23COU520N/ 23CRM520N/23FTU520N/ 23BPU520N/23CBI520N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Common to Branches – **COMMERCE / COMMERCE (RM)/ COMMERCE (FT)/ COMMERCE (BPS)/ COMMERCE (B&I)**

ENTREPRENEURSHIP

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	An opportunist is ---------- a) Inventor b) Intrapreneur c) Entrepreneur d) Scientist	K1	CO1
	2	Economic factors influencing entrepreneurship are ---------- a) Sales tax b) Competition c) Social status d) Age	K2	CO2
2	3	PERT technique is used in ------- phase of project a) Introduction b) Pre-investment c) Construction d) Normalisation	K1	CO1
	4	--------- will discuss the customers of the products/service . a) Competition b) Market research c) Market share d) Market size	K2	CO2
3	5	Small enterprises investment in plant and machinery is upto---- ------ a) 25 lakhs b) 50 lakhs c) 5 crores d) 10 crores	K1	CO1
	6	The first symptom of a sick unit is --------- a) Cash loss b) Working capital shortage c) Net worth d) Bad loans	K2	CO2
4	7	Tax holidays for SSI is for a period of a) Two years b) Five years c) Seven years d) Ten years	K1	CO1
	8	TCO was established as a subsidiary of ------ a) NABARD b) IFCI c) ICICI d) IDBI	K2	CO2
5	9	SEBI Venture Capital Fund Regulations Act was passed in the year a) 1992 b) 1995 c) 1996 d) 1998	K1	CO1
	10	Climate entrepreneurship characterizes ----- a) Tech projects b) Mini projects c) Sustainable projects d) Business projects	K2	CO2

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Summarize the functions of an entrepreneur.	K3	CO3
		(OR)		
	11.b.	Identify the financial schemes available for women entrepreneurs.		
2	12.a.	List down the importance of project management.	K3	CO3
		(OR)		
	12.b.	Construct the various stages in Project life cycle.		
3	13.a.	Outline the financial incentives offered in small scale industries policy.	K4	CO4
		(OR)		
	13.b.	Examine the remedies offered for easing the sickness in the MSME sector.		
4	14.a.	Analyse the problems faced by financial agencies in assisting entrepreneurs.	K4	CO4
		(OR)		
	14.b.	Determine the taxation benefits available for rural industrial projects.		
5	15.a.	Distinguish between angel funding and crowd funding for startups.	K4	CO5
		(OR)		
	15.b.	Examine the services provided by incubators to support emerging entrepreneurs.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Examine the role of entrepreneurship in economic development.	K4	CO4
2	17	Explain about the elements in a feasibility report.	K3	CO4
3	18	Analyze the Government of India policies regarding SSI.	K3	CO4
4	19	Explore the functioning of IDBI as a financial organ.	K4	CO5
5	20	Outline the scope of venture capital funds in India.	K4	CO5

Z-Z-Z END

25COU102/25COC102/25COE102/25AFU102/ 25CRM102/25FTU102/25BPU102/25BSU102

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches – **COMMERCE/COMMERCE (CA) / e-COMMERCE/ COMMERCE (A&F)/ COMMERCE (RM)/ COMMERCE (FT)/ COMMERCE (BPU) / COMMERCE (BSI)**

PRINCIPLES OF MANAGEMENT

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who is known as the Father of Scientific Management? a) Henry Fayol b) F.W. Taylor c) Elton Mayo d) Max Weber	K1	CO1
	2	Management is a a) Science only b) Art only c) Both science and art d) None of these	K2	CO1
2	3	Planning is _____ oriented. a) Past b) Present c) Future d) Both Past and Present	K1	CO2
	4	The first function of management is a) Controlling b) Planning c) Organising d) Staffing	K2	CO2
3	5	The process of arranging resources and tasks to achieve goals is called a) Planning b) Organising c) Staffing d) Directing	K1	CO3
	6	Which principle states that "authority and responsibility must go together"? a) Unity of command b) Discipline c) Equity d) Authority and responsibility	K2	CO3
4	7	Recruitment and selection are part of which function? a) Planning b) Staffing c) Organising d) Directing	K1	CO4
	8	A leader who involves employees in decision-making is called _____. a) Autocratic leader b) Democratic leader c) Laissez-faire leader d) Transactional leader	K2	CO4
5	9	Motivation is a _____ process. a) Mechanical b) Physical c) Psychological d) Legal	K1	CO5
	10	The process of measuring performance and taking corrective action is called _____. a) Planning b) Directing c) Controlling d) Organising	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain any four characteristics of management.	K2	CO1
		(OR)		
	11.b.	Summarise the three levels of management with examples.		
2	12.a.	Why is planning important in management?	K2	CO2
		(OR)		
	12.b.	Differentiate between MBO and MBE.		
3	13.a.	Apply the concept of good organisation to a business and list its features.	K3	CO3
		(OR)		
	13.b.	Employ the concept of centralisation to a government organisation.		
4	14.a.	Derive and apply the main elements of the staffing process in a company.	K3	CO4
		(OR)		
	14.b.	Customise - How can a company use job analysis and job evaluation in HR decisions?		
5	15.a.	Analyse the different types of motivation with suitable examples.	K4	CO5
		(OR)		
	15.b.	Examine the characteristics of an ideal control system in an organisation.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 x 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	List and explain the main functions of management.	K1	CO1
2	17	Explain the steps in the decision-making process.	K2	CO2
3	18	Apply organisation theories to modern business and explain.	K3	CO3
4	19	Analyse the different types of leadership styles with examples.	K4	CO4
5	20	Evaluate the role of Artificial Intelligence in today's management.	K5	CO5

Z-Z-Z END

22COU102N/ 22AFU102N/ 22CRM102N/ 22FTU102N/ 22BPU102N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches – **COMMERCE/ COMMERCE (A&F)/ COMMERCE (RM)/ COMMERCE (FT)/ COMMERCE (BPS)**

