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**St Aloysius College (Autonomous)
Mangaluru**

Semester III – P.G. Examination

January – 2021

Open Elective (Under CBCS)

FILM APPRECIATION

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SECTION – A

Time: 3 hrs.

Max Marks: 70

Answer any THREE of the following:

(3X15=45)

1. Write a review for any film of your choice keeping the basic rules of review writing.
2. Explain the different narrative structures that is followed in film.
3. What are the editing techniques in film making?
4. Discuss the opening scene of "God Father".
5. Screenwriting for film is different from play screen writing. Discuss.

SECTION – B

Write short notes on any FIVE of the following:

(5X5=25)

- a) Mise-en-Scene
- b) Pather Panchali
- c) Ghost and the Darkness
- d) Montage
- e) Continuity
- f) Jump cut
- g) Persistence of vision

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**St Aloysius College (Autonomous)
Mangaluru**

Semester III – P.G. Examination

JANUARY-2021

**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 changing structural characteristics of Indian Economy.
2. Explain the effects of population explosion in India. Examine the National population policy.
3. What are the recent changes in India's Foreign Trade? Explain the Foreign Trade Reforms in India.

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SECTION – B

Answer any FOUR questions of the following: (4x6=24)

4. Describe the nature of Rural-urban migration in India.
5. Explain the difficulties in measurement of poverty in India.
6. Explain the problems of MSME's in India and suggest the measures.
7. Analyse the labour unrest and exit policy in India.
8. Briefly explain the issues in Food Security.
9. Explain the financial relationships between centre and state government in India.

SECTION – C

Answer any FOUR questions of the following: (4x4=16)

10. Write the broad features of Indian population.
11. Write a note on concept of sustainable development.
12. Briefly explain Agricultural Pricing Policy.
13. Write a note on Disinvestment.
14. Write a note on issues in good governance.
15. Write a note on Goods and Services Tax.

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St Aloysius College (Autonomous)
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Semester III - P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)
READING AND INTERPRETATION OF LITERATURE

Time: 3 Hours

Max. Marks: 70

- I. Attempt a detailed analysis of any ONE of the following poems in about 250 words:** **(1×20=20)**

Aunt Jennifer's tigers prance across a screen,
 Bright topaz denizens of a world of green.
 They do not fear the men beneath the tree;
 They pace in sleek chivalric certainty.

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Aunt Jennifer's finger fluttering through her wool
 Find even the ivory needle hard to pull.
 The massive weight of Uncle's wedding band
 Sits heavily upon Aunt Jennifer's hand.

When Aunt is dead, her terrified hands will lie
 Still ringed with ordeals she was mastered by.
 The tigers in the panel that she made
 Will go on prancing, proud and unafraid.

OR

Shall I compare thee to a summer's day?
 Thou art more lovely and more temperate.
 Rough winds do shake the darling buds of May,
 And summer's lease hath all too short a date.
 Sometime too hot the eye of heaven shines,
 And often is his gold complexion dimmed;
 And every fair from fair sometime declines,
 By chance, or nature's changing course, untrimmed;
 But thy eternal summer shall not fade,
 Nor lose possession of that fair thou ow'st,
 Nor shall death brag thou wand'rest in his shade,
 When in eternal lines to Time thou grow'st.
 So long as men can breathe, or eyes can see,
 So long lives this, and this gives life to thee.

- II. Answer any FIVE of the following questions in about 250 words each:** **(5×10=50)**

1. Critically examine "Snake" as an eco-aesthetic poem.
2. Comment on the use of Indian English in "Goodbye Party to Ms Pushpa T.S."
3. Bring out G.K. Chesterton's attitude towards his society in "On Running after one's own Hat".
4. Analyse the conflict between idealism and realism in "Gift of the Magi".
5. Critically examine the hollowness of the education sector as seen in "The Refund".
6. Analyse modernist elements in any one of the texts you have studied.

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Semester III- P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

HUMAN RIGHTS & SOCIAL DEFENCE

Time: 3 hrs.

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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. Elucidate the history of Human Rights.
2. Write a note on issues affecting the human rights of women.
3. Discuss the role of media in protecting Human Rights.
4. Describe various institutional services for children.
5. Describe the role of Peoples Union for Civil Liberties in advocating Human Rights in India.

