FACULTY OF SCIENCES
M.Sc. (BOTANY) I – SEMESTER REGULAR EXAMINATION, DEC- 2016
MYCOLOGY
PAPER – 02

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. Pycnium
2. Parasitism
3. Emericella
4. Leaf Spots
5. Virion

Section – B

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

6. a) Describe Parasexuality in fungi.

(OR)

    b) Discuss recent trends in classification of fungi.

7. a) Give an account on rust fungi.

(OR)

    b) Describe the production of antibiotics by fungi.

8. a) Give an account on organic acids produced by fungi.

(OR)

    b) Describe different types of mushrooms.

9. a) Describe the ultra structure of bacterial cell.

(OR)

    b) Write about the transmission of viruses.

10. a) Describe Mycoplasma and their economic importance.

(OR)

    b) Describe the methods of isolation and purification of viruses.

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FACULTY OF SCIENCE
M.Sc. (CHEM-OC/PCH-2YPGP) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
ORGANIC CHEMISTRY
(Common Paper)
PAPER – 02

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. Define the C_2 symmetry with suitable example
2. Explain the stereochemistry of addition of OsO_4 to trans-2-Butene
3. Write the conformation of D(+)-Glucose
4. Write the one method of synthesis of Benzofuran
5. Explain the synthesis of Glycyl alanine

Section – B

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

6. a) i) Discuss the dissymmetric and asymmetric compounds with suitable examples.
       ii) Write about Helically chiral compounds.
    (OR)
    b) i) Write the methods to determine E and Z configurations.
       ii) Describe the optical activity of Biphenyls.

7. a) Discuss the stereo selective reactions in alkenes.
    (OR)
    b) Discuss the Stereochemistry of E2 elimination reactions.

8. a) i) Write the conformational structures of Maltose and Cellobiose.
       ii) Explain the structural features of Starch.
    (OR)
    b) Discuss the chemical synthesis of tripeptides.

9. a) Explain one method of synthesis and reactivity of isoquinoline.
    (OR)
    b) Describe any two methods of synthesis of acridine.

10. a) i) Write about the S_2 symmetry element with suitable example.
       ii) Discuss the racemisation methods.
    (OR)
    b) i) Write the configuration at each carbon of D-(-) Fructose and Lactose.
       ii) Write the synthesis of Chromone.

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FACULTY OF COMMERCE
M.Com. (E-Commerce) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
FINANCIAL MANAGEMENT
PAPER – II

Time: 3 Hours]   [Max. Marks: 70

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

<u>Section – A</u>   (5x4=20)

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

1. What is business finance?
2. What are the differences between risk and uncertainty?
3. What is business risk?
4. What is a growth firm?
5. What is factoring?

<u>Section – B</u>   (5x10=50)

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

6. a) "Finance function of a business is closely related to its other functions". Discuss
      (OR)
    b) "Investment, financing and dividend decisions are all inter-related". Comment.

7. a) Explain the need and importance of capital budgeting.
      (OR)
    b) Calculate internal rate of return from the following information.
       Initial investment = Rs.60,000; Life of the Asset = 4 years;
       Estimated net annual cash flows: First Year Rs.15,000;
       Second year Rs.20,000; Third year Rs.30,000 and Forth year – Rs.20,000

8. a) What is weighted average cost of capital? Examine the rationale behind the use of weighted average cost of capital.
      (OR)
    b) The Balance sheet of X limited as on 31-03-2016 is as follows:

Liabilities	Rs.	Assets	Rs.
Equity capital (Rs.10 per share)	60,000	Net Fixed Assets	1,50,000
10% Debentures	80,000	Current Assets	50,000
Retained earnings	20,000		
Current liabilities	40,000		
	2,00,000		**2,00,000**

The company's total assets turnover ratio is 3. Its fixed operating costs are Rs.1,00,000 and its variable operating cost ratio is 40%. The income tax rate is 50%. Calculate operating, financial and combined leverages.

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9. a) What is dividend policy? Explain the types of dividend policies.

(OR)

b) ABC limited belongs to a risk class for which the appropriate capitalization rate is 10%. It currently has outstanding 5,000 shares selling at Rs.100 each. The firm is contemplating the declaration of dividend of Rs.6 per share at the end of the current financial year. The company expects to have a net income of Rs.50,000 and has proposal for making new investments of Rs.1,00,000. Show that under the MM hypothesis, the payment of dividend does not affect the value of the firm.

10. a) What is ABC analysis? How is it useful as a tool of inventory management?