PRINCIPLES OF MANAGEMENT

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Who is the father of Scientific Management? a) Henry Fayol b) F.W.Taylor c) Keith Davis d) Emerson	K1	CO1
	2	Management function include a) Planning & Organising b) Directing c) Controlling d) All the above	K2	CO1
2	3	Which of the following is the limitation of planning? a) Resistance to Change b) Slower changes c) Flexibility d) Cost effective	K1	CO2
	4	The plan that involves some procedures and rule is known as a) Programme b) Strategy c) Budget d) All of the above	K2	CO2
3	5	Which of the following is about grouping of jobs? a) Planning b) Organizing c) Directing d) Controlling	K1	CO3
	6	Which of the following is not the organization structure? a) Line b) Functional c) Circular d) Matrix	K2	CO3
4	7	Recruitment is the process of a) Appointing candidates b) Evaluating job performance c) Attracting potential candidate d) Promoting employees	K1	CO4
	8	Due to which of the following reasons Rama is considered as ideal leader in Ramayana? a) Political power b) Wealth c) Moral values and fairness d) Military strength	K2	CO4
5	9	Primary objective of motivation is a) Increase absenteeism b) Improve discipline c) Enhance productivity d) Reduce Profit	K1	CO5
	10	Corrective action is taken when a) Targets are achieved b) Plans are made c) Performance deviates d) Budgets are allocated	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the characteristics of management.	K2	CO1
		(OR)		
	11.b.	Is management science or art? Interpret.		
2	12.a.	Identify why is planning important?	K3	CO2
		(OR)		
	12.b.	Write a brief note of MBO.		
3	13.a.	Summarize the importance of organization.	K2	CO3
		(OR)		
	13.b.	Explain about departmentation.		
4	14.a.	Discuss about the types of training.	K4	CO4
		(OR)		
	14.b.	Write a brief note on job analysis.		
5	15.a.	Examine the importance of co-ordiantion.	K4	CO5
		(OR)		
	15.b.	List seven characteristics of ideal control system.		

SECTION - C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Identify the Faylor's principles of management.	K3	CO1
2	17	Organise the principles of planning.	K3	CO2
3	18	Examine the features of good organization.	K4	CO3
4	19	List out the qualities of a good leader.	K4	CO4
5	20	Discuss about the Maslow's theory of motivation.	K4	CO5

Z-Z-Z END

TOTAL PAGES : 2

22COU205N/22COU205/ 22FSU205N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(Second Semester)

Common to Branches – **COMMERCE / COMMERCE (FS)**

BUSINESS LAW & ETHICS

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	_____is also called as proposal. a) Specific b) Offer c) Consideration d)Indemnity	K1	CO1
	2	E-contract is formed in _____form. a)Simple b) Forged c) Electronic d)binding	K2	CO1
2	3	All the illegal agreements are____. a) Avoidable b) Ab initio void c) Valid d) Contingent	K1	CO2
	4	Which of the agreements is NOT a part of WTO? a) GATS b) TRIMS c) TRIPS d) None of the above	K2	CO2
3	5	The person to whom they are delivered a goods is___. a) Bailee b) Bailor c) Agent d) None of above	K1	CO3
	6	Sale of goods act was passed on____. a) 1930 b) 1965 c) 2010 d) 1986	K2	CO3
4	7	Which Consumers Right is not guaranteed under Consumer Protection Act, 2019? a) Right to Choose b) Right to Exploitation c) Right to be Heard d) Right to seek redressal	K1	CO4
	8	Who heads the Central Authority's, Investigation Wing? a)Police Officer b) Magistrate c) Director-General d) None of the above	K2	CO4
5	9	High rate of employees turnover indicate that the leadership is____. a)Effective b) Ineffective c) Efficient d) Inefficient	K1	CO5
	10	If employees are given___ to do the job, their morale will be high. a) Pressure b) Punishment c) Freedom d) All the above	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Describe the types of offer.	K2	CO1
		(OR)		
	11.b.	'Contract without consideration'. Explain		
2	12.a.	Distinguish between Coercion and Undue influence.	K2	CO2
		(OR)		
	12.b.	Summarize the effect of Mistake.		
3	13.a.	Explain the rights on Bailee.	K2	CO3
		(OR)		
	13.b.	State the classification of agent.		
4	14.a.	List out the rights of Consumer.	K2	CO4
		(OR)		
	14.b.	State aim and objectives of consumer protection Act 2019.		
5	15.a.	Explain the important of principles of business ethics.	K2	CO5
		(OR)		
	15.b.	State the touchstones of business ethics.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explicate the modes of revocation of offer.	K2	CO1
2	17	Describe the remedies for Breach of contract.	K2	CO2
3	18	Distinguish between agreement to sell and sale.	K2	CO3
4	19	Explain different types of consumer protection councils.	K2	CO4
5	20	Elaborate the procedure for obtaining information under rights to information Act 2005.	K2	CO5

Z-Z-Z END

25CSU103B/ 25COU103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches - **CORPORATE SECRETARYSHIP / COMMERCE**

MATHEMATICS

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Question No.	Question	K Level	CO
1	If the successive terms increase or decrease by a constant, the series is called _____. a) Sequence b) Arithmetic Progression c) Geometric Progression d) Harmonic Progression	K1	CO1
2	Example for Geometric Progression is_____. a)2, 4, 6, 7.... b)5, 10, 15, ... c)7/11, 7/19, 7/27, ... d)7, 42, 252, ...	K2	CO1
3	Simple Interest = _____. a) $\frac{Pnr}{100}$ b) $\frac{100\,I}{nr}$ c) $\frac{100\,I}{nP}$ d) $\frac{100I}{Pr}$	K1	CO2
4	If P(Present Value)=Rs.10000, n(due)= 4 months, r (Interest rate)= 10% p.a., find the true discount. a) Rs.3.33 b) Rs.33.33 c) Rs.333.33 d) Rs.3333.33	K2	CO2
5	If all the elements of a matrix are zeros, it is called a _____ Matrix. a) Null b) Column c) Row d) Skew-Symmetric	K1	CO3
6	In the matrix $\begin{bmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{bmatrix}$, minor of the element a_1 is _____. a) $b_2c_3 - b_3c_2$ b) $b_2c_3 + b_3c_2$ c) $b_2c_3 = b_3c_2$ d) $a_2b_2 - b_3a_3$	K2	CO3
7	$\frac{d(x^n)}{dx}$ = _____. a) x^n b) x^{n-1} c) nx^{n-1} d) nx^n	K2	CO4
8	Average revenue = _____. a) $\frac{Total\ cost}{Number\ of\ units}$ b) $\frac{Total\ revenue}{Number\ of\ units\ sold}$ c) $\frac{Price\ per\ unit}{Total\ revenue}$ d) $\frac{Number\ of\ units\ sold}{Total\ cost}$	K1	CO4
9	Graphical method gives the solution of an L.P.P in which there are _____. a) two constants b) single constant c) single variable d) two variables	K2	CO5
10	In simplex method when all the basic variables are non-zero, the basic solution is called _____. a) degenerate b) non-degenerate c) slack variable d) basis	K1	CO5

SECTION - B (35 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	The seventh and the ninth terms of an Arithmetic series is 16 and 20 respectively. Find the nth term	K2	CO1
	(OR)		
11.b.	Find the sum of n terms of the following series 7+77+777+....		