SECTION - B

(2x20=40)

- a. Answer any **TWO** questions.
- b. Each question carries **TWENTY** marks.
- c. Answer should not exceed **800** words.

6. Define Human Rights and elucidate on the Universal Declaration of Human Rights - 1948.
7. Explain how human rights are embodied in the fundamental rights of Indian Constitution.
8. Explain the powers and functions of National and State Human Rights Commissions in regulating and protecting human rights in India.
9. Explain the significance of Juvenile Justice Care and Protection Act 2000 in protecting the rights of children.

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Semester III – P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

ENTREPRENEURIAL DEVELOPMENT

Time: 3 Hours

Max. Marks: 70

SECTION - A

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Answer any FIVE of the following:

(5x4=20)

1. Write a note on Entrepreneurial values and attitudes.
2. Briefly explain the significance of a Business Plan.
3. Elucidate the concept of venture capital financing.
4. Discuss the challenges of social entrepreneurship in India.
5. Briefly explain the steps in preparing a marketing plan.
6. Distinguish between entrepreneur and entrepreneurship.
7. What are the Barriers to entrepreneurship in India?

SECTION – B

Answer any FOUR of the following:

(4x10=40)

8. "Entrepreneurship is a process of giving birth to an enterprise". Discuss.
9. "The greatest problem of women entrepreneurs is that they are women". Comment.
10. State and explain the essential elements of a good business plan.
11. Critically evaluate the role of support institutions to promote entrepreneurs.
12. Who are social entrepreneurs? Give the salient characteristics of social entrepreneurship.
13. Discuss the special features of a co-operative form of organization. How is it different from a company?

SECTION – C (Compulsory)

(1x10=10)

14. Globalization has enabled the entrepreneurs to take advantage of business opportunities all over the world. In the recent times business has started recognizing opportunities in environmentally oriented trend like go green. India is becoming a hub of eco-innovations and this has cut across all business. The present scenario is ideal for types of entrepreneurs to step into green world and take advantage of untapped opportunities. Eco-entrepreneurship has become apparently increasing that indeed contribute to the economic and social development. An entrepreneur makes capital work for them through business where as the ecopreneurs use their business to create eco-friendly atmosphere. The transformation to ecopreneurs occurs when their courage and their determination to solve ecological problems increases and they attempt to do business in e-green lining of earth, re-sorting degraded land, cleaning the air, building healthy and safe home, preserving the environment and cultural wonders. In the current era, consumers also prefer to buy products that are eco-friendly. The changing attitude of consumers in India towards environmentally comfortable products led extra opportunities to ecopreneurs.

- i) Analyse and explain opportunities to ecopreneurs.
- ii) Suggest the strategies to develop ecopreneurs.

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Semester III- P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

CORPORATE CULTURE AND ETHICS

Time: 3 hrs.

Max Marks: 70

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SECTION - A

Answer any **FIVE** questions.

(5x4=20)

1. Differentiate between Ethics and Morality.
2. What do you understand by Ethics relating to environment protection?
3. Explain Business Ethics.
4. Why are consumers called as important stakeholders?
5. What are the business responsibilities towards suppliers?
6. "Confidentiality is a part of Professional Ethics". Comment.
7. What is business malpractices?

SECTION - B

Answer any **FOUR** questions.

(4x10=40)

8. Examine the causes of unethical behavior.
9. Define Consumers. Explain the Ethics relating to consumer protection.
10. What are the different types of Ethics? Explain them in detail.
11. Explain the arguments for and against social responsibility in business.
12. Comment on the role of practicing physician while dealing with the patients.
13. What benefits accrue to business if ethics is made part of its strategy?

SECTION - C

14. **Compulsory**

(10)

Analyse the case.

A company manager finds that he has to retrench 15% of the staff employed as per top management order and to recruit new people in their place to infuse new blood. But he has very honest and dedicated persons working under him. Should he fire his employees?

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Semester III – P.G. Examination
JANUARY-2021
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. Trade related aspects of IPR
2. Patent co-operation treaty (PCT) 1970
3. Informed consent form
4. CPCSEA
5. *In silico* methods
6. GLP for laboratory studies
7. ICH- GCP
8. Research Integrity

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

9. What is an invention? Explain the conditions for its patenting.
10. How can we protect plant varieties of India? Discuss the process of registration of a new plant variety.
11. What are formulations? Explain their importance in drug delivery systems.
12. Discuss the need of animal testing and various animal models in preclinical research.
13. Explain various phases in clinical research.
14. What is investigational new drug process? Explain.
15. Discuss randomized control trial and blinding as study designs in a clinical trial.
16. Explain the role of e-notebook and documentation in patenting.