(OR)

b) The following information has been provided by a company for the year ended 30.06.2016.

Liabilities	Rs.	Assets	Rs.
Equity share capital	2,00,000	Fixed Assets less Dept.	3,00,000
8% Debentures	1,00,000	Inventories	1,00,000
Reserves and Surplus	50,000	Sundry Debtors	70,000
Long-term Loans	50,000	Cash and Bank	10,000
Sundry Creditors	80,000		
	4,80,000		**4,80,000**

Sales for the year ended 30.6.2016 amounted to Rs.10,00,000 and it is estimated that the same will amount to Rs.12,00,000 for the year 2016-17.

You are required to estimate the working capital requirements for the year 2016-17 assuming a linear relationship between sales and working capital.

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

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. Social Accounting
2. Long-run consumption
3. Accelerator
4. Control of money supply
5. Speculative demand for money

Section – B

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

6.   a) Explain the process of circular flow of income in a three sector closed economy.
                        (OR)
     b) Describe the input-output accounting of national income.

7.   a) Bring out the difference between absolute and relative income hypothesis.
                        (OR)
     b) Explain clearly Keyne's psychological law of consumption.

8.   a) Explain the financial theory of investment.
                        (OR)
     b) Explain the role of capital market in promoting growth of the economy.

9.   a) Explain the monetory transmission mechanism in India.

                        (OR)
     b) What is high powered money? How does it effect the supply of money?

10. a) Explain clearly cash balance approach. In what respects is it superior to the classical theory of demand for money?
                        (OR)
     b) Explain Keyne's liquidity preference approach to demand for money.

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FACULTYOF ARTS
M.A. (ENGLISH) I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
ENGLISH LITERATURE UP TO THE EARLY 17TH CENTURY-I

PAPER – II

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. A Short note on The Development of British Drama.
2. What is the main theme of Sonnet 34.
3. Sketch the character of Bosola.
4. Role of Good and Evil Angels in Doctor Faustus.
5. Bacon's views on the essay 'Of Truth'.

Section – B   (5x10=50)

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

6. a) Discuss the contribution of University wits to Elizabethan Drama.

   OR

   b) Explain the significant features of 'Renaissance'.

7. a) Consider the Prologue as a wonderful portrait gallery of pilgrims.

   b) Trace out the critical elements of Edmund Spencer's sonnets.

8. a) Discuss Everyman in His Humor as 'a comedy of Humors'.

   b) Who is the most courageous character in Duchess of Malfi? Defend your choice.

9. a) Write an essay on theme of Doctor Faustus.

   b) Discuss in detail 'Justice and Revenge' in the play Spanish Tragedy by Thomas Kyd.

10. a) Analyze Francis Bacon's prose style with reference to 'Of Revenge and Of Death'.

    b) Discuss the argument Sydney presented in support to poetry in 'Apology for poetry'.

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

Time: 3 Hours]   [Max. Marks: 70

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

<u>Section – A</u>   (5x4=20)

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

1. Economic optimization
2. Demand Estimation
3. Economies of Scale
4. Break Even Point
5. Features of monopolistic market

<u>Section – B</u>   (5x10=50)

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

6. a) i) Discuss the firms objectives and constraints.

   ii) Mr. Suresh working as a engineer for a salary of Rs.5,00,000 per year in a firm, resigned and started his own hardware firm. In the first year of operation, he got a revenue of Rs.12,00,000. He paid suppliers and Rs.75,000 for the supplies and Rs.1,20,000 for interest on bank loan.

   Calculate:
   i) Explicit Cost   ii) Implicit Cost   iii) Accounting Profit
   iv) Economic Profit

(OR)

   b) i) "Economic Profit is more useful for decisions making than accounting profit" Explain.

   ii) Given the following cost function, find out the MC and AC functions
   $TC = 150 - 8x + 5x^2 + 0.008x^3$

7. a) i) How price elasticity is considered in decision making? Discuss the various types of price elasticities.

   ii) Given the demand equation

   $Q = 20,000 - 0.75P$

   a) What is Q when P=Rs.20,000
   b) Calculate the total revenue when P=Rs.20,000

(OR)

   b) i) What do you understand by income elasticity of demand? How do you classify gods depending upon the income elasticity?

   ii) Given the demand equation Q=80-4P, find out the MR equation.

8. a) i) What do you understand by iso-quants and is costs? Explain the characteristics of isoquants.

   ii) Compute the marginal production of capital and labour at L=2 and K=3 for the production function $Q=10K^{0.5}L^{0.5}$.