Cont...

12.a.	Show that the present value of Rs.500 due in 4 years at 3% compounded semi annually is Rs.444 approximately	K3	CO2
	(OR)		
12.b.	Calculate the rate of interest of a bill of Rs.12937.50 whose true discount for the unexpired period of 4 months is Rs.437.50		
13.a.	If $A = \begin{bmatrix} 2 & 3 & 5 \\ 4 & 7 & 9 \\ 1 & 6 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 1 & 2 \\ 4 & 2 & 5 \\ 6 & -2 & 7 \end{bmatrix}$, show that $5(A+B) = 5A + 5B$.	K3	CO3
	(OR)		
13.b.	If $A = \begin{bmatrix} 2 & 0 & -1 \\ 2 & 4 & -1 \\ 1 & -8 & -3 \end{bmatrix}$, show that $A.(\text{Adj } A) = \lvert A \rvert I_3$.		
14.a.	Find the derivatives of : i) $(x^2+5)(3x+1)$ and ii) $\frac{3x^4-x^2+8}{x}$	K1	CO4
	(OR)		
14.b.	If the demand function is $p = 4-5x$, for what value of x will elasticity of demand be unitary?		
15.a.	A company makes three products X,Y and Z which pass through three departments : Drill, Lathe and Assembly. The hours available in each department, hours required by each product in each department and profit contribution of each product are given below: Product — Time required in hours (Drill, lathe, Assembly) — Profit per Units (Rs.) X: 3, 3, 8 — 9 Y: 6, 5, 10 — 15 Z: 7, 4, 12 — 20 Hours Available: 210, 240, 260 Formulate the above as an L.P.P.	K3	CO5
	(OR)		
15.b.	Solve by graphical method: Minimize $Z = -3x_1 + 4x_2$ subject to $x_1 + x_2 \leq 4$ $2x_1 + 3x_2 \geq 18$ and $x_1, x_2 \geq 0$.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	The sum of 3 numbers in G.P. is 35 and their product is 1000. Find the numbers.	K2	CO1
17	A bill was drawn on April 1st 1990 at 6 months and discounted on 23rd July, 1990, at 5% p.a.. If the banker's discount was Rs. 160, find the value of the bill. How much more would be the bill owner obtaining if it were discounted on July 24, 1990.	K2	CO2
18	Show that $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ satisfies the equation $A^2-4A-5I = 0$ where I is the identity matrix and 0 denotes the zero matrix. Hence find the inverse of A.	K3	CO3
19	If $y = x + \sqrt{x^2 + a^2}$. Show that $\frac{d^2y}{dx^2} = \frac{1}{2\sqrt{2}a}$ at x=a.	K3	CO4
20	Solve the following L.P.P by the Simplex Method Minimize $Z = -x_1 + 2x_2$ Subject to $-x_1 + x_2 \leq 10$ $x_1 + x_2 \leq 6$ $x_1 - x_2 \leq 2$ $x_1, x_2 \geq 0$	K4	CO5

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCom DEGREE EXAMINATION DECEMBER 2025
(Second Semester)
Common to Branches – **COMMERCE (RM) / COMMERCE (FS) / COMMERCE (FT)**

MATHEMATICS FOR COMMERCE

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	A state levies 12% sales tax . what is the tax on a car listed at Rs.42,300. a) Rs.48,300 b) Rs.5,076 c) 18,200 d) 7,320	K1	CO1
	2	Infer the n^{th} term of geometric series a) ar^{n-1} b) ar^n c) ar^{n+1} d) ar	K2	CO1
2	3	A square matrix such that aij = -aji for all i and j is defined as — matrix. a) Symmetric b) Skew-symmetric c) Diagonal d) Triangular	K2	CO2
	4	In the system of linear equations $AX = B$, if $B = 0$, then the system is a _____. a) non-homogeneous b) homogeneous c) linear d) non-linear	K2	CO2
3	5	Find $\frac{dy}{dx}$ of implicit function $x^2 + y^2 = a^2$ a) x/y b) $-y/x$ c) $-x/y$ d) y/x	K2	CO3
	6	If the value of Marginal revenue is $60 - 12x$ then at what value of x marginal revenue is equal to zero a) 40 b) 50 c) 0.5 d) 5	K2	CO3
4	7	Find the value of $\int(e^x - 1)dx$ a) $e^x - x + c$ b) $e^x + x + c$ c) $e^{-x} - x + c$ d) $e^{-x} + x + c$	K1	CO4
	8	Infer the value of $\int_0^2 (x^2 - 4x + 5)dx$ a) $\frac{11}{3}$ b) $\frac{14}{3}$ c) $\frac{8}{3}$ d) $\frac{7}{3}$	K2	CO4
5	9	In LPP a pivot element is always... a) Positive b) either positive or negative c) Negative d) None	K1	CO5
	10	Infer that when all the basic variables are non-zero, the basic solution is called _____ a) degenerate b) unbounded c) infinite d) non-degenerate	K2	CO5

SECTION - B (35 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	A Person has two daughters A and B aged 13 and 16 years .He has Rs.40,000 with him now but wants that both of them should get an equal amount when they are 20 years old. How he should divide the money if it were to be deposited in a bank giving 9% compound interest per annum?	K3	CO1
		(OR)		
	11.b.	i) Find the sum of n terms of the series 6+66+666+..... . ii)A free hold estate worth Rs. 125 a year is sold for Rs. 4000. Find the rate of interest.		CO1
2	12.a.	Find the inverse of $A = \begin{pmatrix} 4 & 0 & 2 \\ 2 & 10 & 2 \\ 3 & 9 & 1 \end{pmatrix}$.	K3	CO2
		(OR)		
	12.b.	Solve by using Matrix inversion method $2x + 3y - z = 9$, $x + y + z = 9$, $3x - y - z = -1$.		

