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Exam Code: 215222 **Paper/Subject Code: 2230**
(20)

Programme: Master of Science (Botany)
Semester-II

Course Title: Pteridology

Course Code: MBTL-2071

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries equal (8) marks.

Section A

1. What do you mean by Telome and Enation theory? Discuss the elementary structures and processes proposed in these theories. (8)
2. Write illustrated notes on the following (4 marks each):
   i) Homologous Theory
   ii) Antithetic Theory (8)

Section B

3. Describe in detail the external morphology of Rhynia plant and anatomy of its reproductive part with the views on its gametophyte. (8)

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4. Give illustrated notes on the following: (4 marks each)
   i) Draw a transverse section of Lycopodium stem and comment on vasculature.
   ii) Illustrate the structure of the spore bearing organs of Selaginella with the help of labelled diagrams. (8)

Section C

5. Equisetum has both hydrophytic and gametophytic characters. Discuss this statement. (8)
6. Explain the development of embryo in Pteris. (8)

Section D

7. What is heterospory? Discuss its occurrence in Pteridophytes and relation to seed habit. (8)
8. Discuss the utility of ferns for phytoremediation. (8)

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Exam Code: 215222 **Paper Code: 2231**
(20)

Programme: Master of Science (Botany)
Semester-II

Course Title: Diversity and Biology of Gymnosperms

Course Code: MBTL-2072

Time Allowed: 3 Hours **Max Marks: 40**

Note:- Attempt five questions, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries equal (8) marks. Draw labelled diagrams wherever necessary

Section-A

1. Write a note on the following:
   a. Geological time scale
   b. General characters of gymnosperms. 4+4
2. Give classification of gymnosperms up to order level along with characteristic features of various taxa. 8

Section B

3. Write a note on:
   a. Cycadofilicales
   b. Pentoxylales 4+4

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4. Give general account, structure and reproduction in Glossopteridales .8

Section C

5. Write an illustrated note on
   a. Pinus leaf
   b. Cycas leaflet. 4+4

6. Discuss in detail development of male and female gametophyte in Pinus. 8

Section D

7. Give an account of evolutionary tendencies of
   a. Gymnosperm seed.
   b. Ovules in gymnosperms 4+4
8. Discuss general survey of the cytology of gymnosperms. 4+4

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Exam Code: 215222 **Paper Code: 2232**
(20)

Programme: Master of Science (Botany)
Semester-II

Course Title: General Microbiology

Course Code: MBTL-2073

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks.

Section-A

1. Discuss the classification of bacteria and give characteristics of each group?
2. Describes the nature of virulence, toxins and extracellular enzymes of pathogenic bacteria?

Section-B

3. Writes a note on transmission of plant viruses with control measures?
4. Give a note on infection and replication of viruses with reference to TMV?

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Section-C

5. Explain sewage treatment will public health impact of raw sewage discharge?
6. Explain nature of bioaerosols and aero microbiological pathways?

Section-D

7. Explain the production of Food material in industry with suitable example?
8. Discuss the control of microorganisms by physical and chemical means?

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Exam Code: 215222 **Paper Code: 2233**
(20)

Programme: Master of Science (Botany)
Semester-II

Course Title: Cell Biology

Course Code: MBTL-2074

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks. Draw well labelled diagrams wherever necessary.

Section-A

1. Discuss how ions are transported across the membrane.
2. Write a detailed note on protein sorting and targeting.

Section-B

3. Write a detailed note on transposing. Explain their role in evolution.
4. Discuss structural organisation and functions of mitochondria and lysosomes.

Section-C

5. Enumerate the various factors regulating cell cycle.
6. What arc G-proteins'? Discuss their role in cell signaling.

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Section-D

7. Explain with examples bacterial and plant two component signaling systems.
8. What are the general principles of cell communication? How haematopoiesis is regulated in cell?

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Exam Code: 215222 **Paper Code: 2234**
(20)

Programme: Master of Science (Botany)
Semester-II

Course Title: Ecological Modelling And Forest Ecology

Course Code: MBTL-2075

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each of 4 sections. The fifth question may be attempted from any section. All questions carry equal 8 marks, Draw Well labelled diagrams wherever necessary.

Section A

1. Explain Lotka-Volterra model for predator -prey interaction. 8
2. Discuss Logistic Population Growth with graphical representation. 8

Section B

3. Describe McArthur — Wilson theory of biogeography. 8
4. Discuss various indices of measurement of diversity. Explain Shannon-Weaver measure of biodiversity with suitable example. 8

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Section C

5. Describe Forest types in India with graphical representation. 8
6. Discuss Production and Energy Flow in animal population, efficiency and measurement of ingestion. 8

Section D

7. Give an account of
   a. Concept of Biosphere reserves and their benefits.
   b. Penalties For Wildlife (Protection) ACT. 1972
   (4+4)
8. Describe Air (prevention and control of pollution) Act. 1981 in detail. What are the penalties under this act? 8

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Exam Code: 215222 **Paper Code: 2235**

Programme: Master of Science (Botany) Semester: II

Course Title: THEORETICAL BIOLOGY

Course Code: MBTL-2336

Time Allowed: 3 Hours **Max Marks: 40**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 8 marks. The students can use only Non-Programmable & Non-Storage Type Calculator and statistical tables.

SECTION-A

1. (a) Find $\frac{dy}{dx}$ for $y = \sin^{-1}\left(2x\sqrt{1-x^2}\right)$, $-\frac{1}{\sqrt{2}} < x < \frac{1}{\sqrt{2}}$. (4)

   (b) Differentiate $y = \sin(\tan^{-1} e^{-x})$ with respect to x. (4)

2. (a) Find $\frac{dy}{dx}$, if $y = x^{x\cos x} + \frac{x^2+1}{x^2-1}$. (4)

   (b) If $y = \sin^{-1} x$, show that $(1-x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} = 0$. (4)

SECTION-B

3. (a) Integrate the function $f(x) = \frac{\sin^3 x + \cos^3 x}{\sin^2 x \cos^2 x}$ with respect to x (4)

   (b) Find the integral $\int \frac{5x+3}{\sqrt{x^2+4x+10}}dx$ (4)

4. (a) Find the integral $\int \frac{(x^2+1)(x^2+2)}{(x^2+3)(x^2+4)}dx$ (4)

   (b) Find $\int \left[\sqrt{\cot x} + \sqrt{\tan x}\right] dx$ (4)

SECTION-C

5. (a) An instructor has a question bank consisting of 300 easy True / False questions, 200 difficult True / False questions, 500 easy multiple choice questions and 400 difficult multiple choice questions. If a question is selected at random from the question bank, what is the probability that it will be an easy question given that it is a multiple choice question. (4)

   (b) Bag I contains 3 red and 4 black balls while another Bag II contains 5 red and 6 black balls. One ball is drawn at random from one of the bags and it is found to be red. Find the probability that it was drawn from Bag II. (4)

6. (a) In a hurdle race, a player has to cross 10 hurdles. The probability that he will clear each hurdle is $\frac{5}{6}$. What is the probability that he will knock down fewer than 2 hurdles? (4)

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(b) A factory has two machines A and B. Past record shows that machine A produced 60% of the items of output and machine B produced 40% of the items. Further, 2% of the items produced by machine A and 1% produced by machine B were defective. All the items are put into one stockpile and then one item is chosen at random from this and is found to be defective. What is the probability that it was produced by machine B? (4)

SECTION-D

7. (a) Mean and standard deviation of 100 observations were found to be 40 and 10, respectively. If at the time of calculation two observations were wrongly taken as 30 and 70 in place of 3 and 27 respectively, find the correct standard deviation. (4)

(b) Determine the mean and standard deviation for the following distribution: (4)

Marks	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Frequency	1	6	6	8	8	2	2	3	0	2	1	0	0	0	1

Figure 1: Data of marks with frequency

8. (a) Suppose that in the past the standard deviation of weights of certain 100.0 *oz* packages filled by a machine was 0.8 *oz*. Test the hypothesis $H_0 : \sigma = 0.8$ against the alternative $H_1 : \sigma > 0.8$ (an undesirable increase), using a sample of 20 packages with standard deviation 1.0 *oz* and assuming normality. Choose $\alpha = 5\%$. (4)

(b) For 5 observations of pairs of (X, Y) of variables X and Y the following results are obtained. $\sum X = 15$, $\sum Y = 25$, $\sum X^2 = 55$, $\sum Y^2 = 135$, $\sum XY = 83$. Find the equation of the lines of regression and estimate the values of X and Y if $Y = 8; X = 12$. (4)

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Exam Code: 210402 Paper Code: 2224
(30)

Programme: Master of Science (Chemistry)
Semester-II

Course Title: Biology for Chemists

Course Code: MCHL-2056

Time Allowed: 3 Hours **Max Marks: 20**

Note: Attempt five questions in all, selecting one question from each section (A to D). Fifth question can be attempted from any section. Each question carries equal marks. The students are allowed to use non-programmable calculator.

Section A

1. Differentiate DNA and RNA. (4)
2. Difference between prokaryotic and eukaryotic cell. (4)

Section B

3. Describe structure of neurons. (4)
4. Give detail about epithelial tissue. (4)

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Section C

5. What is genetic code and its characteristics? (4)
6. Discuss process of translation in detail. (4)

Section D

7. Who gave the five kingdom system of classification and explain this system? (4)
8. Draw structure of virus and give its characteristics. (4)

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Exam Code: 210402 **Paper Code: 2218**
(30)

Programme: Master of Science (Chemistry)
Semester-II

Course Title: Organometallics Chemistry

Course Code: MCHL-2081

Time Allowed: 3 Hours **Max Marks: 40**

Attempt five question in all, Selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks. The Students are allowed to use non-programmable calculator.