(OR)

   b) i) Explain how the optimal employment of a variable factor is achieved in the short run.

   ii) The total cost of producing 20 units of product A is Rs.95,000 and that of 40 units of B product is Rs.1,45,000 separately. If both are produced jointly, the cost is Rs.2,00,000 work out the economies of scope in this case.

9. a) i) What is break even analysis? Distinguish between linear and non-linear break even analysis.

   ii) If $TC=25,000 + 80Q + 6Q^2 + 0.4Q^3$. Find out the level of fixed cost and equations for AC, AVC,MC and AFC.

(OR)

   b) i) What is economic concept of cost? How this concept helps to management in decision making?

   ii) A firm produces an output a cost of $C=40,000+30Q$ and sells it at price of Rs.100 per unit. Find breakeven point.

10.a) How the firm fixes its output under perfect competition?

(OR)

   b) What are the features of Oligopoly market? Explain it with the help of kinked demand theory of oligopoly prices.

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FACULTY OF SCIENCES
MCA V – SEMESTER REGULAR EXAMINATIONS, DEC- 2016
MIDDLEWARE TECHNOLOGIES

PAPER – II

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. Write about Object Server and Web Server
2. Draw and explain the EJB Software architecture
3. Write about the Session bean
4. Explain briefly how EJB and CORBA are related/associated
5. What is Remoting?

Section – B

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

6.   a) Explain about the building blocks of client-server technologies.
     b) Distinguish between General Middleware and Service-specific Middleware.
                    (OR)
     c) Write about SOA and SOAP.
     d) Write about WSDL and REST.

7.   a) Explain in detail about the role of EJB in the 3-tier architecture.
                    (OR)
     b) Write about the roles relating to EJB environment who support and maintain the
        EJB architecture consistently.

8.   a) Distinguish between Stateful and Stateless Bean.
     b) Write in detail about Entity Bean.
                    (OR)
     c) List and explain the steps involved in the implementation of EJB.
     d) Describe the transactions that take place when a client calls a Bean.

9.   a) Explain the client and server sides of CORBA object Request Broker.

                    (OR)
     b) Describe the architecture of CORBA.

10. a) Discuss about .NET architecture with the help of a neat sketch.
                    (OR)
     b) Perform a comparative study between COM and CORBA.

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FACULTY OF SCIENCE
M.Sc. (MATHEMATICS) I – SEMESTER REGULAR EXAMINATIONS, DEC-2016
REAL ANALYSIS
PAPER – II

Time: 3 Hours]   [Max. Marks: 70

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

<u>Section – A</u>   (5x4=20)

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

1. Define rearrangement of a series of numbers. Give an example to show that rearrangement of a convergent series need not be a convergent series.

2. With usual notation prove that $\int_a^b f d\alpha \leq \overline{\int_a^b} f d\alpha$.

3. Prove that a sequence $\{f_n\}$ convergence to f with respect to the metric of C(X) if and only If $f_n \to f$ uniformly on X.

4. Suppose f maps a convex open set $E \subset R^n$ into R^m, f is differentiable on E and there exists A real number M such that $||f^1(x)|| \leq M$ for every $x \in E$. Prove that $|f(b) - f(0)| \leq M|b - a|$ for all $a \in E, b \in E$.

5. Define contraction mapping and give an example. Prove that every contraction mapping is continuous.

<u>Section – B</u>   (5x10=50)

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

6. a) Define upper and lower limits of a sequence $\{s_n\}$. Prove that
   i) $s^* \in E$
   ii) If $x > s^*$ there exists an integral such that $s_n < x$ whenever $n \geq N$. Moreover prove that s^* is the only number with the properties (i) and (ii).

   (OR)

   b) i) Prove that monotonic functions can not move discontinuities of second kind.
   ii) Prove that the set of discontinuities of a monotonic function f on (a, b) is at most countable.

7. a) Prove that $f \in R(\alpha)$ on [a, b] if and only if for every $\in> 0$ there exists a partition P of [a, b] such that $U(p, f, \alpha) - L(p, f, \alpha) <\in$.

   (OR)

   b) i) If $f \in R(\alpha)$ on [a, b] if $|f(x)| \leq M$ on [a, b] prove that $|\int_a^b f d\alpha| \leq M(\alpha(b) - \alpha(a))$.
   ii) State and prove the fundamental theorem of Calculus.

8. a) Suppose $\{f_n\}$ is a decreasing sequence of continuous functions defined on a compact space K, which conversion point wise to a limit function f which is continuous on K prove that $f_n \to f$ uniformly on K.