Cont...

3	13.a.	Find the derivative of $y = x^x$	K3	CO3
		(OR)		
	13.b.	If $y = ax^2 + bx$. Show that $x^2\frac{d^2y}{dx^2} - 2x\frac{dy}{dx} + 2y = 0$		
4	14.a.	Prove that $\int_0^1 \frac{xdx}{1+x^2} = \frac{1}{2}\log 2$	K3	CO4
		(OR)		
	14.b.	Solve $\int x^2 e^x dx$ by integration by parts		
5	15.a.	A person requires at least 10, 12 and 12 units of the chemicals P, Q and R respectively for his garden. A liquid product contains 1, 2 and 4 units of P, Q and R respectively per jar.A dry product contains 5, 2 and 1 units of P, Q and R per carton. The liquid product sells for Rs.3 per jar and the dry product sells for Rs.2 per carton. Formulate this as an LPP for minimizing the cost.	K3	CO5
		(OR)		
	15.b.	Solve by graphical method: $Max\ Z = -3x + 4y$ Subject to the constraints $x + y \leq 4$; $2x + 3y \geq 18$ and $x, y \geq 0$.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	A bill for Rs.1,825 was drawn on 22nd January at 6 months date and discounted on 16th April at the rate of 10% p.a. Find the sum for which the bill was discounted and the banker's gain.	K3	CO1
2	17	Consider an economy of two industries P & Q where the data, in millions of rupees is given below. Determine the output when the final demand changes to 20 for P and 30 for Q.	K3	CO2
3	18	A firm sells a product at Rs.3 per unit is given by $C = 20 + 0.6x + 0.01x^2$. How many units should be made to achieve maximum profit? Verify that the condition for a maximum is satisfied.	K3	CO3
4	19	Evaluate $\int \frac{dx}{(x-1)(x^2-5x+6)}$	K3	CO4
5	20	Use Simplex method to solve the LPP: $Max\ Z = x + y + 3z$ Subject to the constraints $3x + 2y + z \leq 3$; $2x + y + 2z \leq 2$ and $x, y, z \geq 0$.	K3	CO5

Producer	A	B	Final Demand	Total Output
A	14	6	8	28
B	7	18	11	36

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches – **COMMERCE (RM)/ COMMERCE (FS)/ COMMERCE (FT)**

STATISTICS

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Types of frequency distribution are (a) 3 (b) 4 (c) 5 (d) 2	K1	CO1
	2	Histograms are under (a) One dimensional (b)Two dimensional (c) Graphs (d) Pictogram	K2	CO1
2	3	Number of observations are 10 and value of arithmetic mean is 15 then sum of all values is (a) 200 (b) 10 (c) 15 (d) 150	K1	CO2
	4	While calculating the standard deviation, the deviations are only taken from (a) Mode value (b) Median value (c) Quartile value (d)Mean value	K2	CO2
3	5	The range of simple correlation coefficient is (a) 0 to ∞ (b) -∞ to +∞ (c) 0 to 1 (d) -1 to +1	K1	CO3
	6	In the regression line $Y=\alpha+\beta X$, β is called the (a) Slope of the line (b) Intercept of the line (c) Neither (a) nor (b) (d) Functional relation of regression	K2	CO3
4	7	The index number for base year is always (a) 1 (b) 10 (c) 100 (d) 1000	K1	CO4
	8	Cost of living index number is also called as (a) consumer price index (b) fisher ideal index (c) marshall-edgeworth (d) kelly's method	K2	CO4
5	9	If a card is chosen from a standard deck of cards, what is the probability of getting a diamond or a club? (a) 13/52 (b) 1/2 (c) 15/52 (d) 12/52	K1	CO5
	10	The mean of the binomial distribution is (a) Npq (b) np (c) n (d) n (1-p)	K2	CO5

SECTION - B (35 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the various types of classification of data.	K2	CO1
		(OR)		
	11.b.	Construct less than cumulative frequency curve for the following data.		

Monthly Wage (000)	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No of Workers	11	15	25	39	26	17	7

Cont...

<table>
<tr><td rowspan="3">2</td><td>12.a.</td><td>Apply mean and mode for the following distribution.
<table><tr><td>Age</td><td>0-10</td><td>10-20</td><td>20-30</td><td>30-40</td><td>40-50</td></tr><tr><td>No.of Persons</td><td>3</td><td>5</td><td>9</td><td>3</td><td>2</td></tr></table></td><td rowspan="3">K3</td><td rowspan="3">CO2</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>12.b.</td><td>Explain the standard deviation and its merits and demerits.</td></tr>
<tr><td rowspan="3">3</td><td>13.a.</td><td>Analyze correlation coefficient for the following data
<table><tr><td>X</td><td>10</td><td>12</td><td>18</td><td>24</td><td>23</td><td>27</td></tr><tr><td>Y</td><td>13</td><td>18</td><td>12</td><td>25</td><td>30</td><td>10</td></tr></table></td><td rowspan="3">K3</td><td rowspan="3">CO3</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>13.b.</td><td>Distinguish between correlation and Regression.</td></tr>
<tr><td rowspan="3">4</td><td>14.a.</td><td>Explain the construction index number.</td><td rowspan="3">K4</td><td rowspan="3">CO4</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>14.b.</td><td>An index for 2018 taking 2017 as the base year to determine the expenditure using aggregative method from the following data.
<table><tr><th>Commodity</th><th>Weights</th><th>Price (2017)</th><th>Price (2018)</th></tr><tr><td>A</td><td>40</td><td>16</td><td>20</td></tr><tr><td>B</td><td>25</td><td>40</td><td>60</td></tr><tr><td>C</td><td>5</td><td>2</td><td>3</td></tr><tr><td>D</td><td>20</td><td>5</td><td>7</td></tr><tr><td>E</td><td>10</td><td>2</td><td>4</td></tr></table></td></tr>
<tr><td rowspan="3">5</td><td>15.a.</td><td>State
(i) Addition theorem
(ii) Multiplication theorem
(iii) Bayes' Theorem</td><td rowspan="3">K4</td><td rowspan="3">CO5</td></tr>
<tr><td colspan="2">(OR)</td></tr>
<tr><td>15.b.</td><td>Explain binomial, poisson and normal distributions.</td></tr>
</table>