Section-A

1. (a) Discuss the factors that affecting the stability of M-C Bond in Organometallic compounds. 4
   (b) How methyl Lithium is prepared? Also give its nature in solid as well as in liquid phase. 4
2. (a) Why the rate of Hydrolysis of $(CH_3)_2$ Zn is much faster than that of $(CH_3)_2$ Hg.? 4
   (b) Discuss structure and bonding of Albynyl metal complexes. 4

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Section-B

3. Discuss the bonding in ferrocene. Explain on Basis of MOEL diagram the cause of Kinetic stability of ferrocene. 8
4. (a) Give examples where cyclopentadienyl group act as one electron as well as five electron donar ligand? 4
   (b) What are electron count Rules for Multi-decker Sandwich compound? Give examples. 4

Section-C

5. (a) Write a note on wacker process in oxopalladation reactions. 4
   (b) Give an important role of organocopper reagent in organic synthesis. 4
6. (a) What is Wilkinson catalyst? Also give its important application. 4
   (b) What is Basic difference between Template and Macrocyelic effect? 4

Section-D

7. (a) How the vibrational spectra help in determination of geometrics of metal carbonyl and bond order of Co.?
   (b) Give an important reactions and Preparation of dinitrogen Complexes. 4

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8. (a) Discuss the concept of back Bonding in metal carbonyl using MOEL diagram. 4

(b) Discuss the structure of $Fe_2(CO)_9$, $CO_4(Co)_{12}$, $Fe_3(CO)_{12}$ and $Cr(CO)_6$, Show that the metal atoms in these carbongel obey EAN Rule. 4

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Exam Code: 210402 **Paper Code: 2219**
(30)

Programme: Master of Science (Chemistry)
Semester-II

Course Title: Organic Reaction Mechanism-II

Course Code: MCHL-2082

Time Allowed: 3 Hours **Max Marks: 40**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 12 marks.

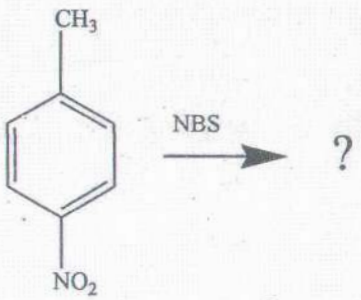
Section-A

Q1 a) Discuss mechanism of arylation of aromatic compounds by diazonium salts . (4)

b) Write note on Hunsdiecker reaction with example. (4)

Q2 a) Explain mechanism and orientation in pyrolytic elimination reactions. (4)

b) Predict the product of following free radical reaction. (4)



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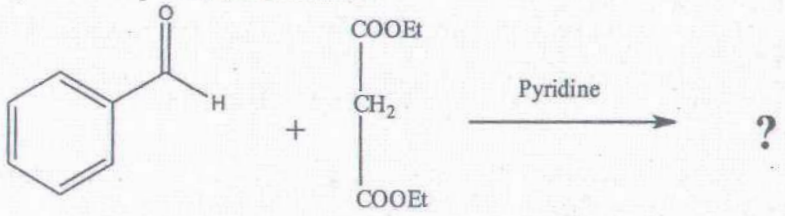
Section-B

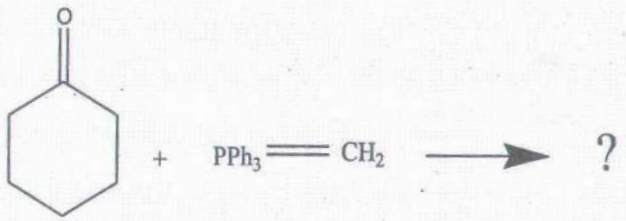
Q3) a) Explain the mechanistic and stereochemical aspects of addition reactions involving nucleophiles. (4)

b) Predict the product with mechanism. (4)



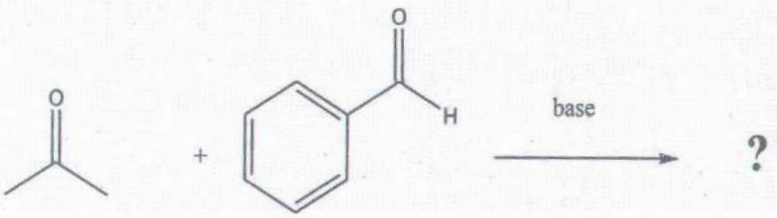
Q4) a) Explain the reaction and mechanism of addition to cyclopropane ring. (4)

b) Predict the product of following reaction with mechanism. (4)



Section-C

Q5) a) Predict the product with mechanism. (4)



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b) Explain synthetic applications of Reformatski reaction with suitable example. (4)

Q6) a) Explain the use of malonic ester in organic synthesis. (4)

b) Write note on 1, 3 dipolar reactions. (4)

Section-D

Q7) a) Discuss various reagents used for the oxidation of alkenes. (4)

b) Explain the reaction and mechanism of oxidation with ruthenium tetraoxide. (4)

Q8) a) Discuss different methods for the reduction of ketones. (4)

b) Explain hydrogenation reaction for reduction of organic compounds. (4)

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Exam Code: 210402 **Paper Code: 2220**
(30)

Programme: Master of Science (Chemistry)
Semester-II

Course Title: Physical Chemistry-Quantum Chemistry

Course Code: MCHL-2083

Time Allowed: 3 Hours **Max Marks: 40**

Note: The candidates are required to attempt five questions in all. Selecting one question each from section A, B, C, D and fifth question may be attempted from any section. Use of non-programmable calculator is allowed. Each question carries 8 marks.

Section A

1. Write short notes on Compton effect and Photoelectric effect. (8)
2. Discuss the Rydberg relation for explaining atomic spectrum of hydrogen. (8)

Section B

3. Briefly explain the following terms:
   - Hamiltonian Operators
   - Normal and Orthogonal functions
   - Momentum operator
   - Hermition operator (8)

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4. Determine which of the following functions are eigen function of the operator d^2/dx^2:
(a) exp (-ikx), (b) cos kx, (c) exp ($-\alpha x^2$)? Determine the eigen value where appropriate. (8)

Section C

5. Write Schrodinger equation for linear harmonic oscillator and solve it for energy and Wave function Describe the conclusions. (8)
6. Prove that angular momentum (L^2) is commutative with one of its component (L_z) (8)

Section D

7. Discuss the linear combination of atomic orbital of butadiene? Also determine its bond order and charge density. (8)
8. Derive the expression for the ground state of Helium atom by using Variation method. (8)

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Exam Code: 210402 **Paper Code: 2221**
(30)

Programme: Master of Science (Chemistry)
Semester-II

Course Title: Reaction Mechanisms and Metal Clusters

Course Code: MCHL-2084

Time Allowed: 3 Hours **Max Marks: 40**

Note: The candidates are required to attempt five questions in all. Selecting one question each from section A, B, C, D and fifth question may be attempted from any section. Each question carries 8 marks. Use of nonprogrammable calculator is allowed.

Section A

1. Discuss theories of trans effect. Which theory explains better the trans effect of CO compared to that of pyridine. 8
2. Explain the following order of rates of aquation of complexes on the basis of solvation effect:
$[Co(NH_3)_5Cl]> [Co(en)(NH_3)_5Cl]^{2+} > [Co(en)_2(NH_3)_5Cl]^{2+} > [Co(en)_2(dien)Cl]^{2+}> [Co(tetraene)Cl]^{2+}$. 8

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Section B

3. Discuss cross reactions and its thermodynamics. Discuss marcus hush theory and its applications. 8
4. Discuss the mechanisms involved in electron transfer reactions. Give suitable examples. 8

Section C

5. Define stereo chemical non-rigidity and explain it in complexes with different coordination number. 8
6. What is binary formation constant? Explain the different methods to determine binary formation constant. 8

Section D

7. a. Differentiate between nido boranes and closo boranes by taking two examples. 4
   b. Write a short note on isolobal analogy and its applications. 4
8. Describe in detail the structure and properties of
   (a) Borazines and
   (b) phosphazenes 8

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Exam Code: 210402 **Paper Code: 2222**

Programme: Master of Science (Chemistry) Semester: II

Course Title: Spectroscopy- B: Techniques for Structure Elucidation of Inorganic Compounds

Course Code: MCHL-2085

Time Allowed: 3 Hours **Max Marks: 60**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 12 marks.

