

PO 106.3

Reg. No.

--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III – P.G. Examination

February - 2022

OPEN ELECTIVE UNDER CBCS

FILM APPRECIATION

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

Time: 3 Hours

Max Marks: 70

SECTION - A

Write essays on any THREE of the following

(3x15 = 45)

1. Film as art
2. Importance of lighting in cinema
3. Camera angles and movements
4. Use of BGM and mise-en-scene to create suspense
5. Narrative structure in films

SECTION - B

Write short notes on any FIVE of the following.

(5x5 = 25)

- a. Film reviews
- b. Satyajit Ray
- c. Montage
- d. Screenplay
- e. Shot, scene and sequence
- f. Diegetic and Non-diegetic sound
- g. Composition

PO 117.3

Reg. No. :

--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III- P.G. Examination

February - 2022

Open Elective (Under CBCS)

CONTEMPORARY INDIAN ECONOMY

Time: 3 hrs.

Max Marks: 70

SECTION - A

Answer any TWO questions of the following.

(2X15=30)

1. Explain the main features of National Population Policy of India.
2. Describe the land reform measures in India.
3. Analyse the impact of globalisation on Indian economy.

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

SECTION - B

Answer any FOUR questions of the following.

(4x6=24)

4. Briefly explain the role of sustainable development in Indian economy.
5. Explain the recent approaches for employment generation in India.
6. Explain India's Balance of Payments problem since 1991.
7. Examine FDI and industrial performance.
8. Comment on the exit policy followed by industries during 19th century.
9. Explain the main Trade Sector Reforms in India.

SECTION - C

Answer any FOUR questions of the following.

(4x4=16)

10. Briefly explain the issues in food security.
11. Write note on causes of poverty.
12. Briefly explain the disinvestment process in India.
13. Write a note on rural-urban migration.
14. Write a note on GST.
15. Examine the need for and issues in good governance.

PO 127.3

Reg. No.

--	--	--	--	--	--	--	--

**St Aloysius College (Autonomous)
Mangaluru**

Semester III - P.G. Examination
February - 2022

Open Elective

INTERPRETING LITERATURE

Time: 3 hrs.

Max Marks: 70

UNIT - I

(15)

Answer any ONE of the following:

1. Analyse the theme of spiritual degeneration in T S Eliot's, "Journey of the Magi"?
2. Critically discuss the symbol of the shield in "The Shield of Achilles"
3. Examine the significance of the title, "Lady Lazarus"

UNIT - II

(15)

Answer any ONE of the following:

1. Examine the *Arms and the Man* as an anti-romantic play
2. How does the trial scene in *The Merchant of Venice* reveal the conflict between justice and mercy? Discuss.
3. Critically examine the character of Captain Bluntschilli in *Arms and the Man*

UNIT - III

(15)

Answer any ONE of the following:

1. How does Charles Lamb present his family members in "Dream Children"?
2. Examine the theme of pathos in "Dream Children".
3. Discuss the title, "Imaginary Homelands" and examine its critical significance

UNIT - IV

(15)

Answer any ONE of the following:

1. Discuss R.K Narayan's *Swami and Friends* as a study of boyhood.
2. Examine the theme of friendship In *Swami and Friends*.
3. How does R.K. Narayan depict the character of Swami in the novel *Swami and Friends*?

UNIT - V

Write short notes on any TWO of the following:

(2×5=10)

1. "Aunt Helen"
2. Sergius
3. Great Grandmother Field in "Dream Children"
4. Cricket in *Swami and Friends*

PO 207.3a

Reg. No.

--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III- P.G. Examination

February - 2022

Open Elective (Under CBCS)

HUMAN RIGHTS AND SOCIAL DEFENCE

Time: 3 hrs.

Max Marks: 70

SECTION - A

(3x10=30)

a. Answer any THREE questions.

b. Each question carries TEN marks.

c. Answer should not exceed 400 words.