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

<table>
<tr><th>Module No.</th><th>Question No.</th><th>Question</th><th>K Level</th><th>CO</th></tr>
<tr><td>1</td><td>16</td><td>Explain the methods of collecting primary and secondary data.</td><td>K4</td><td>CO1</td></tr>
<tr><td>2</td><td>17</td><td>Apply Coefficient of Variation from the following marks.
<table><tr><td>Marks</td><td>0-20</td><td>20-40</td><td>40-60</td><td>60-80</td><td>80-100</td></tr><tr><td>No. of Students</td><td>2</td><td>5</td><td>10</td><td>8</td><td>5</td></tr></table></td><td>K4</td><td>CO2</td></tr>
<tr><td>3</td><td>18</td><td>Analyze the average relationship between price and supply by using equations of two regression lines for the following data.
<table><tr><td>Sales (in Rs.)</td><td>10</td><td>12</td><td>13</td><td>12</td><td>16</td><td>15</td><td>17</td><td>18</td></tr><tr><td>Expenditure (in Rs.)</td><td>40</td><td>38</td><td>43</td><td>45</td><td>37</td><td>43</td><td>42</td><td>39</td></tr></table></td><td>K4</td><td>CO3</td></tr>
<tr><td>4</td><td>19</td><td>Construct index number using (i) Laspeyre's (ii) Paasche's (iii) Fisher's ideal index number for the given data.
<table><tr><th>Commodity</th><th colspan="2">Base year</th><th colspan="2">Current year</th></tr><tr><th></th><th>Quantity</th><th>Price</th><th>Quantity</th><th>Price</th></tr><tr><td>Food</td><td>12</td><td>10</td><td>15</td><td>12</td></tr><tr><td>Clothing</td><td>15</td><td>7</td><td>20</td><td>5</td></tr><tr><td>Rent</td><td>24</td><td>5</td><td>20</td><td>9</td></tr><tr><td>Others</td><td>5</td><td>16</td><td>5</td><td>14</td></tr></table></td><td>K4</td><td>CO4</td></tr>
<tr><td>5</td><td>20</td><td>A bag contains 7 red, 12 white and 4 green balls. 3 balls are drawn one after another. Find the probability that all are white if the draws are (i) with replacement (ii) without replacement</td><td>K4</td><td>CO5</td></tr>
</table>

Z-Z-Z END

25CRM103/ 25FSU103/ 25FTU103/ 25BSU103

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Common to Branches – **COMMERCE (RM)/ COMMERCE (FS)/ COMMERCE (FT)/ COMMERCE (BS&I)**

STATISTICS

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Statistics deals with a) Qualitative data only b) Quantitative data only c) Both qualitative and quantitative data d) None of the above	K1	CO1
	2	Which of the following is a method of collecting primary data? a) Newspaper reports b) Company records c) Government publications d) Direct personal interview	K2	CO1
2	3	Which measure is most affected by extreme values? a) Median b) Mode c) Mean d) Standard Deviation	K1	CO2
	4	The difference between the highest and lowest value in a dataset is called a) Standard Deviation b) Range c) Variance d) Quartile Deviation	K2	CO2
3	5	Which of the following indicates perfect positive correlation? a) 0 b) –1 c) 1 d) 0.5	K1	CO3
	6	If the value of one variable increases with the increase in another variable, the correlation is a) Negative b) Positive c) Zero d) None of the above	K2	CO3
4	7	Index numbers are expressed in a) Absolute numbers b) Percentages c) Ratios only d) Fractions only	K1	CO4
	8	The method used to measure long-term trend in time series is a) Moving Average b) Seasonal Index c) Irregular variation d) Index Numbers	K2	CO4
5	9	The sum of probabilities of all mutually exclusive and exhaustive events is a) 0 b) 1 c) Between 0 and 1 d) None of the above	K1	CO5
	10	Which of the following is a discrete probability distribution? a) Normal b) Poisson c) Uniform d) Exponential	K2	CO5

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the different methods of data collection with suitable examples.	K3	CO1
		(OR)		
	11.b.	Population of India in five censal years is given. Interpret this by Simple bar diagram.		

Year	1981	1991	2001	2011	2021
Population	36	44	55	68	84

Cont...

2	12.a.	The expenditure of 10 families in Rupees are given below. Fam: A B C D E F G H I J Expn.: 30 70 10 75 50 8 42 25 40 36 Calculate Arithmetic Mean.	K4	CO2
		(OR)		
	12.b.	Calculate range and co efficient of range 10,12,13,16,11,12,13,10,15,19		
3	13.a.	Define a Scatter diagram. Plot the scatter diagram when (i) r = +1 (ii) r = -1 (iii) r = 0	K5	CO3
		(OR)		
	13.b.	Compute the coefficient of correlation between X and Y: X: 10 12 18 8 13 20 22 15 5 17 Y: 88 90 94 86 87 92 96 94 88 85		
4	14.a.	Draw the trend line by graphic method and estimate the production in 2003. Year: 1995 1996 1997 1998 1999 2000 2001 Prodn.: 20 22 25 26 25 27 30	K3	CO4
		(OR)		
	14.b.	Calculate 5 years moving average of number of students in a commerce college as shown by the following figures: Year: 87 88 89 90 91 92 93 94 95 96 Students: 332 311 357 392 402 405 410 427 405 438		
5	15.a.	A bag contains 5 red balls and 3 blue balls. Two balls are drawn one after the other without replacement. Find the probability that both balls are red.	K3	CO5
		(OR)		
	15.b.	A factory produces bolts; historically the probability that a randomly selected bolt is defective is 0.02. From a day's production, 50 bolts are randomly sampled.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Draw a Pie diagram to represent the following data: Item: Food Cloth Rent Other Expenses Family A: 240 160 80 200 Family B: 300 300 200 400	K3	CO1
2	17	Calculate Mean, Median and Mode: Marks: Below 10 Below 20 Below 30 Below 40 Below 50 Students: 3 8 17 20 22	K4	CO2
3	18	From the following information on values of two variables X and Y, Find the two regression lines and the correlation coefficient: N=10;∑X=20;∑Y=40;∑x2=240;∑Y2=410;∑XY=200	K5	CO3
4	19	Fit a straight line trend equation to the following data by the method of least squares and estimate the value of sales for the year 1985. Year: 1979 1980 1981 1982 1983 Sales: 100 120 140 160 180	K3	CO4
5	20	A company receives components from two suppliers. Supplier A supplies 60% of components and Supplier B supplies 40%. The defect rate is **3%** for components from A and **5%** for components from B. (a) If a component chosen at random is found defective, what is the probability that it came from Supplier B? (Use Bayes' theorem.) (b) If a random batch of 200 components is taken, find the expected number of defective components and the variance of the number of defective components.	K3	CO5