Section-A

Q1 **(a)** Write short note on
i Fermi resonance ii Group vibration concept **(3,3)**

Q1 **(b)** The infrared spectrum of gaseous **HCl** consists of a series of lines spaced **20.68** cm^{-1} apart.
i. Calculate the moment of inertia of **HCl.**
ii. Calculate the equilibrium internuclear separation. **(3,3)**

Q2 **(a)** What is meant by spectral line? Discuss the factors affecting the width of spectral line. **(6)**

Q2 **(b)** Discuss in detail the reason for more bands in vibrational spectrum than allowed one. **(6)**

Section-B

Q3 **(a)** Describe briefly the selection rules for Raman spectrosocopy and for infrared Spectroscopy. **(6)**

Q3 **(b)** Iron pentacarbonyl, $Fe(CO)_5$, possesses ***D3h*** symmetry.
i. Determine the number and irreducible representations of the IR-active and Raman active fundamentals to be expected for this compound. **(3)**
ii. Determine the number of IR-active carbonyl stretching bands to be expected. **(3)**

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Q 4 Discuss the quantum theory of Raman spectroscopy. Also show how stokes and anti stokes lines appear in Raman spectrum of a molecule. **(12)**

Section-C

Q5 **(a)** Consider the following IR data:

K3[Mn(CN)6] **2125** cm^{-1}

K4[Mn(CN)6] **2060** cm^{-1}

K,[Mn(CN),] 2048 cm^{-1}

Discuss this trend in **CN** stretching frequencies in terms of bonding in the complexes, and the relationship this has on force constants and frequencies. What do you predict for the Mn-C force constants in this series? **(6)**

Q5 **(b)** Discuss the following in relation to EPR technique
i) Kramer's degeneracy ii) Zero field splitting **(3,3)**

Q6 **(a)** Explain the hyperfine splitting in bis-salicylaldimine copper (II). **(6)**

Q6 **(b)** Discuss the principle of photoelectron spectroscopy. **(6)**

Section-D

Q7 **(a)** Draw the structure for SnF 4 and explain why quadrupole splitting is observed in this compound but not in SnCl4. **(6)**

Q7 **(b)** Explain quadrupolar interactions in **iron MB** spectrum of Fe(CO)5 at liquid **N2** temperature. **(6)**

Q8 **(a)** Explain the effect of the Crystal Lattice on the Magnitude of e2Oq. **(6)**

Q8 **(b)** The 59Co *(1* = /2) frequencies in ClSnCo(CO)4 occur at **35.02** MHz (+2 - i2), **23.37** MHz **(3/2 - ±/2),** and **11.68** MHz (±'/2 - ±3/2). Calculate **q** *and e2Qq.* **(6)**

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Exam Code: 210402 **Paper Code: 2223**
(30)

Programme: Master of Science (Chemistry) Semester-II

Course Title: Mathematics for Chemists

Course Code: MCHL-2336

Time Allowed: 3 Hours **Max Marks: 20**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries equal 4 marks.

Section- A

1. (a) If the arcs of the same length in two circles subtend angles 65° and 110° at the centres , find the ratio of their Radii.

(b) Find the degree measure corresponding to the following radian measure

(use π= 22/7): $\frac{5\pi}{3}$ (2,2)

2. (a) Find the value of trigonometric function tan $\frac{19\pi}{3}$

(b) Prove that $2\sin^2\frac{3\pi}{4} + 2\cos^2\frac{\pi}{4} + 2\sec^2\frac{\pi}{3} = 10$ (2,2)

Section- B

3. (a) If A = $\begin{bmatrix} 1 & -2 & 3 \\ -4 & 2 & 5 \end{bmatrix}$ and B = $\begin{bmatrix} 2 & 3 \\ 4 & 5 \\ 2 & 1 \end{bmatrix}$, then find AB , BA. Show that AB is not equal to BA.

(b) Express the matrix A = $\begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$ as the sum of Symmetric and Skew- symmetric matrix. (2,2)

4. (a) Determine the Eigen vectors of the matrix $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$

(b) Show that the system of equation

3x+y-z=1 , 5x+2y+3z =2 , 8x+3y+2z = 3 is consistent and hence solve them . (2,2)

Section- C

5. (a) Differentiate $\sin(\cos x^2)$ with respect to x.

(b) Find $\frac{dy}{dx}$ if $y = \cos^{-1}(\frac{2x}{1+x^2})$; -1<x < 1 **(2,2)**

6. (a) Find $\frac{dy}{dx}$ if $y^x + x^y = 1$

(b) Differentiate $y = \cos(\log x + e^x)\,; x > 0$ **(2,2)**

Section- D

7.(a) Evaluate $\int cosec\, x(cosec\, x + \cot x)\, dx$

(b)) Find the Area Enclosed under the curve $x^2 + y^2 = a^2$. **(2,2)**

8. (a) Find the area of Region bounded by two Parabolas $y = x^2$ *and* $y^2 = x$

(b) Evaluate $\int_0^2 e^x$ dx as the limit of sum. **(2,2)**

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Exam Code: 213202 **Paper Code: 2267**
(30)

Programme: Master of Commerce
Semester-II

Course Title: Corporate Financial Accounting and Auditing

Course Code: MCML-2091

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks

SECTION-A

I. What are Divisible Profits? What are the provisions of Companies Act 2013 relating to Divisible Profits? (2, 14)

II. The following is the Trial Balance of AB Ltd. as on 31st March, 2017.

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Particulars	Debit Amount (Rs)	Credit Amount (Rs)
Stock	12,500	
Sales		40,000
Purchase	34,500	
Wages	5000	
Discount	700	500
Salaries	750	
Rent	495	
General Expenses Including Insurance	1705	
Surplus in Statement of Profit and Loss		1503
Interim Dividend paid	900	
Corporate Dividend Tax on interim Dividend	183	
Capital:1000 shares @ 10 each		10,000
Debtors and Creditors	3750	1750
Machinary	2900	
Cash in Hand	1437	
Reserve		11,550
Bad Debts	483	
Total	**65,303**	**65,303**

Prepare Profit and Loss Account and Balance Sheet as on

31st March, 2017 after taking into account the following:

1. Stock Rs.30,000
2. Purchase include Rs. 500 Machinary purchased on 1-10-2016.

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3. On 31-3-2017, Goods worth Rs. 3000 were sold to a customer. He has taken away the goods but the transaction was not recorded in the sales book.
4. Directors want to provide (A) Proposed 10% Final Dividend other than the Interim Dividend after the Balance Sheet Date (B) Income Tax Rs. 3000 (c) Reserve Fund Rs. 2000. (16)

SECTION-B

III. Briefly explain different methods for the valuation of Shares. (16)

IV. From the Following particulars, calculate value of Goodwill:

a. Net Profit after Tax for Five Years: Rs, 160,000, Rs. 166,000, Rs. 180,000 Rs. 194,000 and Rs. 210,000.
b. Capital Employed in the Business Rs. 10,00,000.
c. Normal Rate of Return 10%.
d. Present Value of Annuity of Rs. 1 for 5 years at 10% is 3.78.
e. Profits include non recurring profits on average basis of Rs.10,000 out of which it was deemed that even non recurring profits had a tendency of appearing at the rate of Rs. 3000.

You are required to calculate Goodwill:

i. As per Annuity Method
ii. As per 5 years purchase of Super Profits

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iii. As per Capitalisation of Super Profits Method
iv. How Goodwill will be calculated if Annuity Value is not given. (4.4,4,4)

SECTION-C

V. What are the Liabilities of a Statutory Auditor'? (16)
VI. Write short notes on:
1. Audit by Comptroller and Auditor General
2. Proprietary Audit (8,8)

SECTION-D

VII. Briefly explain the provisions relating to the conduct of Cost Audit. (16)
VIII. How is the audit of the Functional areas of Planning, Organising and Control conducted? (16)

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Exam Code: 213202 **Paper Code: 2268**
(30)

Programme: Master of Commerce
Semester-II

Course Title: Financial Management

Course Code: MCML-2092

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. What do you understand by Capital Structure? Explain the main factors which affect the capital structure decisions. (16)
2. (a) A company expects a net operating income of Rs.100000. It has Rs 500000, 6% debentures. The overall capitalisation rate is 10%. Calculate the value of the firm and the equity capitalisation rate according to the Net Operating Income Approach.
   If the debenture debt is increased to Rs. 750000, what will be the effect on the value of the firm and the equity capitalisation rate? (10)

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(b) A firm is considering an expenditure of Rs.60 lakhs for expanding its operations. The relevant information is as follows:

Number of existing equity shares	Rs.10 lakhs
Market Value of existing share	Rs.60
Net Earnings	Rs 90 lakhs

Compute the cost of existing equity share capital and of the new equity capital assuming that new shares will be issued at a price f Rs 52 per share and the costs of new issue will be Rs 2 per share. (6)

Section B

3. "Finance is the life blood of any business and no business can sustain without finance." Explain this statement in the light of various short term sources of finance available to the companies. (16)

4. From the following information, ascertain which project is more risky on the basis of
(i) Standard deviation and (ii) Coefficient of variation.

Project A		Project B	
Cash Inflow (Rs)	Probability	Cash Inflow (Rs)	Probability
2000	0.2	2000	0.1
4000	0.3	4000	0.4
6000	0.3	6000	0.4
8000	0.2	8000	0.1

(16)

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Section C

5. What is importance of the working capital in Business? Explain the various methods of estimating the working capital requirements in business. (16)

6. (a) X Ltd needs Rs 1000000 for expansion. The expansion is expected to yield an annual EBIT of Rs 160000. In choosing a financial plan, X Ltd has an objective to maximising earning per share. It is considering the possibility of issuing equity shares and raising debt of Rs 100000 or Rs 400000 or Rs 600000. The current market price per share is Rs 25 and is expected to drop to Rs 20 if funds are borrowed in excess of Rs. 500000.

   Funds can be borrowed at the rates indicated below:

   i. Upto Rs 100000 at 8%.

   ii. Over Rs 100000 upto 500000 at 12%.

   iii. Over Rs 500000 at 18%.

   Assuming a tax rate of 50%. determine the EPS for the three financing alternatives and suggest the scheme which would meet the objectives of the management. (10)

   (b) Elaborate the Point of Indifference/ Equivalency Point with respect to two alternatives financial plan. (6)

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Section-D

7. What do you meant by Receivable Management'? Define the main dimensions required to be consider in the planning of credit policy. (16)
8. Attempt the following:
   a. Inventory model (EOQ) to cash management (Baumol model)
   b. Stochastic (Miller-Orr) Model

   (16)

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Exam Code: 213202 **Paper Code: 2269**
(30)

Programme: Master of Commerce
Semester-II

Course Title: Human Resource Management

Course Code: MCML-2093

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt 5 questions, selecting at least 1 question from each section. The fifth question may be attempted from any section. Each question carries equal (16) marks.