1. Explain the concept and history of Human Rights.
2. Discuss briefly Fundamental Rights in Indian Constitution.
3. Explain the association of environment and Human Rights.
4. Write a note on National Human Rights Commission.
5. Describe the community based services for Children.

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

SECTION - B

(2x20=40)

a. Answer any TWO questions.

b. Each question carries TWENTY marks.

c. Answer should not exceed 800 words.

6. Discuss any ten articles of Universal Declaration of Human Rights in 1948.
7. Examine contemporary issues in Human Rights among women and daliths.
8. Critically assess the role of media in protecting Human Rights.
9. Illustrate the Protection of Children from Sexual Offences Act 2012 [POCSO].

PO 317.3

Reg. No.

--	--	--	--	--	--

St. Aloysius College (Autonomous) Mangaluru
Semester III – P.G. Examination
February - 2022

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE - 575 001

OPEN ELECTIVE
ENTREPRENEURIAL DEVELOPMENT

Time: 3 hrs

Max Marks: 70

SECTION - A

Answer any **FIVE** questions out of seven questions.

(5×4=20)

1. Differentiate between Innovative Entrepreneur and Drone Entrepreneur.
2. What are the types of Business Risks?
3. What are the requisites of Social Entrepreneurs?
4. How would you justify that Women entrepreneurs are the self-employed individuals?
5. What do you mean by Feasibility Study?
6. Differentiate between Working capital and Fixed capital.
7. What are the steps of Franchising a business?

SECTION – B

Answer any **FOUR** questions out of six questions.

(4×10=40)

8. "Intrapreneurs takes the responsibility of creating innovation". Comment on the statement with relevant examples.
9. Elaborate the various causes of Unethical behavior.
10. Describe in detail the format of a Project Report.
11. How business environment and organizational complexities are related to each other? Justify your answers with relevant examples.
12. Describe different forms of business enterprise.
13. Critically evaluate the steps for preparing Marketing Plan.

SECTION – C (Compulsory)

(1×10=10)

14. Mr. Mohan is working with a commercial bank as an Assistant Manager. However, he has a desire to own a business. Therefore, he always tries to search for an opportunity but get failed a number of times. Can you suggest some methods to Mr. Mohan for finding and grabbing a business opportunity?

--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III- P.G. Examination

February - 2022

Open Elective (Under CBCS)

CORPORATE CULTURE AND ETHICS

Time: 3 hrs.

Max Marks: 70

SECTION - A

Answer any **FIVE** questions.

(5x4=20)

1. What is Ethics? Explain its relevance in the corporate world.
2. Describe the professional ethics for journalists.
3. Elaborate the features of corporate culture.
4. Distinguish between Moral and Non-Moral standards.
5. Explain the meaning and features of a corporation.
6. Elucidate the various parties to consumer protection.
7. Write a note on waste management

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

SECTION - B

Answer any **FOUR** questions.

(4x10=40)

8. Explain in detail professional codes and ethical characteristics.
9. What is Ethical dilemma? Elaborate conflict of interest and consequences of unethical behavior in the corporate context.
10. What is Corporate Social Responsibility? Explain CSR principles and Strategies.
11. "Indian consumers are an exploited lot". Do you agree with this statement? Discuss consumer protection in India and consumer duties and responsibilities.
12. Elaborate the Environmental Regulation in India and corporate responsibility on Environmental Protection.
13. "Values and ethics are deep rooted in Indian ethical traditions". Elucidate. Explain the roots of unethical behavior and impediments to morality and law from the Indian perspective.

SECTION - C

14. **Compulsory**

(10)

Discuss the CSR practices of any two major companies in India.

PO 507.3

Reg. No:

--	--	--	--	--	--	--

St Aloysius College (Autonomous)
Mangaluru
Semester III – P.G. Examination - M. Sc. Biotechnology
February – 2022
Open Elective (Under CBCS)
IPR AND CLINICAL RESEARCH

Time: 3 Hours

Max. Marks: 70

Note: Draw neat labeled diagrams/schematic sketches/structures wherever Necessary.