Z-Z-Z END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BCom DEGREE EXAMINATION DECEMBER 2025
(Second Semester)
Common to Branches – **COMMERCE (RM) / COMMERCE (FS) / COMMERCE (FT)**

MATHEMATICS FOR COMMERCE

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	A state levies 12% sales tax . what is the tax on a car listed at Rs.42,300. a) Rs.48,300 b) Rs.5,076 c) 18,200 d) 7,320	K1	CO1
	2	Infer the n^{th} term of geometric series a) ar^{n-1} b) ar^n c) ar^{n+1} d) ar	K2	CO1
2	3	A square matrix such that aij = -aji for all i and j is defined as — matrix. a) Symmetric b) Skew-symmetric c) Diagonal d) Triangular	K2	CO2
	4	In the system of linear equations $AX = B$, if $B = 0$, then the system is a _____ a) non-homogeneous b) homogeneous c) linear d) non-linear	K2	CO2
3	5	Find $\frac{dy}{dx}$ of implicit function $x^2 + y^2 = a^2$ a) x/y b) $-y/x$ c) $-x/y$ d) y/x	K2	CO3
	6	If the value of Marginal revenue is 60 – 12x then at what value of x marginal revenue is equal to zero a) 40 b) 50 c) 0.5 d) 5	K2	CO3
4	7	Find the value of $\int(e^x - 1)dx$ a) $e^x - x + c$ b) $e^x + x + c$ c) $e^{-x} - x + c$ d) $e^{-x} + x + c$	K1	CO4
	8	Infer the value of $\int_0^2 (x^2 - 4x + 5)dx$ a) $\frac{11}{3}$ b) $\frac{14}{3}$ c) $\frac{8}{3}$ d) $\frac{7}{3}$	K2	CO4
5	9	In LPP a pivot element is always... a) Positive b) either positive or negative c) Negative d) None	K1	CO5
	10	Infer that when all the basic variables are non-zero, the basic solution is called _____ a) degenerate b) unbounded c) infinite d) non-degenerate	K2	CO5

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	A Person has two daughters A and B aged 13 and 16 years .He has Rs.40,000 with him now but wants that both of them should get an equal amount when they are 20 years old. How he should divide the money if it were to be deposited in a bank giving 9% compound interest per annum?	K3	CO1
		(OR)		
	11.b.	i) Find the sum of n terms of the series 6+66+666+..... . ii)A free hold estate worth Rs. 125 a year is sold for Rs. 4000. Find the rate of interest.		CO1
2	12.a.	Find the inverse of $A = \begin{pmatrix} 4 & 0 & 2 \\ 2 & 10 & 2 \\ 3 & 9 & 1 \end{pmatrix}$.	K3	CO2
		(OR)		
	12.b.	Solve by using Matrix inversion method $2x + 3y - z = 9$, $x + y + z = 9$, $3x - y - z = -1$.		

Cont...

3	13.a.	Find the derivative of $y = x^x$	K3	CO3
		(OR)		
	13.b.	If $y = ax^2 + bx$. Show that $x^2 \frac{d^2y}{dx^2} - 2x\frac{dy}{dx} + 2y = 0$		
4	14.a.	Prove that $\int_0^1 \frac{xdx}{1+x^2} = \frac{1}{2}\log 2$	K3	CO4
		(OR)		
	14.b.	Solve $\int x^2 e^x dx$ by integration by parts		
5	15.a.	A person requires at least 10, 12 and 12 units of the chemicals P, Q and R respectively for his garden. A liquid product contains 1, 2 and 4 units of P, Q and R respectively per jar.A dry product contains 5, 2 and 1 units of P, Q and R per carton. The liquid product sells for Rs.3 per jar and the dry product sells for Rs.2 per carton. Formulate this as an LPP for minimizing the cost.	K3	CO5
		(OR)		
	15.b.	Solve by graphical method: $Max\ Z = -3x + 4y$ Subject to the constraints $x + y \leq 4$; $2x + 3y \geq 18$ and $x, y \geq 0$.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	A bill for Rs.1,825 was drawn on 22nd January at 6 months date and discounted on 16th April at the rate of 10% p.a. Find the sum for which the bill was discounted and the banker's gain.	K3	CO1
2	17	Consider an economy of two industries P & Q where the data, in millions of rupees is given below. Determine the output when the final demand changes to 20 for P and 30 for Q.	K3	CO2

Producer	A	B	Final Demand	Total Output
A	14	6	8	28
B	7	18	11	36

3	18	A firm sells a product at Rs.3 per unit is given by $C = 20 + 0.6x + 0.01x^2$. How many units should be made to achieve maximum profit? Verify that the condition for a maximum is satisfied.	K3	CO3
4	19	Evaluate $\int \frac{dx}{(x-1)(x^2-5x+6)}$	K3	CO4
5	20	Use Simplex method to solve the LPP: $Max\ Z = x + y + 3z$ Subject to the constraints $3x + 2y + z \leq 3$; $2x + y + 2z \leq 2$ and $x, y, z \geq 0$.	K3	CO5