Section A

1. What do you mean by Human Resource Management. Explain the evolution and functions of HRM.
2. Explain the factors affecting Human Resource Planning in detail.

Section-B

3. Define Selection. Discuss the process of selection.
4. Explain the various methods of training which can be used in organizations.

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Section-C

5. What do you mean by Performance Appraisal. Explain the purpose and essentials of performance appraisal.
6. Define employee remuneration. Explain the components of employee remuneration.

Section-D

7. Define job evaluation. Explain the methods of job evaluation.
8. Explain the reasons of indiscipline and consequences of indiscipline.

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Exam Code: 213202 **Paper Code: 2270**
(30)

Programme: Master of Commerce
Semester-II
Course Title: Marketing Management

Course Code: MCML-2094

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt any five questions, selecting at least 1 question from each section. The fifth question may be attempted from any section. Each question carries sixteen marks.

Section A

1. a) "Holistic marketing is the need of the hour as the world of marketing is highly dynamic", Analyse this statement. 8

   b) Briefly explain the importance and the techniques involved in scanning the marketing environment. 8

2. Explain various modern concepts of marketing that are relevant in the changing marketing world. Also correlate the concept of personalized marketing with the word of mouth marketing. 16

Section B

3. a) Explain the targeting strategies being used by Coca Cola in India. 8

   b) "Positioning is creating a distinctive place in the consumer Mindset", Comment? 8

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4. How does the consumer market differ from the business market'? Is the buying behavior same in both the markets? Comment giving suitable examples. 16

Section C

5. a) Explain the steps and the sources that act as the repository for new ideas in the New product development. 8

   b) Explain the various Marketing mix strategies that are relevant at the various stages of the Product Life Cycle. 8

6. Explain the various Pricing strategies that are followed by the organisations with their relative advantages and the disadvantages. Also list various factors that the organisations consider before selecting any pricing strategy. 16

Section D

7. a) "Place is an important component of the marketing mix". Why? 8

   b) What is Promotion mix? Explain its various components. 8

8. a) Social media marketing has emerged as an important and most effective method of reaching to the customers. How? 8

   b) Explain the different types of intermediaries that are involved in the effective distribution of the goods and the services. 8

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Exam Code: 213202 **Paper Code: 2271**
(30)

Programme: Master of Commerce
Semester-II

Course Title: Research Methodology

Course Code: MCMM-2095

Time Allowed: 3 Hours **Max Marks: 50**

Note:- Attempt five questions in all , selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 10 marks.

Section-A

1. Define Research. Discuss in detail various types of research. (10)
2. "The task of defining the research problem often follows a sequential pattern Explain (10)

Section-B

3. What is the need of review of literature. Discuss the various sources of review of literature. (10)
4. (a) What is research design? Is single research design suitable in all research studies? If not , why. (5)
   (b) What do you mean by sample design? What points should be taken into consideration by a researcher in

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developing a sample design for the research project. (5)

Section-C

5. Discuss the various types of measurement scale. (10)
6. Discuss in brief goodness of measurement scales. Also discuss sources of errors in measurement. (10)

Section-D

7. "Processing of data implies editing, coding, classification and tabulation". Describe in brief these four operations pointing out the significance of each in a research study. (10)
8. (a)Why do we use t-test in linear regression analysis? (5)

   (b) What is the main objective of factor analysis? What is rotation in factor analysis? (5)

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Exam Code: 206702 **Paper Code: 2285**
(20)

Programme: Master of Science (Computer Science) Semester-II

Course Title: Theory of Computation

Course Code: MCSL–2111

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries equal (16) marks.

Section A

1. a) Explain Chomsky Hierarchy in detail. (16)
2. a) Formulate a regular grammar that accepts all the strings over 0 and 1 that has a substring 011.
   b) What is regular expression? Explain operators involved in designing regular expression. (2X8= 16)

Section B

3. a) Create a DFA that accepts all strings over (0,1) that has even number of 0's and odd number of I 's.
   b) What is left recursion'? How it is removed in Context Free Grammar? Explain with an example. (2X8=16)
4. a) Convert following NFA into an equivalent DFA:-

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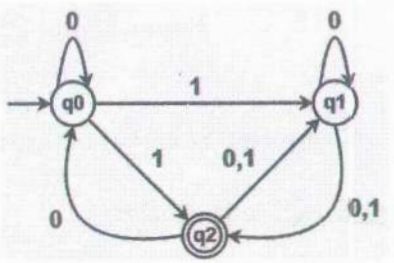

b) Differentiate between DFA and NFA. (2X8=16)

Section C

5. Define Push Down Automata. Make a PDA to accept L = $\{a^n b^{n+1} \mid n > O\}$. (16)
6. a) Define closure properties for Context Sensitive Grammar.
   b) With the help of pumping lemma show that $L = \{a^n b^n c^n \mid n > 0\}$ is not a Context Free Grammar. (2X8=16)

Section D

7. Explain:-
   a) Explain Decidability in detail.
   b) Recursive Language along with its properties. (2X8=16)
8. a) Find First and Follow of following Grammar:-
   $E \rightarrow TE'$
   $E' \rightarrow +\ TE' \mid \varepsilon$
   $T \rightarrow +F\ T'$
   $T' \rightarrow +\ *FT' \mid \varepsilon$
   $E' \rightarrow (E) \mid x \mid \varepsilon$
   b) Outline properties of LL(k) grammar. (2x8=16)

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Exam Code: 206702 **Paper Code: 2286**
(20)

Programme: Master of Science (Computer Science)
Semester-II

Course Title: Image Processing

Course Code: MCSL–2112

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section A

1. Discuss in detail steps of image processing.
2. How computer vision, machine vision and image processing are related?

Section B

3. Which factors contribute to the quality of an image? How sharpness and noise affect the quality?
4. Differentiate between PNG and JPEG image file formats.

Section C

5. What are various methods for image enhancement?
6. Explain different statistical pattern recognition techniques.

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Section D

7. Why does CIE standard specify R, G, B as the primary colors? Are there actually single special band as R, G, or B?
8. Write a note on Pseudo-color image processing.

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Exam Code: 206702 **Paper Code: 2287**
(20)

Programme: Master of Science (Computer Science)
Semester-II

Course Title: Advanced Programming Concepts

Course Code: MCSL–2113

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question contains equal(16)marks.

Section A

1. (a) Java is a secure, robust and platform independent. Explain the features of Java that make it support to this statement.
   (b) What are the various operators used in Java?
   (8x2)
2. Write short note on
   a) Java virtual machine
   b) Control structures
   (8x2)

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Section B

3. (a) What is inheritance and purpose of using inheritance? What is the use of keyword super in inheritance? Explain with example. (16)
4. Explain the following
   (a) Polymorphism
   (b) Packages (8X2)

Section C

5. Describe the life cycle of thread explain with an example how Java performs thread synchronization. (16)
6. What are Applets? How to create an applet in Java? (16)

Section D

7. What do you mean by Event in Java? Discuss the Delegation Event Model in detail? (16)
8. Differentiate between AWT and JSWING. Explain hierarchy of AWT and Jswing? (16)

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Exam Code: 206702 **Paper Code: 2288**
(20)

Programme: Master of Science (Computer Science)
Semester-II

Course Title: Cloud Computing

Course Code: MCSL–2114

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt any five questions by selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section A

1. Define terms: cloud and cloud computing. Also specify some of the open challenges associated with cloud computing.
2. What is the significance of virtualization?

Section B

3. List and explain the role of different layers of cloud computing architecture.
4. What is meant by QOS? Explain in context of cloud computing services.

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Section C

5. Compare and contrast task programming and map-reduce programming.
6. Explain different methods/techniques for data security in cloud.

Section D

7. What is meant by big data analytics? Why it is challenging task?
8. List some of the problems associated with energy efficiency in cloud computing.

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Exam Code: 206702 **Paper Code: 2289**
(20)

Programme: Master of Science (Computer Science)
Semester-II

Course Title: Distributed Database Systems

Course Code: MCSL–2115

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five question in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. What is Distributed Database. Compare distributed database system and centralized database system. Explain problem areas in the implementation of DDS. 16
2. Discuss various fragmentation schemas for data Distribution by taking an example. 16

Section-B

3. What are Parametric Queries and what are different designs to implement them on distributed Database. 16

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4. What is a global Query? How a global query is converted into fragmented query? 16

Section-C

5. Define transaction. What are the termination Conditions for a transaction? What are various goals of transaction management? Discuss in detail with suitable examples. 16
6. Discuss use of joins and semi joins to optimize Distributed database queries. 16

Section-D

7. What do you mean by Distributed Database Administration? Discuss different roles and responsibilities are involved in distributed database administration. 16
8. Write short note on the following
   (a) Reliability and concurrency control.
   (b) Authorization in distributed database. 8x2=16

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Exam Code: 100082 **Paper Code: 2306**

Programme : Master of Arts (Cosmetology) Semester –II

Course Title: Trichology

Course Code : MCYM-2141

Time Allowed : 3 Hours **Max Marks :40**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question can be attempted from any section. Each question carries 8 marks.

Section –A

Q1. What is the term used for the study of hair? Explain it in detail.

