

FACULTY OF SOCIAL SCIENCES
M.A (Economics) I– SEMESTER REGULAR EXAMINATIONS, DEC-2016
MICRO ECONOMIC ANALYSIS - I
PAPER – I

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Strong –ordering hypothesis
2. Elasticity of factor substitution
3. Shut-down point
4. Bilateral monopoly
5. Stackleberg model of duopoly

Section – B

Answer the following questions in not more than **FOUR** pages each: (5x10=50)

6. a) Explain the meaning, measurement and importance of consumer's surplus in economic analysis.
(OR)
b) Explain the Hicks' revision of demand theory.
7. a) Discuss in detail the modern theory of cost.
(OR)
b) Explain different types of returns to scale.
8. a) Explain the determination of equilibrium price in the long-run under perfect competition.
(OR)
b) "The reason for the second best" is due to market failure – Discuss.
9. a) Discuss the need for control and regulation of monopoly.
(OR)
b) Explain the characteristics of monopolistic competition and reasons for resource wastage.
10. a) Explain Bertrand and Edgeworth model of duopoly.
(OR)
b) What is price leadership? Explain the type of price leadership by a dominant firm.

FACULTY OF ARTS
M.A. (ENGLISH) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
HISTORY, STRUCTURE AND DESCRIPTION OF ENGLISH - I
PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Major characteristics of Modern English.
2. Front vowel sounds.
3. Air stream mechanism.
4. Pre and Post modifiers.
5. Tense and aspect.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Explain the major branches of Indo-European family of languages.
(OR)
b) Write in detail about the descent of English from Middle English to Modern English.
7. a) Describe consonant sounds in English according to their place of articulation.
(OR)
b) Explain the vowel diagram.
8. a) What is the difference between homophones and homonyms? Give 10 examples each for homophones and homonyms.
(OR)
b) What is General Indian English? How is it different from received pronunciation?
9. a) What is Noun Phrase structure? Explain with examples.
(OR)
b) Explain the simple sentence in English with examples.
10. a) Explain the types of verbs in English with examples.
(OR)
b) What are the semantic implications of subordination? Explain.

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FACULTY OF COMMERCE
M.Com (GENERAL) I – SEMESTER REGULAR EXAMINATIONS, DEC-2016
MANAGERIAL ACCOUNTING
PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Concept of Accounting Theory.
2. Explain about International Accounting Standard board.
3. What is responsibility accounting?
4. What is MWCA?
5. Explain true blood report.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What is Financial Accounting? Explain different conventions of accounting.
(OR)
b) What is Management Accounting? What are its limitations?
7. a) Suppose that the FASB concludes that the economic consequences of a given proposal will be extremely disadvantages to a given group, which happens to have a great deal power? In your opinion, what should the FASB do?
(OR)
b) Briefly describe the purpose of accounting standards. How many accounting standards have been formulated by Accounting Standards Board of the Institute of Chartered Accountants of India till date?
8. a) Explain briefly the concept, approaches, and limitations of HRA.
(OR)
b) The following data are given for the Keywest division for the year 2015
ROI 25% Sales Rs.12,00,000 and Margin 10%.
Minimum required rate of return 18%.
i) Compute division's operating assets ii) Compute division's RI.
9. a) From the following information, calculate the amount of "Gearing Adjustment" in case of company which has a capital mix of 40% and 60% equity.

| | Rs. |
|--------------|---------------|
| Depreciation | 10,000 |
| COSA | 5,000 |
| MWCA | 5,000 |
| | 20,000 |

(OR)

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b) From the particulars account for (Column wise)

i) The percentage change in selling price ii) Percentage change in cost price

iii) Effect of changes in gross profit due to change in

a) Price factor, ii) Quantity factor and iii) Combined factor, and comment.

| Years | 2014 | 2015 |
|--------------------------|-----------|-----------|
| Sales (Rs.) | 40,00,000 | 45,00,000 |
| Cost of Goods Sold (Rs.) | 30,00,000 | 36,00,000 |

Volume of sales was reduced by 10% in 2015.

10. a) What is Financial Reporting? What are the qualities of a good report?

(OR)

b) Explain the concept of harmonization in financial reporting and what are its limitations?

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FACULTY OF COMMERCE
M.Com. (E-Commerce) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
ORGANIZATIONAL THEORY AND BEHAVIOUR
PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Explain the goals of organization.
2. How do you distinguish between mechanistic and organic structures?
3. Explain relevance of organizational behavior subject.
4. What are the features of morale?
5. Why do people resist change?