Z-Z-Z END

23COU519N/23COE518N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(Fifth Semester)

Common to Branches – **COMMERCE / E-COMMERCE**

MARKETING & MARKETING RESEARCH

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which one of the following is Marketing Mix? a) Product b) Planning c) Coordination d) Controlling	K1	CO1
	2	Show the term market derived from a) Arabic word b) English Word c) French word d) Latin word	K2	CO1
2	3	Which one of the following stages of Product Life Cycle ? a) 4 b) 5 c) 2 d) 3	K1	CO2
	4	Which of the following is the first stage of New product Development a) Idea b) Introduction c) Growth d) Screening	K2	CO2
3	5	Pricing method based on customer value is known as a) Cost Based Pricing b) Demand Based Pricing c) Competition Based Pricing d) Value Based Pricing	K1	CO3
	6	A System of selling goods directly to customers through network of self employed people a) Multi level marketing b) Whole sale marketing c) Vertical marketing d) Retail marketing	K2	CO3
4	7	Marketing research process starts with a) Initial search of secondary data b) Defining research objectives c) Collecting data d) Designing primary data collection samples	K1	CO4
	8	What is exploratory research a) Research conducted for a problem that is not yet fully defined b) Research to evaluate brand effectiveness c) Method of research that focuses on long free-form interviews d) None of these	K2	CO4
5	9	When we use data collected by someone else that already existed is called a) Tertiary data b) Primary data c) Secondary data d) Original research	K1	CO5
	10	Which type of research is used to define problems and suggest hypotheses? a) Descriptive research b) Primary research c) Secondary research d) Casual research	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the Scope of Marketing.	K2	CO1
		(OR)		
	11.b.	Discuss the Concept of Marketing Mix.		
2	12.a.	Sketch out the different types of Branding.	K3	CO2
		(OR)		
	12.b.	Examine the various types of Packaging.		
3	13.a.	Outline about the different types of Channels of Distribution.	K4	CO3
		(OR)		
	13.b.	Examine the Need for Promotion Management.		
4	14.a.	Summarise the Objectives of Marketing Research.	K2	CO4
		(OR)		
	14.b.	Discuss about the different types of Research.		
5	15.a.	Explain the Probability methods of sampling.	K4	CO5
		(OR)		
	15.b.	Explain the different types of Hypothesis.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Sketch out Functions of Marketing .	K3	CO1
2	17	Determine process involved in New Product Development.	K3	CO2
3	18	Identify the various factors affecting the Pricing.	K4	CO3
4	19	Determine the Process of Marketing Research.	K5	CO4
5	20	Organize the different Applications of Marketing Research.	K3	CO5

Z-Z-Z END

23AFU311N/ 23FSU311N/ 23CBI311N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(Third Semester)

Common to Branches - **COMMERCE (A&F)/ COMMERCE (FS)/ COMMERCE (B&I)**

BUSINESS COMMUNICATION

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Communication is a _____. a. One way process b. Two way process c. Three way process d. Four way process	K1	CO1
	2	Where the term communism derived from? a. Greek b. Latin c. Chinese d. English	K2	CO1
2	3	Relate Formal Interview _____. a. Planned Interview b. Unstructured interview c. Group Interview d. None of these	K1	CO2
	4	What are the two broad areas of communication? a. Oral and written communication b. Verbal and written communication c. Verbal and non-verbal communication d. Oral and non-verbal communication	K2	CO2
3	5	Orders and directives are the example of which communication? a. Downward b. Upward c. Diagonal d. Horizontal	K1	CO3
	6	Memo is an example for ___ communication. a. External b. Internal c. Oral d. Written	K2	CO3
4	7	Communication by the superior involves _____. a. Directions b. Orders c. Complaints d. Instructions	K1	CO4
	8	Which of the following is a type of insurance correspondence letter? a. Reporting loss b. Overdraft limit c. Both (a) & (b) d. Form	K2	CO4
5	9	What is the primary purpose of video conferencing? a. To send emails b. To facilitate face-to-face communication remotely c. To create presentations d. To record videos	K2	CO5
	10	What does BCC Stands for? a. Black Carbon Copy b. Blind Carbon Copy c. Blinded Carbon Car d. None of Above	K1	CO5

SECTION - B (35 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the process of Business Communication.	K5	CO1
		(OR)		
	11.b.	Interpret the characteristics of good communication.		

Cont...

2	12.a.	Identify the needs of business letter.	K3	CO2
	(OR)			
	12.b.	Explain advantages of written communication?		
3	13.a.	Evaluate the importance of report writing.	K5	CO3
	(OR)			
	13.b.	Draft an agenda for a parent's meeting.		
4	14.a.	Design the letter of complaint for delay delivery of pickles ordered by a Departmental Stores.	K6	CO4
	(OR)			
	14.b.	Draft a letter requesting your bank to stop payment of your lost cheque.		
5	15.a.	What is video conferencing? List out the importance of video conferencing.	K3	CO5
	(OR)			
	15.b.	Explain the rules of telephone etiquette.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the various barriers of Communication.	K4	CO1
2	17	Design the layout of a business letter.	K6	CO2
3	18	Categorize the various types of Reports.	K3	CO3
4	19	You have received some paper in damaged condition from suppliers. Draft a complaint letter regarding it.	K3	CO4
5	20	Enumerate the features and uses of E-mail.	K3	CO5

Z-Z-Z END

25COC103/ 25PAU103/ 25COE103/ 25AFU103/ 25CBI103/ 22COC103N/ 22COE103N/ 24PAU103N/ 22PAU104N/ 22AFU103N/ 22CBI103N

PSG COLLEGE OF ARTS & SCIENCE

(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025

(First Semester)

Common to Branches – **COMMERCE (CA)/ E-COMMERCE/ COMMERCE (PA)/ COMMERCE (A&F)/ COMMERCE (B&I)**