Q2. Describe the hair cycle and replacement of hair?

Section –B

Q3. What do you understand by composition of hair & 3 hair forms?

Q4. What is hair also explain the different type of hair.

Section –C

Q5. What is dandruff? Describe the types of dandruff & its treatment.

Q6. What are the different types of hair bonds?

Section –D

Q7. What do you understand by the hair shaft problem? Explain with the help of diagram.

Q8. What is melanin and why they are responsible for change in colour?

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Exam Code: 100082 **Paper Code: 2307**
(20)

Programme: Master of Arts (Cosmetology)
Semester-II

Course Title: Playing with Hair Colours

Course Code: MCYM-2142

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks.

Section-A

1. What are complementary colours? Show their location on a colour wheel.
2. Write the reasons for which people color their hairs.

8marks

Section-B

3. What is corrective Hair colouring? How will you achieve it?
4. How will you choose the best hair color appropriate for a particular client? 8marks

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Section-C

5. Discuss:
   (i) Hair Porosity
   (ii) Hair Density
6. Discuss:
   (i) Hair Texture
   (ii) Hair Elasticity 8marks

Section-D

7. What is Global Coloring? Write the procedure in detail.
8. How will you achieve a 'Change of color' if a client has undergone previously 'Permanent Hair color'?
   8 marks

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Exam Code: 100082 **Paper Code: 2308**
(20)

Programme: Master of Arts (Cosmetology)
Semester-II

Course Title: Reflexology

Course Code: MCYM-2143

Time Allowed: 3 Hours **Max Marks: 40**

Attempt five questions in all, selecting atleast one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks.

Section-A

1. What is reflexology and how does it work? 8
2. What is the procedure for foot reflexology? 8

Section B

3. How reflexology helps in pain relief? 8
4. How to give a reflexology message? 8

Section C

5. Is reflexology good for sleeping problem? 8
6. How reflexology helps to release tension? 8

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Section D

7. How to you get rid of sinus infection through reflexology? 8
8. How does reflexology helps in reproductive problem? 8

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Exam Code: 100082 **Paper Code: 2309**
(20)

Programme: Master of Arts (Cosmetology)
Semester-II

Course Title: Hair Grooming

Course Code: MCYM-2144

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks.

SECTION A

1. EXPLAIN THE MARKET HAIR SPA WITH ITS ADVANTAGES?
2. EXPLAIN THE TOTAL PROCEDURE OF SMOOTHENING?

SECTION B

3. EXPLAIN THE SECTIONING OF HAIR CUTTING WITH THE HELP OF DIAGRAM?
4. EXPLAIN ANY HAIR CUT ACCORDING TO THE HAIR TEXTURE OF THE CLIENT?

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SECTION C

5. EXPLAIN THE TYPES OF SCISSORS AND HOW YOU CAN HOLD YOUR SHEARS DURING THE HAIR CUT?
6. HOW YOU CAN CLEAN THE HAIR WIGS AND HOW YOU CAN TAKE CARE OF THEM AT HOME?

SECTION D

7. EXPLAIN THE THERMAL HAIR STYLING? WRITE THE PROPER WAY OF HAIR SPRAY?
8. DEFINE CLIENT CONSULTATION?

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Exam Code: 213102 **Paper Code: 2272**
(20)

Programme: Master of Arts (Economics)
Semester-II

Course Title: Microeconomics-II

Course Code: MECL-2171

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. A firm supplies its output in two markets, demand being more elastic in one than in the other Assuming that the firm aims to maximize profits, show how the price and output in each market are determined?
2. State and explain the equilibrium of firm under the situation of Monopolistic Competition.

Section B

3. Solution to a Bilateral Monopoly model is indeterminate, Why?
4. What is Kinked demand Curve? How does it explain the price rigidity under Oligopoly?

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Section C

5. Critically examine the Baumol's Theory of Sales revenue maximization of a business firm.
6. Explain the modern theory of distribution.

Section D

7. What is the purpose behind development of the second best choice? Explain in detail
8. Explain Bergson-Samuelson Social Welfare Function. What are the properties of Social Welfare Function?

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Exam Code: 213102 **Paper Code: 2273**
(20)

Programme: Master of Arts (Economics)
Semester-II

Course Title: Macroeconomics-II

Course Code: MECL-2172

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Candidates are required to attempt five question, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

SECTION-A

1. Explain the relative effectiveness of monetary and fiscal policy under the condition of perfect capital mobility. (16)
2. Explain in detail the factors responsible for the shift in IS functions. (16)

SECTION-B

3. Discuss the shape and nature of Phillips curve under natural rate of unemployment hypothesis. Also discuss the policy implications of Phillips curve. (8,8)

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4. Explain structuralists' theory of inflation. Also explain policies to control this type of inflation. (8,8)

SECTION-C

5. What do you mean by business cycles? Explain in detail all the phases of business cycles suggested by Hicks. (4,12)
6. Discuss in detail the various stages of business cycles. Also discuss various policies to control business cycles. (8,8)

SECTION-D

7. Explain in detail the theory of real business cycles. Also give its limitations. (10,6)
8. Discuss the main features of rational expectations hypothesis. Also discuss its policy implications. (8,8)

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Exam Code: 213102 **Paper Code: 2275**
(20)

Programme: Master of Arts (Economics)
Semester-II

Course Title: Public Finance

Course Code: MECL-2174 (OPT-I)

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions , selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section A

1. Define public revenue. What are the effects of public revenue on production and distribution?
2. Critically examine modem theory of incidence of taxation.

Section B

3. Discuss Wagner's law of public expenditure. What are the reasons for the growth of public expenditure'?
4. Define public expenditure. Discuss the growth and structure of public expenditure in India.

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Section C

5. Write a detailed note on the mechanism of Zero Base Budgeting in India. Point out its constraints, if any.
6. Discuss the burden of public debt. Do you think that public debt shift the burden to posterity.

Section D

7. Discuss, in detail, the recommendations of 15th finance commission. Compare it with 14th finance commission.
8. What is fiscal policy? Discuss the role of fiscal policy in developing countries.

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Exam Code: 213102 **Paper Code: 2277**

Programme: Master of Arts (Economics) Semester: II

Course Title: Economics of Labour

Course Code: MECL-2176 (Opt-II)

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 16 marks.

Section-A

1. What do you mean by labour economies? Discuss nature and scope of labour economics?
2. What is the dualistic theory of labour market and how does it explain the persistent divide between formal and informal sector in developing countries?

Section-B

3. What specific measures were undertaken during different five year plans in India to address unemployment, and how effective these measures in generating employment and reducing the overall unemployment rate in the country?
4. What is bargaining theory of wages, and how does it explain the determination of wages in labour market? Also explain some of the key criticism of this theory?

Section-C

5. Discuss trade unionism and growth of trade union movement in India?
6. What are the key features of industrial relations in India? Suggest what policy measures can be taken to address challenges in industrial relations in India?

Section-D

7. What do you mean by social security? What are the social security schemes adopted for social-economic upliftment of labourers in India.
8. What are the effects of globalization on labour market in India and what policy measures can be taken to address the challenges and opportunities arising from globalization?

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Exam Code: 213102 **Paper Code: 2274**
(20)

Programme: Master of Arts (Economics)
Semester-II

Course Title: Quantitative Methods for Economists-II

Course Code: MECL-2453

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section-A

1. a) Calculate coefficient of correlation between age and playing habits.

Age	18	19	20	21	22	23
No. of Players	250	200	150	120	100	80
Regular players	200	150	90	90	30	12

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b)

	Sales	Advertisement Expenditure
Averge	10 Crores	2 Crores
Standard	4	5
	r=0.75	

Estimate advertisement expenditure if sales target of Rs. 12 crores to be achieved

2. a) $r_{12}=0.7$ $r_{13}=0.8$ $r_{23}=0.6$. Find out $r_{12.3}$, $r_{13.2}$, $r_{1.23}$ and $R_{1.23}$

b) Explain the properties of multiple regression coefficients.

Section-B

3. a) Discuss the Various components of time series .

b)Fit a straight line trend and also estimate the value of 2008

Year	2001	2002	2003	2004	2005	2006	2007
Sales	60	75	78	68	87	85	95

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4. Find the trend with exponential method.

Year	2005	2006	2007	2008	2009
Price (Rs.)	50	70	40	90	120

Section-C

5. a) A factory has two machines, machine I and II produce.'30% and 70% of the items of output respectively. Further, 5% and 1% of the items produced by machine I and II are found to be defective. If a defective item is drawn at random, what is the probability that it is produced by machine I

   b) A bag contains 6 black and 9 white balls. A person draws 2 balls. If on every black ball, he gets Rs. 20 and on every white ball Rs. 10. Find out his expectations.

6. a) Discuss the properties of binomial distribution.

   b) From the past experience, it is known that in a certain factory 3% products are defective. A sample of 100 items are taken at random. Find the probability that exactly 5 products are defective (Given: $e^{-3}=0.04979$)

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Section-D

7. Write down the various methods of sampling with its suitability
8. Explain the procedure of testing a hypothesis.

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Exam Code: 213102 **Paper Code: 2276**
(20)

Programme: Master of Arts (Economics)
Semester-II

Course Title: Computer Applications for Economists

Course Code: MECM-2125 (OPT-XI)

Time Allowed: 3 Hours **Max Marks: 50**

Note: The candidates are required to attempt five questions in all. Selecting one question each from section A, B, C, D and fifth question may be attempted from any section. Each question carries 10 marks.

