relationships, show the three stages of production? In which stage will rational producer will produce?

Q5   What are the characteristics of perfect competition? A perfect competitive firm can never earn more than normal profit in the long run? Explain using appropriate diagrams.

OR

What is monopolistic competition? How is price determined under monopolistic competition in short run?

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END TERM EXAMINATION

FIRST SEMESTER [B.COM] NOVEMBER-DECEMBER 2018

Paper Code: B.COM-109	Subject: Computer Applications
Time: 3 Hours	Maximum Marks: 75

Note: Attempt any five questions including Q no.1 which is compulsory.

Q1 (a) Discuss the functions of different units of computer. **(5)**

    (b) Explain the characteristics of real time operating system. **(5)**

    (c) Explain how data is analyzed in MS Excel using pivot tables. **(5)**

    (d) Discus how computer networks are created. **(5)**

    (e) What are the applications of IT in health sector? **(5)**

Q2 (a) Classify the computers on the basis of speed, storage and applications. **(6.5)**

    (b) List and explain the factors on which speed of the computer depend. **(6)**

Q3 (a) Differentiate among compiler, interpreter and assembler. **(6)**

    (b) Discus the advantages and disadvantages of machine level language over high level language. **(6.5)**

Q4 (a) Describe some of the most commonly used application software. **(8)**

    (b) Explain the various types of error values that might occur while working with functions and formulas in MS Excel. **(4.5)**

Q5 (a) 'Multiprogramming implies multiprocessing'. Elucidate. **(6.5)**

    (b) Differentiate among the terms thread, process and program. **(6)**

Q6 (a) Discuss the advantages and disadvantages of optical fibre. **(4.5)**

    (b) Compare and contrast the following network devices: **(8)**

       (i) Router

       (ii) Switch

       (iii) Hub

       (iv) Gateway

Q7 (a) What are the advantages of an extranet to the organizations? **(4.5)**

    (b) Explain the functions of each layer of OSI model. **(8)**

Q8 (a) Discuss the applications of IT in railways and banking. **(6)**

    (b) How are the security issues, taken care in the organizations? **(6.5)**

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END TERM EXAMINATION

FIRST SEMESTER [B.COM.] NOVEMBER-DECEMBER 2018

Paper Code: B.COM-107	Subject: Business Communication
Time: 3 Hours	Maximum Marks: 75

Note: Attempt any five questions.

Q1 Enlist and explain the various principles of effective business communication. Elaborate with the help of suitable examples. **(15)**

Q2 Discuss the relevance of cultural context in business communication. Explain how culture affects global communication pattern. **(15)**

Q3 Define the need, function and layout of a business letter. Elaborate by enlisting types of business letters and their relevance. **(15)**

Q4 Explain the problem of communication in a group. Outline role of leadership in diffusing the problems faced during group discussion. **(15)**

Q5 Describe the significance and advantage of using audio-visual aids during presentation. Explain by giving relevant examples. **(15)**

Q6 What are the essentials of writing an office memo? Write a memorandum to an employee for misusing the office stationery. **(15)**

Q7 Give distinction between **any two** of the following:-
(a) Physical and Socio-psychological barriers to communication **(7.5)**
(b) Formal and Informal letter **(7.5)**

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END TERM EXAMINATION

FIRST SEMESTER [BBA] DECEMBER-2012

Paper Code: BBA/BBA(TTM/CAM)105/MOM-105 Subject: Business Mathematics

Time : 3 Hours   Maximum Marks :75

Note: Attempt any five questions. All questions carry 15 marks each.

Question 1:
a) Given the first two terms in a geometric progression as 2 and 4, what is the 10th term?
b) Define Lagrangian multipliers.

Question 2:
a) Find the number of arrangements that can be made out of the letters of the word "SUCCESS" so that all S do not come together.
b) Find the matrix X such that

$$\begin{pmatrix} 2 & 3 \\ -1 & 4 \end{pmatrix} X = \begin{pmatrix} 10 & 4 \\ -5 & 9 \end{pmatrix}.$$

Question 3:
a) Solve the equations $2x - 3y = 5$
                                       $kx + 6y = 2$
   for all possible values of k.
b) Find the vector equation of line 11 passing through the points A(1, -2, 6) and B(7, 1, -3).