MATHEMATICS FOR COMMERCE

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	If the sum of first n terms of a geometric series is $3-\frac{3^{n+1}}{4^{2n}}$, then its third term is (a) $\frac{3^3}{4^4}-\frac{3^4}{4^6}$ (b) $\frac{3^3}{4^5}-\frac{3^4}{4^8}$ (c) $\frac{3^3}{4^4}-\frac{3^4}{4^7}$ (d) $\frac{3^3}{4^5}-\frac{3^4}{4^7}$	K1	CO1
	2	If the difference between simple interest and compound interest for two years for the sum of Rs 20000 is Rs.50, then the rate of interest is (a) 5% (b) 6% (c) 7% (d) 8%	K2	CO1
2	3	The inverse the matrix of $\begin{pmatrix}-4 & 5\\ 5 & -6\end{pmatrix}$ is (a) $\begin{pmatrix}2 & 3\\ -5 & 6\end{pmatrix}$ (b) $\begin{pmatrix}1 & 0\\ 0 & 1\end{pmatrix}$ (c) $\begin{pmatrix}6 & 5\\ 5 & 4\end{pmatrix}$ (d) $\begin{pmatrix}2 & 0\\ 0 & 2\end{pmatrix}$	K1	CO2
	4	The product of the matrix (1 2 3) and the matrix $\begin{pmatrix}3\\ 2\\ 1\end{pmatrix}$ is (a) (3 4 3) (b) (6) (c) 10 (d) (10)	K2	CO4
3	5	If $x = a\cos\theta; y = a\sin\theta$, then $\frac{dy}{dx}$ is equal to (a) $\tan\theta$ (b) $-\cot\theta$ (c) $\sec^2\theta$ (d) zero	K1	CO4
	6	The value of $\frac{dx}{dy}$, from the relation $\sin y = x\sin(a+y)$, where a is a constant, is (a) $\frac{\sin a}{\sin^2(a+y)}$ (b) $\frac{\sin a}{\sin y}$ (c) zero (d) $\frac{x}{a+y}$	K2	CO2
4	7	The value of $\int_e^{e^2}\frac{1}{x}dx$ is equals to (a) 0 (b) 2 (c) 1 (d) 3	K1	CO3
	8	$\int(x+\frac{1}{x})^2\,dx$ is equals to (a) $\frac{x^3}{3}+2x-\frac{1}{x}+c$ (b) $\frac{x^2}{2}+3x-\frac{1}{x}+c$ (c) x^2+2x+2 (d) $\frac{(x+\frac{1}{x})^3}{3}+c$	K2	CO4
5	9	To use slack variable if constraints are of (a) ≤ type (b) ≥ type (c) equality type (d) both ≤ *and* ≥ type	K1	CO1
	10	The given linear programming problem has unbounded solution by using graphical method when (a) feasible region is not unbounded (b) feasible region is unbounded (c) feasible region is just a point (d) there does not exist feasible region	K2	CO3

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	A reduction of 21% in the price of rice enables a person to buy 10.5kg more for Rs.100. Find the original price and reduced price of rice.	K3	CO5
		(OR)		

Cont...

	11.b.	A person borrowed a sum of Rs.3150 from a money lender and agreed to repay the sum in ten monthly instalments of Rs.315 each and the simple interest at the rate of 10% per annum in the 11th instalment. Calculate the interest paid by him.		
2	12.a.	If $A = \begin{pmatrix} 1 & 3 & 2 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{pmatrix}$, then show that $A^3 - 4A^2 - 7A + 9I = 0$.	K2	CO4
		(OR)		
	12.b.	If the matrices $A = \begin{pmatrix} 1 & -1 \\ 2 & -1 \end{pmatrix}$ and $B = \begin{pmatrix} a & 1 \\ b & -1 \end{pmatrix}$ satisfy $(A+B)^2 = A^2 + B^2$, then find the values of a and b.		
3	13.a.	Using first principle, find the derivative of $log_e x$ with respect to x.	K1	CO2
		(OR)		
	13.b.	If $y = -x^3 \log x$, then show that $x\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 3x^2 = 0$.		
4	14.a.	Evaluate $\int \frac{3x+5}{x^2+4x+7} dx$.	K3	CO5
		(OR)		
	14.b.	Integrate $\frac{xe^x}{(x+1)^2}$ with respect to x.		
5	15.a.	A farmer has 1000 acres of land on which he can grow corn, wheat or soya-beans. Each acre of corn costs Rs.100 for preparation, requires 7 man-days of work and yields a profit of Rs.30. An acre of wheat costs Rs.120 to prepare, requires 10 man-days of work yields a profit of Rs.40. An acre of soya-beans costs Rs.70 to prepare requires 8 man-days of work yields a profit of Rs.20. If the farmer has Rs.1,00,000 for preparation and can count on 80,000 man-days work. Formulate this as a linear programming problem so as to maximize the profit.	K4	CO5
		(OR)		
	15.b.	Solve graphically the following linear programming problem Minimize $Z = 2x_1 + x_2$ subject to the constraints $x_1 + x_2 \leq 30$, $x_2 \geq 3$, $x_2 \leq 12$, $x_1 - x_2 \geq 0$; $x_1 \leq 20$, $x_1 \geq 0, x_2 \geq 0$.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Find the least number of years for which an annuity of Rs.250 must run in order that the amount just exceeds Rs.5000 at 5% compounded half-yearly.	K1	CO1
2	17	Find the inverse of the matrix $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \\ 1 & 4 & 9 \end{pmatrix}$ and hence solve the system of the equations $x + y + z = 3$, $x + 2y + 3z = 7$, $x + 4y + 9z = 18$.	K2	CO3
3	18	The cost function of product is given by $C(x) = 300x - 10x^2 + \frac{1}{3}x^3$. Compute the (i) output at which the marginal cost is minimum (ii) output at which the average cost is minimum (iii) output at which the average cost equals to marginal cost.	K4	CO5
4	19	The marginal cost function and the marginal revenue function of a product are, respectively, $C'(x) = 4 + 0.08x$ and $R'(x) = 16 + x^2$. Find the total profit given that the total cost for zero output is zero.	K5	CO4
5	20	Solve the following linear programming problem by simplex method. Maximize $Z = 500x_1 + 600x_2 + 1200x_3$ subject to the constraints $2x_1 + 4x_2 + 6x_3 \leq 160$, $3x_1 + 2x_2 + 4x_3 \leq 120$, $x_1, x_2, x_3 \geq 0$.	K3	CO5

Z-Z-Z END