Attempt Any FIVE question:-

Section I

1. (a) What do you mean by input devices ? Explain any two input devices? (5)
   (b) What do you mean by output devices? Discuss any two output devices? (5)
2. What is primary memory? How it is different from secondary memory? (10)

Section II

3. (a) What do you mean by word Processing? Give some features of Word Processor? (5)

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(b) Describe various views available in MS-Word. (5)

4. Write a note on the following:
   (a) Spell checker
   (b)Margin
   (c) Header and footer (5)

Section-III

5. (a) Explain various applications of MS-Excel in details? (5)
   (b) Explain various types of function in detail. (5)
6. (a) What is cell referencing? What are the various types of cell referencing? (5)
   (b) What is macro? How do you record and run a macro in Excel? (5)

Section IV

7. (a) What is the difference between excel and SPSS? (5)
   (b) Give the procedure for constructing bar chart in SPSS? (5)
8. (a) Name five standard command pushbuttons in most dialog boxes of SPSS? (5)
   (b) What are the advantages and disadvantages of SPSS (5)

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Exam Code: 216402 **Paper Code: 2174**
(20)

Programme: Master of Arts (English)
Semester-II

Course Title: Poetry-Neoclassical to Romantic Period

Course Code: MENL-2211

Time Allowed: 3 Hours **Max Marks: 64**

SECTION-A

Attempt any 4 out of the following in about 150 words:

1. a. Comment on the beginning of Canto I of The Rape of the Lock.
   b. How does Pope introduce supernatural machinery in the poem ?
   c. Describe Belinda's performance in Ombre game as mentioned in the poem.
   d. What is the literary significance of French Revolution?
   e. Why was Keats criticized as an 'escapist' ?
   f. What marks the beginning of Romantic period in English Literature ? (4x4=16)

SECTION —B

Attempt either of the two in about 600 words :

2. Critically analyse Pope as a Neoclassicist.

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Or

3. Illustrate fully the mock heroic quality of The Rape of the Lock. (1x12=12)

SECTION -C

Attempt either of the two in about 600 words :

4. Discuss Wordsworth's creative process with reference to the prescribed poems.

Or

5. How does Wordsworth explore the relation between Man and Nature in his poetry ? (1x12= 12)

SECTION -D

Attempt either of the two in about 600 words:

6. Trace the romantic features in Keats' poetry in the light of prescribed poems.

Or

7. 'Ode to Autumn' is not just description of a season rather one of the most thematically rich of all the odes. Explain its complexity. (1x12= 12)

SECTION —E

8. **Write a note on any 3 out of the following in about 150 words each. Each carries 4 marks**

(a) Lyric (b) Negative Capability

(c) Ode (d) Features of Age of Pope

(3x4=12)

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Exam Code: 216402 **Paper Code: 2175**
(20)

Programme: Master of Arts (English)
Semester-II

Course Title: Irish Literature

Course Code: MENL-2212

Time Allowed: 3 Hours **Max Marks: 64**

Section A

Attempt any 4 questions in about 150 words each. Each question carries 4 marks (4*4 = 16)

1. a) Who are "High Heels" and "Low Heels" ?
   b) Why Jack wants to be christened as Earnest?
   c) How does Higgin's mother treat Eliza Dolittle?
   d) Who is Colonel Pickrting ?
   e) Why do Laputan men use flappers ?
   f) Why Algernon does not want Gwendolen to marry Jack?

Section B

Answer any 1 question in about 600 words (1*12= 12)

2. a) Describe Gulliver's adventures in the land of Brobdingnags.

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b) Is Book 4 of Gulliver's Travels a terrible piece of misanthropy ? Give reasons for your answer.

Section C

Answer any 1 question in about 600 words (1*12= 12)

3. a) Write a character sketch of Jack.
   b) Comment on Wilde's use satire in the play The Importance of Being Earnest

Section D

Answer any 1 question in about 600 words (1*12= 12)

4. a) Write a character sketch of Professor Higgins.
   b) Write a note on the transformation of Eliza Dolittle

Section E

Answer any 3 question in about 300 words each. Each question carries 4 marks (3*4= 12)

5. a) Write short notes on Flat and Round Characters.
   b) What do you know about Irish Literary Theatre?
   c) What do you mean by Romantic Comedy ?
   d) Write a short note on Irish Literary Revival.
   e) What do you know about the growth of Irish nationalism ?

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Exam Code: 216402 **Paper Code: 2176**
(20)

Programme: Master of Arts (English)
Semester-II

Course Title: 19th Century Victorian Novel

Course Code: MENL-2213

Time Allowed: 3 Hours **Max Marks: 64**

Section A

Note: Attempt any four questions by choosing at least one from each novel in about 150 words each.

1. (i)What do the moors symbolize in Wuthering Heights?
   (ii) Analyze the relationship between Lockwood and Heath Cliff in Wuthering Heights.
   (iii) How is education presented in Hard Times?
   (iv) Discuss the role of Sissy Jupe in Hard Times.
   (v) What is the role of the fate in Hardy's novel Tess of the D Urbervilles?
   (vi) Is the ending of the novel Tess of the D 'Urbervilles justified? (4 X 4 =16)

Section B

Attempt any one question in about 600 words.

2. Discuss the theme of revenge in Wuthering Heights.
   Or

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Give a character sketch of Edgar Linton contrasting it with Heath Cliffs character. (1 x12 =12)

Section C

Attempt any one question in about 600 words.

3. Discuss the appropriateness of the title Hard Times.

   Or

   Throw light on Gradgrind's character. Also examine Thomas Gradgrind's portrayal as Mr. Utilitarianism? (1x12=12)

Section D

Attempt any one question in about 600 words.

4. Tess of the D 'Urbervilles is generally regarded as Thomas Hardy's masterpiece. Why'?

   Or

   Discuss the character of Alec in Tess of the D 'Urbervilles. Also throw light on his relationship with Tess. (1 X12 =12)

Section E

Attempt any one question in about 600 words.

5. Throw light on trends in Victorian fiction with particular reference to the novels prescribed to you.

   Or

   Explain the following terms:

   A) Realism

   B) Protagonist

   C) Tragic Vision (4x3=12)

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Exam Code: 216402 **Paper Code: 2177**
(20)

Programme: Master of Arts (English)
Semester-II

Course Title: Rhetoric and Advanced Composition

Course Code: MENL-2214

Time Allowed: 3 Hours **Max Marks: 64**

SECTION-A

Answer any four of the following six questions in about 150 words. Each question carries 4 marks.

1. i) Correct the following sentences by adjusting the dangling constructions.

a. Drinking heavily, the car was hard to drive.
b. Sailing in a ship, the sea acquires a new look.
c. Having failed in two subjects, the principal refused her admission.
d. When five years old, his foster parents sent him to a boarding school.

ii) Make the following sentences better by removing Awkwardness and obscurity.

a. After dinner is when he is likely to be at home and good mood
b. If I were a fish', I can swim in water.

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c. She took the fruit out of the tub water and threw it away.

d. The reason for the accident was because the local train was behind schedule.

iii) Define Ambiguity, Barbarism.

iv) Define and distinguish between cliche and colloquialism

v) Write a note on Narration as a discourse.

vi) Discuss cause and effect as a paragraph development strategy. (4x4=16)

SECTION-B

Attempt any one question in about 600 words.

2. What is a sentence? How is it distinguished from a phrase and clause.
3. Make a unified coherent paragraph of the following sentences.

a. Fish contains a great deal of protein, and the commonest kinds of fish cost much less to buy in the shop than the commonest kinds of meat. .

b. Pakistani fishing boats and factory ships are sailing far out into the Arabian sea.

c. They are building large numbers of deep-sea fishing boats.

d. They are fitting them with special refrigerators so that they can stay away from port for many weeks.

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e. Some countries are even sending to sea factory-ships, so that the fish can be put straight into tins while they are still fresh.
f. At last the developing countries are beginning to take advantage of the riches which lie off their coasts.
g. Sri Lanka is setting a fine example.

(1x12=12)

SECTION-C

Attempt any one question in about 600 words.

4. Elaborate on Expository as a form of discourse.
5. Elaborate on Argumentation as a discourse.

(1x12=12)

Section-D

Attempt any one question in about 600 words.

6. What are the different development strategies of a paragraph enumerate and discuss.

7. What is a paragraph, a topic sentence and how does unity + coherence help build up a paragraph. (1x12=12)

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Section : E

Write a paragraph on any one of the given topic sentences.

8. Religious politics is killing the spirit of Democracy.
9. System of education needs serious revamping
10. Corona (Covid-19) Pandemic has taught us many things. (1x12=12)

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Exam Code: 216402 **Paper Code: 2178**
(20)

Programme: Master of Arts (English)
Semester-II

Course Title: History of English Literature-II

Course Code: MENL-2215

Time Allowed: 3 Hours **Max Marks: 64**

Section A

Attempt any 4 questions in about 150 words each. Each question carries 4 marks (4x4 = 16)

1. 1.a) What are the basic tenets of Romanticism ?
   b) What is Negative Capability ?
   c) How the Romantic poets felt about French Revolution?
   d) What do you know about Irish National Theatre ?
   e) Explain the term Pre-Raphaelites.
   f) What do you mean by Egoistical Sublime ?

Section B

Attempt any 1 question in about 600 words (1x12 = 12)

2. a). Write a short note on the dominant temper of the Victorian Age.

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b) What is post modernism ? How does it compare with modernism '?