Question 4:
a) Find the acute angle between the line $\frac{x-1}{-2} = \frac{y}{1} = \frac{z}{2}$ and the plane $3x + y + z = -3$.
b) Solve $\frac{dy}{dx} = \frac{x^2}{y}$

Question 5:
a) What is the inverse of the matrix:
   $$X = \begin{bmatrix} 7 & 4 \\ 2 & 1 \end{bmatrix}?$$
b) Use Lagrange multipliers to optimize $z = 4x^2 - 2xy + 6y^2$. Subject to $x + y = 72$

Question 6:
a) Calculate :
   $\int x^7 dx$
b) Integrate the $\int (x^2 - 6x + 1) dx$

Question 7:
a) Explain the significance of Differential calculus in Business Application.
b) Raj Ltd. bought a machinery costing Rs. 1,00,000. The depreciation rate is 20% per annum. Find the estimated value after 6 years.

Question 8:
a) Define Consumer's and Producer's surplus.
b) Find how many different 4 digit numbers greater than 7000 can be formed   from   the   digits   3,4,7,8,   and   9.

END TERM EXAMINATION

FIRST SEMESTER [BBA] DEC.2014 – JAN.2015

Paper Code: BBA-105   **Subject: Business Mathematics**
BBA(TTM)-105

Time: 3 Hours   **Maximum Marks: 75**

Note: Attempt any six questions.

Q1   (a) Prove by induction, the following.   (6)

$10^n + 3.4^{n+2} + 5$ is divisible by 9.

(b) Find the value of r if $^{20}C_r = {}^{20}C_{r+2}$ (6.5)

Q2   (a) A committee consists of 10 members, 6 belonging to party A and 4 to party
B. In how many ways can a committee of 5 to be selected so that the
members of the party A are in majority.   (6)

(b) Find the sum to n terms of the series 8+88+888+.... n terms.   (6.5)

Q3   (a) Given below the National Income Model:-   (6)

$C = a + bY \quad (a > 0, 0 < b < 1)$

$I = d + eY \quad (d > 0, 0 < e < 1)$

$Y = I + C$

Solve for the endogenous variables C, I and Y using cramers rule.

(b) Find the inverse of the matrix $\begin{bmatrix} 1 & -1 & 0 \\ 0 & 1 & -1 \\ 1 & 0 & 1 \end{bmatrix}$ and hence solve the system of

equations: $x - y = a, y - z = b, x + z = c$.   (6.5)

Q4   Given below is the transaction matrix for two industries I_1 and I_2. Find the gross
output of each industry if the final demand is 80 and 40 units respectively.

Industry	Input to		Domestic	Total
	I_1	I_2	demand	output
I_1	30	40	50	120
I_2	20	10	30	60

Also test the Hawkins Simon Conditions.   (12.5)

Q5   (a) A monopolist has the following demand function $p = 2\left(100 - \dfrac{x}{4}\right)$ and the cost

function is given by $c(x) = 120x + \dfrac{x^2}{2}$ where p is the price per unit and x is

the output. Find the most profitable output and the maximum profit.   (6)

(b) If x, y and z are respectively the sum of p, q and r terms of an A.P. Show

that $\dfrac{x}{p}(q-r) + \dfrac{y}{q}(r-p) + \dfrac{z}{r}(p-q) = 0$.   (6.5)

Q6   (a) Optimise the Utility function $U = 4xy - y2$ subjected to the constraint
$2x + y = 6$.   (6)

(b) Find the maximum and minimum values of the function,
$f(x) = x^5 - 5x^4 + 5x^3 - 1$. Discuss its nature at $x = 0$.   (6.5)

P.T.O.