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) What do you mean by organization? Explain the characteristics of systems approach.
(OR)
b) What are the characteristics of classical organization theory?
7. a) What do you mean by organizational structure? What are the consequences of having good organization structure?
(OR)
b) Design suitable organizational structure for a manufacturing organization? Explain the reasons and features of that structure.
8. a) How are attitudes formed? Discuss its relevance to organizational behavior.
(OR)
b) What is group cohesiveness? How do you improve it?
9. a) How do you make use of theory X and theory Y to motivate people in organizations?
(OR)
b) Explain the utility of Leadership Continuum.
10. a) Discuss the approaches to Organizational Effectiveness.
(OR)
b) What are the functional and dysfunctional aspects of organizational culture? How do you ensure positive culture in organizations?

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FACULTY OF SCIENCES
M.Sc. (BOTANY) I – SEMESTER REGULAR EXAMINATION, DEC- 2016

PHYCOLOGY

PAPER – 01

Time: 3 hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

Answer the following questions in not more than **ONE** page each: (5x4=20)

1. Isogamy
2. Coenobium
3. Phycobiliprotein
4. *Synedra*
5. Fossil Algae

Section – B

Answer the following questions in not more than **FOUR** pages each: (5x10=50)

6. a) Write an essay on the classification of algae (Fritsch).
(OR)
b) Comment on various reserve food materials of Algae.
7. a) Give a detailed note the life cycle of *Nitella*.
(OR)
b) Comment on the general characters of cyanophyceae.
8. a) Describe the General Characters of Bacillariophyceae.
(OR)
b) Write an essay on life cycle of *Laminaria*.
9. a) Comment on Algal Biofertilizers.
(OR)
b) Write an essay on the economic importance of algae.
10. a) Comment on the Sexual Reproduction of Algae.
(OR)
b) Write an essay on Marine Algae.

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FACULTY OF SCIENCE

M.Sc. (MATHEMATICS) I – SEMESTER REGULAR EXAMINATIONS, DEC-2016

ALGEBRA

PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Suppose X is a G -set, where G is a group. Show that the power set $p(X)$ of X is also a G -set.
2. Let G be a group of order pq , where p and q are primes such that $p > q$ and $q \nmid (p-1)$. Then Prove that G is cyclic.
3. Prove that the ring $\mathbb{Z}[i]$ of Gaussian integers is a Euclidean domain.
4. Suppose R is a commutative integral domain with unity. Prove that every prime in R is irreducible.
5. Suppose R is a Euclidean domain. Show that $a \in R$ is a unit $\Leftrightarrow \varphi(a) = \varphi(1)$, where φ is the function mentioned in the definition of Euclidean domain.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Suppose G is a solvable group. Then prove that every subgroup of G and every homomorphic image of G are solvable.
(OR)
b) Suppose G is a group. X is a G -set. Then prove that
i) the set of all orbits in X is a partition of X .
ii) $|Gx| = [G : G_x]$ for each $x \in X$
iii) If $|x| < \infty$, then $|x| = \sum_{x \in C} (G : G_x)$, where C is a subset of X containing exactly one element from each orbit.
7. a) State and prove First Sylow theorem.
(OR)
b) Let A be a finite abelian group. Then show that there exists a unique list of integers m_1, m_2, \dots, m_k (all > 1) such that $|A| = m_1 m_2 \dots m_k$, $m_1 \mid m_2 \mid m_3 \mid \dots \mid m_k$ and $A = C_1 \oplus C_2 \oplus \dots \oplus C_k$ where C_i are cyclic sub groups of A of order m_i .
8. a) Let R be a non zero ring with unity and I is an ideal in R such that $I \neq R$. Then prove that there exists a maximal ideal M of R such that $I \subseteq M$.
(OR)
b) Suppose A_1, A_2, \dots, A_n are right ideals in a ring R . Then prove that the following are equivalent.
i) $A = \sum_{i=1}^n A_i$ is a direct sum.
ii) $0 = \sum_{i=1}^n a_i, a_i \in A_i \Rightarrow a_i = 0, i = 1, 2, \dots, n$
iii) $A_i \cap \sum_{j=1, j \neq i}^n A_j = (0), j = 1, 2, \dots, n$

9. a) Let $\{N_i\}_{i \in \Delta}$ be a family of R -sub modules of an R -module M . Then prove that the following are equivalent.

i) $\sum_{i \in \Delta} N_i$ is a direct sum.

ii) $0 = \sum_{i \in \Delta}^n x_i, x_i \in N_i \Rightarrow x_i = 0, \forall_i$

iii) $N_i \cap \sum_{\substack{j \in \Delta \\ j \neq i}}^n N_j = (0), \forall_i \in \Delta$

(OR)

b) State and prove Schur's lemma.

10. a) Suppose R is a commutative ring, P an ideal in R . Then prove that P is a prime ideal $\Leftrightarrow ab \in P, a \in R, b \in R \Rightarrow a \in P$ or $b \in P$.