I Write short notes on any FIVE of the following: (5x3=15)

1. Distinguish between NOEL and NOAEL
2. Types of clinical research
3. Differentiate Patent and Company Secrets
4. Good Clinical Practices
5. Principles of ICH-GCP
6. Pharmacodynamics
7. Research integrity
8. Salient features of Biological Diversity Act, 2002

ST. ALOYSIUS COLLEGE
PG LIBRARY
MANGALORE-575 005

II Write explanatory notes on any FIVE of the following: (5x5=25)

9. Appraise the conventional and non-conventional drug delivery systems.
10. Enumerate the salient features of Copyright Act.
11. Assess the Investigational New Drug Application process.
12. Justify the importance of inclusion and exclusion criteria in the clinical trials.
13. Explain the need of ethics for clinical trials with suitable example.
14. Write a note on biopiracy with an example.
15. Write the role of World Intellectual Property Organization?
16. Explain the ethical requirements of CPCSEA guidelines.

III Answer any THREE of the following: (3x10=30)

17. Distinguish between geographical indications and protection of plant varieties. Give three examples of geographical indications of crop plants.
18. Assess the animal model systems for pre-clinical research.
19. Elaborate upon the designing of clinical trials.
20. Discuss the responsibilities of key stakeholders in clinical research.
21. What do you understand by patent? State the features to be provided to get a patent grant. Comment on the specifications that are to be submitted to the patent office.

PO 517.3

Reg. No:

--	--	--	--	--	--	--

St Aloysius College (Autonomous)
Mangaluru
Semester III- P.G. Examination - M.Sc. Biochemistry
FEBRUARY - 2022
Open Elective (Under CBCS)
EVOLUTION AND ECOLOGY

Time: 3 Hours

Max.Marks:70

I Answer any TEN of the following:

(10×2=20)

1. Define Neo-Darwinism
2. Define the concept of adaptation as a phenomenon influencing evolution.
3. What is adaptive radiation?
4. How does sexual selection act as an influencer of evolution.
5. What are keystone species? Give an example.
6. Define predation and mention its effects in species interaction.
7. What is endemism?
8. Explain the niche concept in population ecology.
9. Illustrate the water cycle with a labelled diagram.
10. What is predation? Give an example.
11. Define the basic principles of wild life management.
12. What is an ecosystem? Explain the components of the same.

ST. ALOYSIUS COLLEGE

PG Library

MANGALORE - 575 004

II Answer any SIX of the following:

(6×5=30)

13. Explain the modern synthesis of evolution with evidences.
14. Discuss a) Gene flow b) Genetic drift with suitable examples.
15. What is biogeography? Add a note on evolutionary ecology.
16. What are the different types of growth rates in a given population? Explain with examples.
17. Explain species interactions of mutualism, commensalism and competition with examples.
18. What is functional ecology? Add a note on ecophysiology.
19. Describe Biomagnification with examples.
20. What are the strategies for conservation and management of natural resources?

III Answer any TWO of the following:

(2×10=20)

21. Discuss Natural Selection and the concepts of genetic variations, fitness and competition.
22. Elucidate the concept of biodiversity and its assessment indices.
23. Describe aquatic ecosystems, types, components with examples.
24. Explain the concepts of speciation and the parameters for delimiting them with examples.

--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru
Semester III - P.G. Examination

February - 2022

Open Elective (Under CBCS)

Bio-Inorganic Chemistry, Green Chemistry and Environmental Chemistry

Time: 3 Hours

Max. Marks: 70

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE - 575 001

PART - A

1. Answer any **SEVEN** sub divisions of the following: (7×2=14)
- Give the biological significance of trace metals Cu and Zn.
 - Deficiency of ceruloplasmin leads to anaemia. Justify.
 - Draw the structure of 4 Fe-4S ferredoxin.
 - What is atom economy of a reaction? Give one example
 - Write any four advantages of green chemistry.
 - What do you mean by zero technology?
 - Write any two differences between primary and secondary pollutants.
 - What are the effects of eutrophication?
 - How toxic chemicals affect on the activity of enzymes?