Q7 (a) A firm manufactures 5000 Air conditioners per day. It is observed the rate of change of production w.r.t additional number of workers employed (i.e.x) is given by $100 - 6x^{1/2}$. If the firm employs 16 workers more, estimate the new level of production. **(6)**

(b) Find the PS if the supply curve is $P = \sqrt{9+x}$ and quantity sold is 7 units. **(6.5)**

Q8 (a) Solve: **(2x3=6)**

(i) $\dfrac{dy}{dx} = 1 + x + y + xy$,

(ii) $e^x \sqrt{1-y^2}\ dx + \dfrac{y}{x}\ dx = 0$,

(iii) $\dfrac{dy}{dx} = \dfrac{x^2 - 2y^2 + xy}{x^2}$.

(b) Demand and supply functions for tea are given by

$$x_d = \left\{ 120 - 2p + 5\frac{dp}{dt} \right\} \text{ kg per week}$$

$$x_s = \left\{ 3p - 30 + 50\frac{dp}{dt} \right\} \text{ kg per week.}$$

Where p is the price at time t. If the initial price is 36 per kg, find the condition for dynamic equilibrium. **(6.5)**

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END TERM EXAMINATION

FIRST SEMESTER [BBA] DECEMBER-2015

Paper Code: BBA-105   **Subject: Business Mathematics**
BBA(TTM)-105

Time: 3 Hours   **Maximum Marks: 75**

Note: Attempt any five questions. All questions carry equal marks.

Q1   (a) Prove by induction, the following

$$1.3 + 2.3^2 + 3.3^3 + ... + n.3^n = \frac{(2n-1)3^{n+1}+3}{4} \, \forall n \in Z^+.$$

(b) Find the value of r if $^{56}P_{r+6} : ^{54}P_{r+3} = 30800 : 1$.

Q2   (a) A question paper contains ten questions divided into two groups of five questions each. In how many ways can an examinee answer six questions taking atleast two questions from each group?

(b) Three numbers are in G.P. Their product is 64 and sum is $\frac{124}{5}$. Find these numbers.

Q3   A man invested Rs. 30,000/- into three different investments. The rates of interest 2%, 3% and 4% per annum respectively. The total annum income is Rs. 1000. If the income from the first and second investments is Rs. 50 more than the income from third, find the amount of each investment by using matrix algebra.

Q4   A firm purchases two machines costing Rs 10,000 and Rs. 20,000 respectively each having useful life of 4 years. Both have Rs. 5000 as salvage value at the end of four years. Find depreciation of each machine for each year using matrix algebra if
(a) Both are depreciated by sum of years digit method.
(b) First is depreciated by sum of years digit method and second by Straight line method.

Q5   A firms total cost function is $C(x) = \frac{1}{3}x^3 - 5x^2 + 30x + 10$ where x is output and price under perfect competition is Rs. 6 per unit. Find for what values of x, the profit is maximum.

Q6   The demand function of two commodities X_1 and X_2 are given below:

$x_1 = 72 - \frac{1}{2}P_1$ and $x_2 = 120 - P_2$.

Where P_1 and P_2 are price per unit of X_1 and X_2 respectively. The Joint cost function is $C = x_1^2 + x_1 x_2 + x_2^2 + 35$ and the maximum joint product is 40 i.e. $x_1 + x_2 = 40$, find the profit maximizing level of output and the maximum profit.

Q7   (a) Find the consumer's surplus when P=4 if the demand function for a commodity is given by $P = 100 - 8x$.

(b) Solve $(x+1)\frac{dy}{dx} = 2xy$.

Q8   A company manufacturing T.V. sets determines that its production facility is following a learning curve of the form $f(x) = 1400x^{-0.3}$ after producing 100 T.V. sets where $f(x)$ denotes the rate of labour hours. How many total labour hours are required to produce 200 additional units?