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

17. Describe the types of patent applications.
18. What is Pharmacokinetics? Discuss the role of dosage determination and toxicology in drug development.
19. Who are the key stakeholders in clinical research? Explain their role and responsibilities.
20. Discuss the importance of maintaining and managing various essential documents in a clinical trial.
21. What is IPR? Draw a comparative account of US and Indian patent system.

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Semester III - P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)
RESEARCH METHODOLOGY AND BIOINFORMATICS

Time: 3 Hours

Max. Marks: 70

I. Answer any TEN of the following:

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(10×2=20)

1. What is Random Sampling?
2. To represent continuous series data which graph is used?
3. What is the relationship between Mean, Median & Mode?
4. What is ANOVA? How is it useful?
5. What are the criteria followed in formulation of research problem?
6. "A good research is always based on good literature review"- Justify.
7. List out the protein structure visualization tools.
8. What is the salient feature of FASTA format?
9. List the components of phylogenetic tree.
10. Contrast the t-test and χ^2 - test.
11. What are literature databases? How are they useful?
12. Find the arithmetic mean from the following data.
x = 4, 7, 6, 5, 11, 12, 15

II. Answer any SIX of the following:

(6×5=30)

13. Explain Maximum Parsimony Method. Add a note on its merits and demerits.
14. Explain the different graphical methods for representing statistical data.
15. What is global and local alignment? Explain.
16. What are the components of a scientific research paper? Explain.
17. Explain randomized block design with an example.
18. Out of 808 plants in first generation, after crossing, 621 were found to be tall and 187 plants were found to be dwarf plants. Find out whether these plants follow Mendelian monohybrid law.
(χ^2 @ df=1 5%=3.24)
19. Give an account of scope and applications of Bioinformatics.
20. Give the classification of biological database.

III. Answer any TWO of the following:

(2×10=20)

21. Write a detailed account on Thesis writing. Add a note on difference between Thesis and study report.
22. Height and Weight of 10 individuals are given below. Find whether the two parameters are correlated and also report the extent of correlation.

Height (cms)	045	052	065	107	117	125	132	145	155	165
Weight (kg)	4	5	8	10	10	20	22	32	40	50

23. Give an account of data retrieval tools.
24. Write notes on any two of the following
a) BLAST b) Phylogenetic tree construction c) Clustal W d) Swiss-Prot

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Semester III – P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

DIFFERENTIAL EQUATIONS AND APPLICATIONS

Time: 3 Hours

Max. Marks: 70

Answer any **FIVE FULL** Questions:

(5x14=70)

1. Solve the differential equations:

a) $\frac{dy}{dx} = \frac{x(2 \log x + 1)}{\sin y + y \cos y}$

b) $(2xy + x^2)y' = 3y^2 + 2xy.$

c) $\sin x \frac{dy}{dx} + 2y = \tan^3\left(\frac{x}{2}\right).$

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(3+4+7)

2. a) Solve the differential equation

$$\frac{dy}{dx} + \frac{1}{x} \tan y = \frac{1}{x^2} \tan y \sin y.$$

b) An inductance of $2H$ and a resistance of 20Ω are connected in series with an emf of E volts. If current is 0 when $t=0$, find the current at the end of 0.01sec if $E = 100$ volts.

c) Solve $(1 + x^2)dy - xy dx = 0.$

(5+7+2)

3. a) Solve the differential equation

$$\frac{d^2x}{dt^2} + \frac{g}{l}x = \frac{g}{l}L \text{ where } g, l, L \text{ are constants subject to the conditions}$$

$$x = a, \frac{dx}{dt} = 0 \text{ at } t = 0.$$

b) Solve $\frac{d^2y}{dx^2} + a^2y = \frac{a^2R(l-x)}{p}$ where a, R, P and l are constants subject to the conditions $y = 0, \frac{dy}{dx} = 0$ at $x = 0.$

c) Solve $(D^2 + 4)y = \cos 2x.$

(5+6+3)

4. a) Solve $(D^3 + 1)y = \cos^2\left(\frac{x}{2}\right) + e^{-x}.$

b) Solve $y'' - 2y' + 2y = x + e^x \cos x.$

(7+7)

5. a) Solve $(D^2 - 4D + 4)y = 8x^2 e^{2x} \sin 2x.$

b) Solve $\frac{d^2y}{dx^2} + y = \operatorname{cosec} x$ using variation of parameters.