Section C

Attempt any 1 question in about 600 words (1x12 = 12)

3. a) Give a brief account of the Problem Play in England.

   b) What are the major trends in contemporary British drama ?

Section D

Attempt any 1 question in about 600 words (1x12 =12)

4. a) Discuss Lord Tennyson as the representative Victorian poet

   b) Describe Wait Whitman's use of imagery in his poetry.

Section E

Attempt any 1 question in about 600 words (1x12 = 12)

5. a) Write an essay on the various trends of modern American novel.

   b) Write a note on feminism in British fiction with special reference to George Eliot and Bronte sisters.

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1.

a. Differentiate between modernism and post modernism.

b. Write a note on Theatre of the Absurd.

c. Describe the contribution of any two women novelists of Victorian age.

d. Write about any two prominent Modern American dramatists.

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Exam Code: 216402 **Paper Code: 2179**

Programme: Master of Arts (English) Semester: II

Course Title: Prose and Short Stories

Course Code: MENL-2216

Time Allowed: 3 Hours **Max Marks: 64**

Section-A

1. Note: Attempt any four out of the six questions given below by selecting at least one from each unit. The fourth question can be attempted from any of the units. Each question carries 4 marks. Answer to each question should be in approximately 150 words. The total weightage of this section is 16 marks.

(a) What is being satirized in Chekhov's story *The Lottery Ticket*?
(b) What is the central theme of the story *The Bet*?
(c) Write a note on *humour* in *A Dissertation Upon Roast Pig?*
(d) What is the central focus of Lamb's *New Year's Eve*?
(e) Write a note on the character of the blind man in the story *The Eyes Have It.*
(f) How does the narrator describe his grandmother's present and past in the story *The Photograph*? (4X4)

Note: Questions in Sections B, C, and D are required to be answered in approximately 600 words.

Section-B

2. (a) Discuss the various themes of the story *A Chameleon*?

Or

(b) Bring out the theme of the dehumanization and selfishness of the society in the story *The Lament*? (12)

Section-C

3.(a) What is the relationship between memory and nostalgia as described in the story *Dream Children; A Reverie*?

Or

(b) Discuss Charles Lamb's essay *All Fool's Day.* (12)

Section-D

4. (a) Explain the autobiographical strain present in Ruskin Bond's stories. Give your views by referring to the stories which you have read and analyzed.

Or

(b) How does the story *The Kitemaker* refer to the transformation and change that has come in the society which has led people like Mehmood to suffer? (12)

Section-E

5. Note: Explain any three out of the following literary terms:

a) Narrative b) Pathos
c) Open Ended Story d) Foreshadowing (3X4)

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Exam Code: 215902 **Paper Code: 2180**
(20)

Programme: Master of Arts (Fine Arts)
Semester-II

Course Title: Aesthetics and Principles of Art Appreciation

Course Code: MFAL- 2241

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions in all, selecting atleast one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. Explain concept of Morality in art. 16
2. Explain concept of Art and Nature. 16

Section-B

3. "Society plays great role in art" Explain it. 16
4. Explain objective approach of art in your words. 16

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Section-C

5. Explain canons of art in Vishnu Dharmotra Purna. 16
6. Explain any three shadanga of Indian Art. 16

Section-D

7. Explain concept of Rasa in your words. 16
8. Explain Bhava as source of creative art. 16

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Hindi version

पांच प्रश्न करें । हर भाग में से एक एक प्रश्न करना है। पांचवां प्रश्न किसी भी भाग में से करें।

भाग–1

1. कला में नीतीशास्त्र की धारणा की विवेचना करें।
2. कला व प्रकृति की धारणा की विवेचना करें।

भाग–2

3. कला में समाज का बड़ा योगदान है विवेचना करें।
4. अपने शब्दों में कला की वस्तुपरक निकटवता की विवेचना करें।

भाग–3

5. विष्णुर्मोतर पुराण के अनुसार कला अंगों की विवेचना करें।
6. भारतीय कला में किन्हीं तीन शंडगों की विवेचना करें।

भाग–4

7. अपने शब्दों में रस धारणा की विवेचना करें।
8. रचनात्मक कला में भाव मुख्य आधार है की विवेचना करें।

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Punjabi version

ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰੋ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇੱਕ-ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕਰੋ।

ਭਾਗ–1

1. ਕਲਾ ਵਿੱਚ ਨੀਤੀਸ਼ਾਸਤਰ ਦੀ ਧਾਰਣਾ ਬਾਰੇ ਵਿਵੇਚਨਾਂ ਕਰੋ।
2. ਕਲਾ ਅਤੇ ਪ੍ਰਾਕਿਤੀ ਦੀ ਧਾਰਣਾ ਬਾਰੇ ਵਿਵੇਚਨਾਂ ਕਰੋ।

ਭਾਗ–2

3. ਕਲਾ ਦਾ ਸਮਾਜ ਵਿੱਚ ਵੱਡਾ ਯੋਗਦਾਨ ਹੈ ਵਿਵੇਚਨਾਂ ਕਰੋ।
4. ਆਪਣੇ ਸ਼ਬਦਾਂ ਵਿੱਚ ਕਲਾ ਦੀ ਵਸਤੂਪਰਕ ਨਿਕੱਟਤਾ ਬਾਰੇ ਵਿਵੇਚਨਾਂ ਕਰੋ।

ਭਾਗ–3

5. ਵਿਸ਼ਣੂਧਰਮੋਤਰ ਪੁਰਣ ਦੇ ਅਨੁਸਾਰ ਕਲਾ ਦੇ ਅੰਗਾਂ ਦੀ ਵਿਵੇਚਨਾਂ ਕਰੋ।
6. ਭਾਰਤੀ ਕਲਾ ਦੇ ਕੋਈ ਤਿੰਨ ਸ਼ੰਡਗਾਂ ਦੀ ਵਿਵੇਚਨਾਂ ਕਰੋ।

ਭਾਗ–4

7. ਆਪਣੇ ਸ਼ਬਦਾਂ ਵਿੱਚ ਰਸ ਧਾਰਣਾਂ ਦੀ ਵਿਵੇਚਨਾਂ ਕਰੋ।
8. ਰਚਨਾਤਮਕ ਕਲਾ ਵਿੱਚ ਭਾਵ ਮੁੱਖ ਆਧਾਰ ਹੈ ਦੀ ਵਿਵੇਚਨਾਂ ਕਰੋ।

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Exam Code: 215902 **Paper Code: 2181**
(20)

Programme: Master of Arts (Fine Arts)
Semester-II

Course Title: History of Indian Art (Post Classical Sculpture to 1850 AD)

Course Code: MFAL -2242

Time Allowed: 3 Hours **Max Marks: 80**

Candidates are required to attempt FIVE questions selecting ONE question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. Give an account of sculptural qualities of Mamallapuram executed during the reign of pallava. 16
2. Write an essay on Ardhanarishwar from Ellora. 16

Section-B

3. Discuss the art and architecture of Durga temple Aihole. 16
4. Elucidate the characteristics and techniques of Chola Bronza. 16

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Section-C

5. Give a comparison between Mughal & Rajasthani Painting? 16
6. Critically analyse the Mughal Portraiture. Give Example. 16

Section-D

7. Describe the main Characteristics of Rajasthani Painting of Kishangarh with suitable Example. 16
8. Write about the theme and Characteristics of Basholi Painting. 16

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Exam Code: 217502 **Paper Code: 2304**
(30)

Programme: Master of Science(Fashion Designing and Merchandising) Semester-II

Course Title: Fashion Merchandising and Marketing

Course Code: MFDL-2231

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. Write down a detailed note on Nature and Scope of marketing.
2. Write down a detailed note on Fashion market size and structure.

Section- B

3. Write down a detailed note on Forms of Business Organization.
4. Explain the major Role and Responsibilities of a merchandiser.

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Section-C

5. Write down a detailed note on Fashion Forecasting and Trend Analysis.
6. Write down a detailed note on SWOT.

Section-D

7. Define advertising? Explain Role and various types of advertisements.
8. Write down a detailed note on Sales Promotion Techniques and Fashion Photography.

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Exam Code: 217502 **Paper Code: 2305**
(30)

Programme: Master of Science(Fashion Designing and Merchandising)
Semester-II

Course Title: Sustainable Fashion Design for Change

Course Code: MFDL-2232

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions in all, selecting at least one question from each unit. The fifth question may be attempted from any unit. Each question carries 8 marks.