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END TERM EXAMINATION

FIRST SEMESTER [BBA] NOVEMBER-DECEMBER- 2016

Paper Code: BBA-105	Subject: Business Mathematics
BBA(TTM)-105	
BBA(CAM)-105	

Time: 3 Hours   **Maximum Marks: 75**

Note: Attempt any five questions. All questions carry equal marks.

Q1 (a) Find the value of r if (i) $^{10}C_r = {}^{20}C_{r+1}$ (ii) $^{10}P_r = {}^{25}P_{r+2}$.

(b) In a firm there are 20 men and 10 women. In how many can you have a committee with 3 men and 2 women?

Q2 (a) Verify whether vectors $X_1 = (2,2,-7)$, $X_2 = (2,1,2)$, $X_3 = (0,1,-3)$ are linearly dependent or independent.

(b) Solve the following system of equations using Gauss elimination method.

$2x - y + 3z = 9; x + y + z = 6$ and $x - y + z = 2$.

Q3 (a) Find the point of inflection of the curve y= $x^3 - 3x^2 + 6x + 5$. Also, find maxima and minima of y.

(b) Find the extreme values of $f(x, y, z) = 2x + 3y + z$ such that $x^2 + y^2 = 5$ and x+z=1.

Q4 (a) Solve the differential equation

$(x^2 + 4y^2 + xy) dx = x^2 dy$

(b) Solve $(1-x^2)(1-y) dx = xy(1+y)dy$

Q5 Solve the following differential equations

(a) $\frac{dy}{dx} = 1 + x + y + xy$

(b) $\frac{dy}{dx} + x^2 = x^2 e^{3y}$

(c) $\frac{dy}{dx} + 1 = e^{x+y}$

Q6 If a= 2i-j+2k and b=10i- 2j+7k, find the value of a $a \times b$. Also find the unit vector perpendicular to given vector.

Q7 If a=2i-j+3k, b=-i+2j+k and c=3i+j-2k find

(a) a × b

(b) a.b

(c) a.(a × b)

(d) a × (b × c)

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END TERM EXAMINATION

FIRST SEMESTER [BBA] NOVEMBER - DECEMBER 2017

Paper Code: BBA-103   **Subject: Business Mathematics**
                                            (Batch 2017 Onwards)

Time: 3 Hours   **Maximum Marks: 75**

Note: Attempt any five questions.

Q1   (a) Prove by the method of induction   **(5)**
$$P(n) = 2 + 7 + 12 + \ldots + (5n-3) = \frac{1}{2}n(5n-1)$$

(b) Find the sum to n terms of the series: **(5)**
$$\left(1 - \frac{1}{n}\right) + \left(1 - \frac{2}{n}\right) + \left(1 - \frac{3}{n}\right) + \ldots$$

(c) If a, b, c are in AP., then prove that $a^3 + 4b^3 + c^3 = 3b(a^2 + c^2)$ **(5)**

Q2   (a) A man is employed to count Rs. 10,710. He counts at the rate of Rs. 180 per minute for half an hour. After this he counts at the rate of Rs.3 less every minute than the preceding minute. Find the time taken by him to count the entire amount.   **(5)**

(b) Find three numbers in G.P. such that their sum is 21, and the sum of their squares is 189.   **(5)**

(c) If a, b, c, d are in G.P., prove that a+b, b+c, c+d are also in G.P.   **(5)**

Q3   (a) A finance company has offices located in every division, every district and every taluka in a certain state in India. Assume that there are 5 divisions, 30 districts and 200 talukas in the state. Each office has 1 head clerk, 1 cashier, 1 clerk and 1 peon. A divisional office has in addition, an office superintendent, 2 clerks, 1 typist and 1 peon. A district office has in addition 1 clerk and 1 peon. The basic monthly salaries are as follows: **(12)**

Office Superintendent: Rs. 5,000, Head clerk: Rs. 2,000, Cashier: Rs. 1750, Clerks and Typists: Rs. 1500 and Peon: Rs.. 1000. Using matrix notation find:

(i) The total number of Posts of each kind in all the offices taken together.