(OR)

b) Suppose R is a nonzero commutative ring with unity. Let M be an ideal in $R, M \neq R$. Then prove that M is a maximal ideal in $R \Leftrightarrow \frac{R}{M}$ is a field.

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FACULTY OF SCIENCE
M.Sc. (PHYSICS/PE) I – SEMESTER REGULAR EXAMINATIONS, DEC-2016
MATHEMATICAL PHYSICS AND NUMERICAL METHODS
PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all the following questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Find the value of $J_{\frac{1}{2}}(x)$
2. Find the finite fourier sine transform of e^{ax}
3. Write an algorithm for bisection method.
4. Define Contravariant, Covariant and Mixed tensor.
5. List the properties of Laplace transforms.

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

- 6 a) Obtain the power series solution of Hermite's differential equation.

(OR)

- b) Find the solution of Bessel's equation

$$x^2 \frac{d^2 y}{dx^2} + x \frac{dy}{dx} + (x^2 - n^2)y = 0$$

- 7 a) Find the fourier transform of

$$F(x) = x \text{ for } 0 < x < 1$$

$$= 2 - x \text{ for } 1 < x < 2$$

$$= 0 \text{ for } x > 2$$

(OR)

- b) State and prove convolution theorem. Using convolution theorem find the inverse

$$\text{Laplace transform of } \frac{4}{s^2(s-2)}.$$

- 8 a) Explain about Newton-Raphson method to find multiple roots.

(OR)

- b) Deduce Simpson's three-eight's rule from Newton-cote's quadrature formula.

- 9 a) Solve by Gauss elimination method.

$$3x + 4y + 5z = 18$$

$$2x - y + 8z = 13$$

$$5x - 2y + 7z = 20$$

(OR)

- b) What is Kronecker delta? Explain inner and outer product of tensor.

- 10 a) Define Laplace transform. Find the Laplace transform of

i) $e^{at} \sin \omega t$

ii) te^{at}

(OR)

- b) Obtain the orthogonal properties of Legendre's polynomials.

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FACULTY OF SCIENCES
ZOOLOGY I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
STRUCTURAL BIOLOGY
PAPER – I

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all questions from Section – A and Section – B

Section – A

(5x4=20)

Answer the following questions in not more than **ONE** page each:

1. Triglycerides
2. Deamination
3. Gap junctions
4. Wobble's concept
5. Prostaglandins

Section – B

(5x10=50)

Answer the following questions in not more than **FOUR** pages each:

6. a) Classify carbohydrates and write their Structure?
(OR)
b) Describes the double helical structure of DNA?
7. a) Explain the mechanism of enzyme action.
(OR)
b) Explain in detail oxidation of fatty acids.
8. a) Describe the molecular organization of cell membranes.
(OR)
b) Write a note on Molecular events of cell cycle.
9. a) Explain the proof reading function of DNA polymerases.
(OR)
b) Explain the steps involved in Protein Synthesis.
10. a) Write about the mechanism of repair of DNA damaged by UV light.
(OR)
b) Write the steps involved in Glycolysis.

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FACULTY OF SCIENCE
M.Sc. (CHEM-OC/PCH-2YPGP) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
INORGANIC CHEMISTRY
PAPER – 01
(Common paper)

Time: 3 Hours]

[Max. Marks: 70

Note: Answer all the following questions from Section-A and Section-B

Section – A

(5x4=20)

Answer all the following questions in not more than **ONE** page each:

1. What is the Plane of symmetry and write about different types of planes of symmetry with example?
2. Calculate CFSE value for octahedral and tetrahedral geometries with each one example?
3. Explain John-Teller effect on stability constant of metal complexes
4. Discuss the quenching of orbital angular momentum in 3d metal complexes?
5. Write about different binding modes of NO molecule

Section – B

(5x10=50)

Answer all the following questions in not more than **FOUR** pages each:

- 6 a) Explain the relation between symmetry and dipole moment and symmetry and optical activity using suitable examples.
(OR)
b) Explain various types of symmetry elements.
- 7 a) Explain the splitting of d-orbitals in regular and tetragonally distorted octahedral ligand fields.
(OR)
b) Explain types of magnetic behavior and determine the magnetic moment by Gouy's method.
- 8 a) Discuss the ligand properties that influence the stability of metal complexes.
(OR)
b) Describe Spectrophotometric method for the determination of stability constant of a metal complex.
- 9 a) Draw the molecular orbital energy level diagram of NO and describe.
(OR)
b) Explain the significance of 18 e⁻ rule in metal carbonyl complexes with suitable examples.
- 10 a) Write about stereo chemical control of valence in [Co(diars)₂(NO)]⁺² and [Co(diars)₂(NO (SCN))]⁺
(OR)
b) Explain i) Chemical fixation of dinitrogen ii) evidences for multiple bonding in metal carbonyls