PART - B

Answer any **FOUR** of the following choosing at least one full question from each unit: (4×14=56)

UNIT - I

- What is active transportation? Explain the mechanism of transportation of Na^+/K^+ across the cell membrane. (4)
 - What are the characteristics of O_2 -binding interaction with haemoglobin? (4)
 - Explain the structural features and functions of cytochrome P- 450. (3)
 - Briefly describe the mechanism of biological nitrogen fixation (3)
- Explain the structure Cytochrome P-450. (4)
 - What are ionophores? Explain the classification and mechanism of active transport of metal ions. (4)
 - Describe the structural features and functions of transferrin. (3)
 - Explain the different types of iron-sulphur proteins. (3)

UNIT - II

- Explain microwave assisted organic synthesis. (4)
- Outline the comparison between conventional and green synthesis. (4)

Contd...2

- c) Describe how green chemistry is useful in organic synthesis. (3)
- d) Discuss the tools of green chemistry and highlight their importance. (3)
5. a) Write short note on phase transfer catalysis. (4)
- b) Elaborate on the principles of green chemistry with examples. (5)
- c) Discuss the use of solvent free conditions in green synthesis. (3)
- d) Give examples of green solvent, green catalyst and green reagents used in organic synthesis. (2)

UNIT - III

6. a) Briefly discuss primary, secondary and tertiary treatment of domestic water. (4)
- b) Explain the reasons and consequences of Bhopal gas leakage. (3)
- c) Describe emission control strategies for NO_x. (3)
- d) Explain any two methods of desalination of seawater. (4)
7. a) Discuss the sources, effects of air Pollution. (4)
- b) Write notes on the following
- i) Acid rain
- ii) Green house effect.
- c) Explain the biochemical effects of mercury and lead. (3)
- d) Explain the commonly used treatment processes for industrial waste water. (3)

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE - 575 003

PO 559.3

Reg. No.

--	--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III – P.G. Examination – M. Sc Corporate Psychology

February – 2022

Open Elective (Under CBCS)

BASIC COUNSELLING SKILLS

Time: 3 hrs.

Max Marks: 70

I. Answer any FIVE of the following.

(5×2=10)

1. What is the principle of beneficence?
2. Write the key aspects of attending skills.
3. What is a squaring in counseling?
4. Mention two scopes of counseling.
5. What is transference?
6. What are the kinds of responses in counseling?
7. Mention two uses of closed-ended questions.

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

II. Answer any FOUR of the following.

(4×5=20)

8. Discuss the role of values in helping.
9. Explain what is counselling and what is not counseling.
10. Explain the types of difficult clients.
11. Write a note on defense mechanisms.
12. Write the relevance of exploring the self-doubts of clients.
13. Write the qualities of an effective counselor.

III. Answer any FOUR of the following.

(4×10=40)

14. Elucidate the ethical relationships and issues in counseling.
15. Give the illustrations of countertransference.
16. Explain the stages of counseling.
17. Discuss the concepts of Cognitive Behavioral theories relevant to counseling.
18. Discuss the Listening skills and observation skills relevant for counseling.
19. Explain the ways of dealing with difficult clients.

St Aloysius College (Autonomous)

Mangaluru

Semester III - P.G. Examination - M.Sc. Mathematics

February - 2022

OPEN ELECTIVE (UNDER CBCS)

DIFFERENTIAL EQUATIONS AND APPLICATIONS

Max Marks: 70

Time: 3 hrs.