(ii) The total basic monthly salary bill of each kind of office

(iii) The total basic monthly salary bill of all the officer taken together

(b) Explain the following:-`   **(3)**

(i) Diagonal Matrix (ii) Triangular Matrices (iii) Scalar Matrix

Q4   (a) In how many different ways can 8 examination papers be arranged in a line so that best and worst are never together?   **(5)**

(b) A party o f 3 ladies and 4 gentlemen is to be formed from 8 ladies and 7 gentlemen. In how many different ways can the party be formed if Mrs. X and Mr. Y refuse to join the same party?   **(5)**

(c) If $A = \begin{bmatrix} 1 & 2 & 1 \\ 0 & 2 & -1 \\ 3 & -1 & 1 \end{bmatrix}$ show that $A^3 - 3A^2 - A + 9I = 0.$ **(5)**

Q5 (a) Differentiate $\log\left[e^{3x}\left(\frac{(5x-3)}{(4x+2)}\right)^{1/3}\right]$ w.r.t.x.

(7)

(b) Find the maximum and minimum values of the function $\frac{2}{3}x^3 + \frac{1}{2}x^2 - 6x + 8$

(8)

Q6 (a) The demand function for a particular commodity is: (7)
$y = 15e^{-x/3}$ for $0 \le x \le 8$, where y is the price per unit and x is the number of units demanded. Determine the price and the quantity for which the revenue is maximum.

(b) A monopolist's total cost is $Tc = ax^2 + bx + c$ and the demand function is $p = \beta - \alpha x$ where x and p denote the units of output and price respectively and a, b, c α and β are the constants. If the government imposes tax @ t per unit of output show that the total cost is maximum when $t = (\beta - b)/2$.

(8)

Q7 Let p be the price of rice, q the quantity of rice and s the amount of fertiliser used in rice production. Using data of a report, we find for the per capital demand function for rice: (p= 0.964-6.773q) and for supply function

q = 0.063+0.036s   (15)

(a) Find the equilibrium in the rice market if s = 0.5
(b) Find the consumer's surplus.

Q8 (a) Evaluate $\int \frac{x^3}{(x-a)(x-b)(x-c)} dx$

(8)

(b) Price Elasticity of a demand curve $x = f(p)$ is of the form $(a - bp)$ where 'a' and 'b' are given constants. Find the demand curve.

(7)

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END TERM EXAMINATION

FIRST SEMESTER [BBA] NOVEMBER-DECEMBER 2018

Paper Code: BBA-103   Subject: *Business Mathematics*

Time: 3 Hours   Maximum Marks: 75

Note: Attempt any six questions.

Q1 (a) Use mathematical induction to prove that

$$1^3 + 2^3 + 3^3 + 4^3 + \dots + n^3 = \frac{n^2(n+1)^2}{4}$$ (6)

(b) Prove that for any positive integer number n, $n^3 + 2n$ is divisible by 3. (6.5)

Q2 (a) Let a, b, c be positive integers such that $\frac{b}{a}$ is an integer. If a, b, c are in geometric progression and the arithmetic mean of a, b, c is b+2, find the value of $\frac{a^2 + a - 14}{a+1}$.   (6)

(b) Real numbers $a_1, a_2, \dots, a_{99}$ form an arithmetic progression. Suppose that $a_2 + a_4 + a_6 + \dots + a_{98} = 205$. Find the value of $\sum_{i=1}^{99} a_i$.   (6.5)

Q3 (a) If $a+b+c = 0$ and $\begin{vmatrix} a-x & c & b \\ c & b-x & a \\ b & a & c-x \end{vmatrix} = 0$, then show that $x = 0$ or $x = \sqrt{\frac{3}{2}(a^2 + b^2 + c^2)}$ (6)

(b) Using Cramer's rule solve the following:-
$2x + y - 2z = 4$, $x - 2y + z = -2$, $5x - 5y + z = -2$.   (6.5)

Q4 (a) Show that the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ satisfies the equation $A^2 - 4A - 5I = 0$ and hence find A^{-1}.   (6)

(b) Solve the following system of linear equations by matrix method   (6.5)
$y + 2z = 4$, $2z + x = 5$, $x + 2y = 7$.