   (OR)

   b) Suppose f is a continuous complex value function defined on [a, b]. Prove that there exists a sequence of polynomials P_n such that $\lim_{n\to\infty} P_n(x) = f(x)$ uniformly on [a, b].

9. a) Suppose X is a vector space of dimension on prove that following
   i) A set E of n vectors in X spans X if and only if E is independent.
   ii) X has a basis and every basis consists of n vectors.
   iii) if $1 \leq r \leq n$ and $\{y_1, y_2, \dots \dots y_r\}$ is an independent set in X then X has a basis
   continuing $\{y_1, y_2, \dots \dots y_r\}$

   (OR)

   b) Define a fixed point. Prove that every contraction mapping defined on a complete metric space has a unique fixed point.

10. a) Suppose $f_n \rightarrow f$ uniformly on a set E in a metric space x and x is a limit point of E. Prove that $\lim_{t \rightarrow x} \lim_{n \rightarrow \infty} f_n(t) = \lim_{n \rightarrow \infty} \lim_{t \rightarrow x} f_n(t)$.

    (OR)

    b) Define $C(x)$ and supremum norm on it. Prove that $C(x)$ is a complete metric space with respect to the metric induced by the supremum norm.

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FACULTY OF SCIENCE
M.Sc. (PHYSICS/PE) I – SEMESTER REGULAR EXAMINATIONS, DEC-2016
CLASSICAL MECHANICS
PAPER – II

Time: 3 Hours]　　　　　　　　　　　　　　　　　　　　　　　　[Max. Marks: 70

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

<u>Section – A</u>　　　　　　　　　　　　　　　　(5x4=20)

Answer the following questions in not more than **ONE** page each:
1. What is Minkowski four space?
2. Write a note on generalized coordinates.
3. Show that the transformation $q = \sqrt{2P}\, SinQ, p = \sqrt{2P}\, CosQ$ is a canonical transformation.
4. What are normal co-ordinates and normal frequencies?
5. Express the Hamiltonian of free particle in spherical coordinates.

<u>Section – B</u>　　　　　　　　　　　　　　　　(5x10=50)

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

6 a) Deduce Euler's equations of motion and apply them to solve force free motion of a symmetrical rigid body.
(OR)
　b) Deduce various conservation theorems for a system of particles in Newtonian formulation of mechanics.

7 a) i) Is the force conservative if the potential depends on velocity?
　　ii) Obtain the Lagrangian of a charged particle in an external electromagnetic field.
(OR)
　b) What is D'Alemberts principle? Derive Lagrange's equations of motion from this principle for a holonomic system.

8 a) What is a canonical transformation? Show that the Poisson brackets are invariant under canonical transformation.
(OR)
　b) Explain the method of finding the solution to a mechanical problem by using Hamilton Jacobi method.

9 a) Derive the eigen value equation and explain the principal axis transformation.
(OR)
　b) What is a continuous system? Obtain the Hamiltonian for continuous system.

10 a) i) What are Eulerian angular coordinates?
　　ii) Find the Lagrange's equation of motion of the bob of a simple pendulum.
(OR)
　b) i) Define Poisson bracket and then show that $[q_i, q_j] = 0, [p_i, p_j] = 0$ and $[q_i, p_j] = \delta_{ij}$.
　ii) What is the physical significance of Hamilton principle function.

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FACULTYOF SCIENCES

ZOO I – SEMESTER REGULAR EXAMINATIONS, DEC- 2016

Environmental and Conservation Biology

PAPER – II

Time: 3 Hours] [Max. Marks: 70

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

<u>Section – A</u> (5x4=20)

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

1. Micronutrients
2. Ecotone
3. Endemism
4. Ecological restoration
5. NGO

<u>Section – B</u> (5x10=50)

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

6. a) Enumerate the characters of a population with suitable example.

(OR)

b) What is an Ecosystem? Describe the freshwater ecosystem with emphasis of its dynamics

7. a) Discuss the role of radioactive substances on the biological systems.

(OR)

b) What are the factors that control ecosystem dynamics and stability?

8. a) Give classification of various habitats. Comment on the suitability and stability of forest habitat.

(OR)

b) Write an essay on deforestation and its impact on ecosystem.

9. a) What are the principles and scope of environmental impact assessment methods? Discuss.

(OR)

b) Write an essay on major conservation movements of India. Comment on their role in environmental conservation.

10. a) What is eutrophication? How can it disturb freshwater ecosystem and what are the remedies?

(OR)

b) Give details of various biogeographical regions of India.

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