(14x5=70)

Answer any FIVE FULL questions from the following :

1. Solve the following:

a) $\cos(x+y)dy = dx$

b) $(e^y + 1) \cos x dx - e^y \sin x dx = 0$

c) $\frac{dy}{dx} = (4x + y + 1)^2$

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

(5+4+5)

2. a) Solve : $(x^2 - y^2) dx + 2xy dy = 0$

b) Solve : $\frac{dy}{dx} = \frac{x+2y-3}{2x+y-3}$

c) Solve : $(1-x^2)\frac{dy}{dx} + 2xy = x(1-x^2)^{1/2}$

(4+5+5)

3. a) Find the general solution of $dr + (2r \cot \theta + \sin 2\theta) d\theta = 0$.

b) Solve : $(1 + e^{x/y}) + e^{x/y} \left(1 - \frac{x}{y}\right) \frac{dy}{dx} = 0$.

c) Solve the equation $L \frac{di}{dt} + Ri = E_0 \sin wt$, where L, R, E_0 are constants. Also discuss the case when t increases indefinitely.

(3+5+6)

4. a) Solve the IVP : $\frac{d^2y}{dx^2} + 4 \frac{dy}{dx} + 5y = 0$. Given $y = 2$ and $\frac{dy}{dx} = \frac{d^2y}{dx^2}$ when $x = 0$.

b) Find the general solution of $\frac{d^3y}{dx^3} - 2 \frac{d^2y}{dx^2} + 4 \frac{dy}{dx} - 8y = 0$.

c) Solve the IVP : $\frac{d^2y}{dx^2} - 2k \frac{dy}{dx} + k^2y = 0$. Given $y(0) = \sqrt{2}$, $y'(0) = k\sqrt{2}$ where k is a constant.

(7+3+4)

5. a) Solve : $\frac{d^2y}{dx^2} - 6 \frac{dy}{dx} + 9y = 6e^{3x} + 7e^{-2x} - \log 2$.

b) Solve : $(D^2 - 4D + 3)y = 2xe^x + 3e^x \cos 2x + xe^{3x}$

(6+8)

6. a) Apply the method of variation of parameters to solve : $\frac{d^2y}{dx^2} - 3 \frac{dy}{dx} + 2y = \frac{e^x}{1+e^x}$

b) Solve : $\frac{d^2y}{dx^2} - 2 \frac{dy}{dx} + 2y = e^x \tan x$

(7+7)

7. a) Find the partial differential equation of all spheres whose centre lie on the z -axis and given by equation $x^2 + y^2 + (z-a)^2 = b^2$, a and b being constants.

b) Solve the following partial differential equations :

i) $yq - xp = z$

ii) $(mz - ny) \frac{\partial z}{\partial x} + (nx - lz) \frac{\partial z}{\partial y} = ly - mx$

c) Solve : $p(1+q) = qz$

(4+(3+4)+3)

8. a) Solve $\frac{\partial^3 z}{\partial x^3} - 3 \frac{\partial^3 z}{\partial x^2 \partial y} + 4 \frac{\partial^3 z}{\partial y^3} = e^{x+2y}$

b) Solve the linear partial differential equation $\frac{\partial^2 z}{\partial x^2} + 2 \frac{\partial^2 z}{\partial x \partial y} + \frac{\partial^2 z}{\partial y^2} = \sin(2x + 3y)$.

c) Solve $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y} - 6 \frac{\partial^2 z}{\partial y^2} = x + y$.

d) Solve $(D^2 + D'^2)z = x^2 y^2$

(3+4+3+4)

PO 577.3

Reg. No.

--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III – P.G. Examination – M.Sc. Physics

February 2022

**Open elective (Under CBCS)
EXPERIMENTAL TECHNIQUES**

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 401

Time: 3 hrs.