Q5 (a) If $y = (\sin^{-1} x)^2$, prove that $(1-x^2)y_2 - xy_1 - 2 = 0$.   (6)

(b) If $y = \log(x^x + \operatorname{cosec}^2 x)$ find $\frac{dy}{dx}$.   (6.5)

Q6 (a) An apartment complex has 250 apartments to rent. If they rent x-apartments then their monthly profit, in dollars, is given by $P(x) = -8x^2 + 3200x - 80,000$. How many apartments should they rent in order to maximize their profit.   (6)

(b) Suppose you are running a factory, producing some sort of widget that requires steel as a raw material. Your costs are predominantly

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human labour, which is $20 per hour for your workers and the steel itself, which runs for $170 per ton. Suppose your revenue R is loosely modelled by the following equation $R(h, s) = 200 h^{2/3} s^{1/3}$, where h represents hours of labour and s represents tons of steel. If your budget is $20000, what is maximum possible revenue?   (6.5)

Q7 (a) Evaluate $\int^{\pi/4} \log(1 + \tan\theta)d\theta$.   (6)

(b) Evaluate $\int x\sqrt{x + x^2}\,dx$.   (6.5)

Q8 (a) For a certain item the demand curve is $p = D(q) = \frac{20}{q+1}$ and the supply curve is Evaluate $p = S(q) = q + 2$. Five the consumer and producer surplus.   (7)

(b) Compute the consumer's surplus for the milk demand function Evaluate $D(Q) = -.05Q + 7.75$ dollars per gallon, where Q is the quantity of milk in thousands of gallons. Assume an equilibrium quantity of 95 thousand and an equilibrium price of $3 per gallon.   (5.5)

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END TERM EXAMINATION

FIRST SEMESTER (B.COM) DECEMBER-2024

Subject: Quantitative Techniques for Commerce

Paper Code: BCOM-105

Maximum Marks: 60

Time: 3 Hours

Note: Attempt any five questions as directed including Q.No.1 which is compulsory. Internal choice is indicted.

Q1 Attempt **any Four** of the following questions (Not exceeding 150 words): **(4x5=20)**
- (a) Explain various types of matrix.
- (b) What are the business applications of the inverse of the matrix
- (c) Differentiate between exponential and logarithmic functions.
- (d) Briefly write about Euler's theorem
- (e) Define definite integration
- (f) Explain the Learning Curve
- (g) Write steps in the formulation of linear programming problems
- (h) What is the economic interpretation of the dual problem?

Q2 A school has 10 teachers and 15 students. A committee of 4 people will be formed with at least 2 teachers. How many different committees can be formed? **(10)**

OR

Q3 The first term of an arithmetic progression is 3, and the common difference is 5. Find the 10th term and the sum of the first 10 terms. **(10)**

Q4 Explain the concept of a partial derivative and how it differs from a total derivative. Provide an example to illustrate your explanation. **(10)**

OR

Q5 Discuss the process of finding the maximum and minimum values of a function using calculus. Provide a step-by-step example of how to find the maximum or minimum value of a given function. Explain the significance of the first and second derivative tests in this process. **(10)**

Q6 Discuss how integration is used in marginal analysis. Explain the relationship between marginal cost, marginal revenue, and total cost or total revenue. Provide an example to illustrate the application of integration in this context. **(10)**

OR

Q7 Given the demand function $D(x)=10-x$ and the supply function $S(x)=2+x$, find the consumer's surplus at the equilibrium point. **(10)**

Q8 Maximize the objective function using the simplex method $z=4x_1+3x_2$ subject to the constraints: **(10)**

$$x_1+2x_2 \le 8$$
$$3x_1+x_2 \le 6$$
$$x_1, x_2 \ge 0$$

OR

Q9 (a) Write the dual of the following:- **(10)**
Max $Z = 7x_1 + 14x_2 + 6x_3 + 10x_4 - 3x_5$
Subject to constraints:
$x_5 <= 4000$
$3x_2 + 2x_4 + x_5 <= 6000$
$x_1 + x_2 - 3x_5 >= 4500$
$x_3 + x_4 + -4x_5 >= 3000$
$x_1, x_2, x_3, x_4, x_5 <= 0$
(b) What are the advantages of duality
(c) What is the meaning of shadow prices?