(7+7)

6. A circuit consists of resistance of 5 ohms, inductance of 0.05 Henrys and capacitance of 4×10^{-4} farads. If $q(0) = 0, i(0) = 0$ find $q(t)$ and $i(t)$, when an emf of 110 volts is applied.

(14)

Contd...2

**St Aloysius College (Autonomous)
Mangaluru**

Semester III – P.G. Examination

JANUARY-2021

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 unconditional positive regard?
2. What is reflection of feeling?
3. Define counseling?
4. What is commitment to action?
5. What is client's autonomy?
6. What are the stages of helping process?
7. What is the difference between counselling and guidance?

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II. Answer any FOUR of the following.

(4×5=20)

8. Elaborate on the nature and scope of counselling?
9. Write a note on transference and countertransference.
10. Explain the role of values in helping?
11. Elaborate on attending and responding skills in counselling?
12. How to deal with resistance and reluctance in counselling?
13. Write a note on cognitive behavioural theory of counselling?

III. Answer any FOUR of the following.

(4×10=40)

14. What is Ethics? Discuss ethical relationships and issues in counselling?
15. Discuss psychodynamic and humanistic theories of counseling?
16. What are the characteristics of an effective counselor? Discuss.
17. Explain briefly listening, questioning and paraphrasing skills of counseling with examples.
18. Explain the stages in the Counselling process.
19. Discuss common concerns of beginning helpers?

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Semester III – P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

EXPERIMENTAL TECHNIQUES

Max Marks: 70

Time: 3 hrs.

PART - A

Answer all questions choosing ONE from each unit.

(18x3=54)

UNIT- I

- 1.a) Explain how Z-scan technique can be used for detecting two photon absorption. (8)
- b) Discuss the construction and working of Neodymium Laser. (6)
- c) Write a note on Q switching. (4)

OR

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- 2.a) Discuss the principle and construction of CO₂ Laser. Draw the energy level diagram and explain the importance of nitrogen. (8)
- b) Explain why Phase matching is an important criteria in non-linear optics. (6)
- c) Discuss third harmonic generation. (4)

UNIT- II

- 3.a) With a neat sketch, explain the construction and working of oil diffusion pump. (8)
- b) Discuss the industrial application of vacuum technology. (6)
- c) Explain Principle and working of Penning gauge. (4)

OR

- 4.a) Explain the indirect methods of measuring vacuum using gauges. (10)
- b) Discuss the construction and working of vacuum cooling unit. (4)
- c) Explain briefly Kinetic theory of gases. (4)

UNIT- III

- 5.a) Explain principle, construction, working and applications of SEM. (8)
- b) Discuss the working, principle of AFM. (6)
- c) Discuss electron Probe Micro Analysis (4)

Contd...2

OR

- 6.a) Explain in detail energy dispersion spectroscopy. (8)
- b) Discuss advantages and disadvantages of TEM. (6)
- c) Discuss Low Energy Electron Diffraction. (4)

PART - B

Answer any **FOUR** questions:

(4x4=16)

- 7.a) Explain the terms i) Induced absorption ii) Spontaneous emission
iii) stimulated emission iv) Population inversion
- b) Explain the working of He-Ne laser.
- c) Write a note on Reynold's and Knudsen number.
- d) Explain the differences between TEM and SEM.
- e) i. What is the significance of SEM.
ii. Write the advantages of XPS.
- f) Explain the term pumping speed, Pump throughput, Conductance of pipes and Pumpdown time.

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Semester III – P.G. Examination
JANUARY-2021
Open Elective (Under CBCS)
BIO-INORGANIC CHEMISTRY, GREEN CHEMISTRY AND
ENVIRONMENTAL CHEMISTRY

Time: 3 Hours

Max. Marks: 70

PART - A

1. Answer any **SEVEN** sub divisions of the following: (7x2=14)
- Depict the function of $Ca^{2+} - ATP - ase$ in calcium transport.
 - Highlight the main difference between haemoglobin and cytochrome.
 - Give two examples for ionophores.
 - What is atom economy?
 - List the tools of green chemistry.
 - Suggest one example for controlling solvent free reactions.
 - Mention the causes for water pollution.
 - What are the qualities of drinking water?
 - Write the disease caused due to excess of cadmium and lead.