Max Marks: 70

PART - A

Answer all questions choosing ONE from each unit. (18x3=54)

UNIT- I

1. a) Explain the construction and working of ruby laser with necessary energy level diagram. (7)
- b) What is nonlinear polarization? Arrive at an expression to prove the existence of second and third harmonic generation. (7)
- c) Explain self-focusing nonlinear behavior of light. (4)

OR

2. a) Discuss the theory of parametric amplification of light. (8)
- b) Differentiate between spatial coherence and temporal coherence. (6)
- c) Write a note on quadratic electro-optic kerr effect. (4)

UNIT- II

3. a) Discuss the principle, construction and working of turbo-molecular pump. (10)
- b) Explain the nomographic determination of conductance values. (4)
- c) Briefly explain the vacuum spectrum. (4)

OR

4. a) Explain with a diagram the operation of a thermocouple gauge. In what range of pressure can it be used? (10)
- b) Discuss the applications of vacuum pumps. (4)
- c) Write a note on pumping speed and throughput. (4)

UNIT- III

- 5.a) Draw a diagram of a scanning electron microscope and explain how it operates. What are the advantages of a SEM over a TEM? (10)
- b) Explain the operation principle of atomic force microscope. (4)
- c) Discuss the principle and applications of X-ray photoelectron spectroscopy (XPS). (4)

Contd...2

OR

- 6.a) Describe the working principle and components of X-ray photoelectron spectroscopy. Mention its advantages. (10)
- b) Write a note on low energy electron diffraction (LEED) (4)
- c) Explain the elemental dispersion spectroscopy in analyzing the elemental composition. (4)

PART - B

(4x4=16)

Answer any FOUR questions:

- 7.a) Write a note on light-matter interaction.
- b) Write a note on optical four level lasing system.
- c) Discuss the electro optic effect.
- d) Mention the applications of vacuum pumps.
- e) Write a note on sample preparation in SEM analysis.
- f) Discuss the contrast formation in tunneling electron microscopy.

PO 599.3

Reg. No.

--	--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

**Semester III – P.G. Examination – M.Sc. Food Science and Technology
February - 2022**

Open Elective (Under CBCS)

NUTRITION AND HEALTH

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Write a note on concept of protein balance.
2. Write a note on physiological fuel value.
3. Write a note on BMR.
4. Write a note on trans fatty acids.
5. Write a note on RDA.
6. Write a note on importance of minerals in human health.
7. Write short note on therapeutic applications of amino acids.

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

II. Answer any FOUR of the following:

(4x7=28)

8. Discuss the food guide pyramid with a neat labelled diagram.
9. Explain the functions of Vitamin C.
10. What are the health implications of obesity?
11. Discuss the classification of carbohydrates with examples.
12. Discuss the functions of food.

III. Answer any TWO of the following:

(2 x12=24)

13. Explain in-detail the clinical application of Iron.
14. Discuss the role of fibre in maintaining health.
15. List out the sources of proteins. Discuss its functions in-detail.

--	--	--	--	--	--	--	--

St Aloysius College (Autonomous)

Mangaluru

Semester III – P.G. Examination – M.Sc. Food Science Nutrition and Dietetics
February – 2022

Open Elective (Under CBCS)

HEALTH AND FITNESS

Time: 3 hrs.

Max Marks: 70

I. Answer any **SIX** of the following: (6x3=18)

1. Define energy. What is the main energy nutrient?
2. Define anaerobic exercise.
3. Define insulin and its role.
4. Define Health, Fitness and wellness
5. What are the social factors that affect health?
6. Write any three tests for cardiac endurance
7. Describe any three types of exercises for osteoporosis personals

ST. ALOYSIUS COLLEGE
PG Library
MANGALORE-575 004

II. Answer any **FOUR** of the following: (4x7=28)

8. What is nutritional status? How do you assess nutritional status?
9. Why do athlete's carb- load? How does carb-load improve performance?
10. What is physical activity? What are the benefits and the recommendations to reduce sedentary activity?
11. Distinguish aerobic and anaerobic exercise with examples
12. Write a detail note on sports nutrition

III. Answer any **TWO** of the following: (2 x12=24)

13. What are the goals for managing insulin levels in people with diabetes mellitus? Discuss the role of physical activity.
14. Explain about the various factors affecting health.
 - a) Physical, Biological and psychological. (3 X 4 = 12)
15. List out the exercises for CVD personals and explain their significance in prevention of the CVD.