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END TERM EXAMINATION

FIRST SEMESTER (BCOM) DECEMBER-2024

Paper Code: BCOM-111   Subject: English Language and Business communication (C)

Time: 3 Hours   Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

Q1   Write short notes on **any four** of the following: (4x5=20)
(a) Communication barriers
(b) Cross cultural issues in global communication
(c) Minutes of meeting
(d) Business philosophy
(e) Ethical and legal issues in communication
(f) Etiquettes for invitations
(g) Persuasive letters
(h) Handling grievances and complaints

Q2   Define Communication. Explain the process of communication.
                                                    (10)

OR

Q3   Explain the principles of effective communication by giving suitable examples.
                                                    (10)

Q4   Explain the difference between the vocabulary used for everyday communication and the vocabulary used for business purposes.
                                                    (10)

OR

Q5   Discuss the role of digital communication in business correspondence.
                                                    (10)

Q6   Explain the process of communication in business correspondence.
                                                    (10)

OR

Q7   Discuss the role of positive and courteous tone, bias-free language, plain language, and precise words in business correspondence. (10)

Q8   Discuss the benefits of using social media tools for business promotion.
                                                    (10)

OR

Q9   Why is it important to develop and maintain a professional, business-like reputation in the knowledge-based economy of the digital era?
                                                    (10)

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END TERM EXAMINATION

FIRST SEMESTER [B.COM(H)] JANUARY 2025

Paper Code: B.COM-115

Time: 3 Hours

Subject: Indian Knowledge System

Maximum Marks: 60

Note: Attempt five questions in all including Q.No 1 which is compulsory. Internal choice is indicated.

Q1 Attempt **Any Four** of the following questions: (4x5=20)

a) Define the term "Darshanas" in classical Indian philosophy

b) What are the components of culture?

c) Name the different stages in the evolution of Indian culture.

d) What is the Traditional Knowledge Digital Library (TKDL)?

e) Explain the term "corporate karma."

f) Differentiate between spirituality and religion.

g) What is the role of philosophy in Indian culture?

h) Differentiate between Vaastu Shastra and Shilpa Shaastra.

Q2 "Indian music and dance are integral components of Indian culture." Discuss the various forms of Indian classical music and dance, and their cultural significance. (10)

OR

Q3 Discuss the importance of the Traditional Knowledge Digital Library (TKDL) in protecting India's traditional knowledge. How does this initiative contribute to the preservation and global recognition of India's intellectual heritage? (10)

Q4 Explain the concept of Maya (illusion) in Advaita Vedanta and its implications for understanding reality. How can this philosophical concept be applied in the modern corporate world? (10)

OR

Q5 Discuss the philosophical roots of the concept of VasudhaivaKutumbakam (the world is one family) and its implications for international business. (10)

Q6 Examine the role of Kautilya's Arthashastra in shaping ancient Indian economic thought. How can its principles be applied in modern commerce and business practices? (10)

OR

Q7 Analyze the significance of Dharma in the Indian Knowledge System, with particular reference to Varna Ashrama Dharma and Svadharma. How do these concepts influence managerial practices in today's corporate environment? (10)

Q8 Discuss the contributions of the Vedic tradition and the Upanishads to classical Indian philosophy. How do these philosophies continue to influence Indian thought and spirituality today? (10)

OR

Q9 "Ancient Indian engineering and technology were advanced for their time." Analyze India's contributions to metallurgy, town planning, and technological innovations in ancient times, with examples from different regions of the country. (10)

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