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PART - B

- Answer any **FOUR** of the following choosing at least one full question from each unit: (4x14=56)

UNIT - I

- Write a note on $Na^+ - K^+$ pump. (3)
 - Mention the applications of metal ions in biological systems. (3)
 - Explain the transport and storage of dioxygen in haemoglobin. (4)
 - Discuss role of ferritin in biological system. (4)
- Describe the function of hemerythrin. (3)
 - Explain nitrogen fixation cycle. (3)
 - What is ceruloplasmin? How it helps in storage and transport of metal? (4)
 - Write a note on iron sulphur proteins. (4)

UNIT - II

- Write a note on utilization of solvent free conditions. (3)
- What is catalyst? Give one green reaction using catalyst. (3)
- Discuss microwave organic synthesis. (4)
- Explain with suitable examples why green chemistry is better than conventional methods. (4)

- 5.a) How zero technology reduces the use of raw materials? (3)
b) Write a note on reaction on solid mineral support. (3)
c) List out the twelve basic principles of green chemistry. (4)
d) Explain the mechanism of phase transfer catalysis. (4)

UNIT - III

- 6.a) Explain the chemical reactions causing photochemical smog. (3)
b) How to control gaseous emissions? (3)
c) Explain reverse osmosis for desalination of waste water. (4)
d) Describe aerobic and anaerobic waste water treatment. (4)
- 7.a) Analyze the air pollutants for SO₂ and CO. (3)
b) With a neat diagram explain electro dialysis. (3)
c) What is the impact of toxic chemicals on enzymes with - SH groups? (4)
d) Explain briefly the role of nanotechnology in environmental studies. (4)

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St Aloysius College (Autonomous)

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Semester III – P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

NUTRITION AND HEALTH

Time: 3 hrs.

Max Marks: 70

I. Answer any SIX of the following:

(6x3=18)

1. Write the concept of protein balance.
2. What is food guide?
3. Mention any six functions of proteins.
4. Define Health, Nutrition and Nutrients.
5. List the role of dietary fibers in health and disease.
6. What are lipoproteins? What are their roles?
7. Comment on BMI and BMR.

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II. Answer any FOUR of the following:

(4x7=28)

8. What are water soluble vitamins? Describe in detail.
9. Explain the role of micro minerals in human health.
10. Define functional foods. Illustrate its importance with examples.
11. What are the different methods used to measure the energy value of the foods?
Explain.
12. Discuss on fat soluble vitamins.

III. Answer any TWO of the following:

(2 x12=24)

13. Write in detail the methods of assessing body composition for evaluating nutritional status.
14. Discuss in detail about the quality of food protein.
15. Discuss in detail about the functions of food.

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**St Aloysius College (Autonomous)
Mangaluru**

Semester III- P.G. Examination

JANUARY-2021

Open Elective (Under CBCS)

HEALTH AND FITNESS

Time: 3 hrs.

Max Marks: 70

(6x3=18)

I. Answer any SIX of the following.

1. What is the importance of exercise in preventing lifestyle diseases?
2. Define health and wellness.
3. Brief on cardiovascular endurance tests.
4. Why is sports nutrition called as special foods?
5. What is the difference between aerobic and anerobic exercise?
6. What is supplementation? How do you think it is helpful along with food?
7. What is carbohydrate loading?

II. Answer any FOUR of the following.

8. Explain in detail the factors affecting health.
9. Explain muscle endurance. Explain any two tests for it.
10. What is the dietary modification done in sports nutrition? Explain with an example.
11. Explain the importance of exercises in preventing CVD.
12. Discuss on the nutrition requirement in space.

III. Answer any TWO of the following:

13. Explain the diet plan for an athlete of height 181cm, weight 76 kg, age 57 years with moderate physical activity.
14. Detail out the basic components in physically active lifestyle in preventing diabetes, CVD and obesity.
15. What is the special nutrition required for military. Explain the importance of food during war.