UNIT I

1. What are sustainable Fibres ? Explain different types of sustainable Fibres. 8
2. a) Define Carbon Footprint. What is the importance of calculating carbon foot printing?
   b) How recycling can contributes towards sustainability. 4x2=8

UNIT II

3. Briefly discuss the following terms 4x2=8
   a) Trans seasonal garments

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b) Modular garments
c) Green washing
d) Low wash

4. Discuss the sustainable practices that can be adopted by consumers. 8

UNIT III

5. What is biomimicry? How is the concept of biomimicry used in textiles and apparel for sustainability? 8
6. a) Explain Naturaidycs.
   Differentiate between
   b) Upcycling and Recycling
   c) Fast fashion and Slow fashion 2,3,3

UNIT IV

7. Explain works/collection on sustainability by any two Inter-national designers. 8
8. a) Explain the term co-design.
   b) What is zero waste cutting? Explain few techniques of zero waste cutting. 4x2=8

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Exam Code: 216302 **Paper Code: 2162**
(20)

Programme: Master of Arts (Hindi)
Semester-II

Course Title: Madhyakaleen Hindi Kavya

Course Code: MHIL-2261

Time Allowed: 3 Hours **Max Marks: 64**

नोटः यह प्रश्न पत्र पाँच भागों में विभाजित है। पहला भाग अनिवार्य है। शेष भागों कमशः दो, तीन, चार और पाँच में से एक–एक प्रश्न करना अनिवार्य है।

भाग–एक

1. निम्नलिखित पद्यांशों में से किन्हीं चार की सप्रसंग व्याख्या करें। प्रत्येक प्रश्न 4 अंक का है।

I. ममता तू न गई मेरे मन ते।
पके केस जन्म के साथी लाज गई लोकन ते।
तन थाके कर कम्पन लागे जोति गई नैनन ते।
सरवन वचन न सुनम काहू के बल गए सब इंद्रिन ते।

II. पुरते निकसी रघुवीर वधू धरि धीर दये मग में डग द्वै।

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झलकी भरि भाल कनी जल की पटु सूखि गए मधुराधर वै।
फिर बूझति हैं चलनो अब केतिक पर्णकुटी करिहो कित हवै।
तियकी लखि अतुरता पियकी आँखियाँ अति चारू चली जली च्वै।

III. करियो प्रभु जी की बात सब दिन, करो प्रभु जी की बात रे।
हस्ती घोड़ा महल खजीना, दे दौलज पर लात रे।
माँ बाप और बहिन भाई, कोई नहीं आवै साथ रे।
मीरां के प्रभु गिरधरनागर, भजन करो दिन रात रे।

IV. जोगिया सो प्रति किया दुःख होय।
प्रीत किया सुख नहीं मोरी सजनी, जोगी मत न कोई।
रात दिवस कल नाहीं परत है, तुम मिलिया बिन मोई।
ऐसी सूरत या जग माहीं, फेरी न देखि सोई।

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V. मेरी भव–बाधा हरो, राधा नागरी सोई।
जा तन की झाईं परे श्याम हरित–दुति होई।
तो पर वारों उरबसी, सुनि, राधिके सुजान।
तू मोहन के उर बसी, हवै उरबसी–समान।

VI. तंत्री नाद, कवित्त–रस, सरस राग, रति–रंग।
अनबुड़े बूड़े तरे जे बूड़े सब अंग।
कनक कनक ते सौ गुनी मादकता अधिकाई
उहिं खाएं बौराई नर, इहिं पाएं बुराई।

4x4=16

भाग–दो

2. तुलसीदास जी की समन्वय साधना स्पष्ट कीजिये। 12
3. परामचरित मानस का साहित्यिक मूल्याकन करें। 12

भाग–तीन

4. मीरा बाई जी के काव्य के दार्शनिक सिंद्धात स्पष्ट करें। 12
5. हिंदी कृष्ण काव्य परंपरा में मीरा बाई का स्थान निंधारित करें। 12

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भाग–चार

6. बिहारी सतसई का मूल प्रतिपाद्य स्पष्ट करें। 12

7. सतसई परंपरा में बिहारी जी का स्थान निर्धारित करें। 12

भाग–पाँच

8. मीराबाई जी का साहित्यिक परिचय दें। 12

9. बिहारी जी का साहित्यिक परिचय दें। 12

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Exam Code: 216302 **Paper Code: 2163**
(20)

Programme: Master of Arts (Hindi)
Semester-II

Course Title: Hindi Sahitya ka Itihaas (Khand Do)

Course Code: MHIL-2262

Time Allowed: 3 Hours **Max Marks: 64**

इकाई–एक

I. निम्नलिखित प्रश्नों में से एक किन्हीं 4 प्रश्नों का उत्तर दें। प्रत्येक प्रश्न के 4 अंक है प्रत्येक प्रश्न का उत्तर 200 शब्दों में दें।

1. मध्यकालीन और आधुनिक साहित्य के अंतर को स्पष्ट करें।
2. आधुनिक काल को गद्य काल क्यों कहा जाता है।
3. हिंदी साहित्य पर नवजागरण के प्रभाव को स्पष्ट कीजिए।
4. समाज सुधार आंदोलनों के साहित्य पर पड़ने वाले प्रभाव को रेखांकित कीजिए।
5. नई कहानी से क्या तात्पर्य है।
6. सामाजिक और आंचलिक उपन्यास से आप क्या समझते हैं।

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इकाई दो, तीन, चार और पांच में से एक–एक प्रश्न का उत्तर देना अनिवार्य है। उत्तर 800 शब्दों में दें।

इकाई–2

II. आधुनिक काल की परिस्थितयों पर प्रकाश डालें।

III. आधुनिक काल की प्रमुख साहित्यिक प्रवृतियों पर विचार करें।

इकाई–3

IV. द्विवेदीयुगीन साहित्य में संस्कृतिक गौरव और राष्ट्रप्रेम की प्रवृति का विवेचन कीजिए।

V. छायावादी काव्य की प्रमुख विशेषताओं का परिचय दें।

इकाई–4

VI. हिंदी नाटक के उदभव और विकास का परिचय दीजिए।

VII. हिंदी कहानी के विकास में विभिन्न काव्य आंदोलनों के योगदान पर प्रकाश डालें।

इकाई–5

VIII. आधुनिक हिंदी आलोचना की प्रमुख प्रवृतियों के साहित्य समीक्षा पर प्रभाव पर विचार करें।

IX. उपन्यास के विविध भेदों पर प्रकाश डालें।

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Exam Code: 216302 **Paper Code: 2164**
(20)

Programme: Master of Arts (Hindi)
Semester-II

Course Title: Pachhchaty Kavyashastra

Course Code: MHIL-2263

Time Allowed: 3 Hours **Max Marks: 64**

नोटः भाषा की शुद्धता को ध्यान में रखते हुए निर्देशानुसार उत्तर दीजिए। प्रथम भाग अनिवार्य है। प्रथम भाग में से किन्हीं चार प्रश्नों के उत्तर 200 शब्दों में दीजिए। भाग दो, तीन, चार, पांच में से एक–एक प्रश्न का उत्तर देते हुए किन्हीं चार प्रश्नों के उत्तर दीजिए। प्रत्येक प्रश्न का उत्तर 800 शब्दों में होना चाहिए।

भाग–क

I. 1. लोंजाइनस के उदात्त सिद्धान्त के अंतरंग तत्व का महत्व बताइए? 4
2. त्रासदी के अंगों में संगीत तत्व की क्या महत्वता है? 4
3. साहित्य में मार्क्सवादी विचार धारा का क्या योगदान है? 4
4. आई.ए.रिचर्ड्स की काव्य की भाषा की मान्यता पर प्रकाश डालिए? 4
5. अरस्तु के अनुकृति सिद्धान्त का परिचय दीजिए? 4
6. आधुनिकतावाद का संक्षिप्त विवेचन कीजिए? 4

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भाग–दो

II. प्लेटो की काव्य–सम्बन्धी सिद्धान्तों की आलोचना पर प्रकाश डालिए? 12

III. अरस्तु के विरेचन सिद्धान्त की विस्तृत समीक्षा कीजिए? 12

भाग–तीन

IV. लोंजाइनस के उदात्त–सिद्धान्त के स्वरूप की विवेचना कीजिए? 12

V. कविता मूलतः जीवन की आलोचना है मैथ्यू आर्नल्ड के इस कथन की समीक्षा कीजिए? 12

भाग–चार

VI. कवि पर ध्यान न देकर कविता पर ध्यान केन्द्रित करता है इलियट के कला की निवैयक्तिकता सिद्धान्त के आलोक में उपर्युक्त कथन पर प्रकाश डालिए? 12

VII. आई.ए. रिचर्डस के व्यावहारिक आलोचना पर प्रकाश डालिए? 12

भाग–पाँच

VIII. आस्तित्ववाद की मूल स्थापनाओं पर प्रकाश डालिए? 12

IX. संरचनावाद के स्वरूप पर प्रकाश डालिए? 12

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Exam Code: 216302 **Paper Code: 2165**
(20)

Programme: Master of Arts (Hindi)
Semester-II

Course Title: Media Lekhan

Course Code: MHIL-2264

Time Allowed: 3 Hours **Max Marks: 64**

नोटः यह प्रश्नपत्र कुल पांच इकाइयों में विभाजित है। पहली इकाई के 16 शब्दों का हिंदी अनुवाद करना अनिवार्य है। यह भाग 16 अंक का होगा। शेष चार इकाइयों दो, तीन, पांच में समानुपात से कमशः एक–एक प्रश्न का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर लगभग 800 शब्दों में हो। सभी प्रश्न 12–12 अंक के होंगे।

1. निम्न परिभाषित शब्दों का हिंदी अनुवाद लिखेंः–

   a) Abridge
   b) Abstract statement
   c) Branch office
   d) Catalouge
   e) Depreciation
   f) Enrollment
   g) Express delivery
   h) Forwarding letter
   i) Honorarium

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j) Incentive
k) Joint secretary
l) Notification
m) Reminder
n) Post dated cheque
o) Chief development officer
p) Live account 1x16=16

इकाई–दो

2. विभिन्न जन संचार माध्यमों का स्वरूप स्पष्ट करें।
3. जनसंचारः प्रौद्योगिकी और चुनौतियां विषय पर सारगर्भित आलेख लिखें। 12X1=12

इकाई–तीन

4. रेडियो नाटक लेखन के गुण और तत्व लिखें।
5. समाचार लेखन और वाचन की प्रमुख विशेताएं लिखें।12X1=12

इकाई–चार

6. टेलीविज़न नाटक लेखन के तत्वों का विवेचन करें।
7. पार्श्व वाचन का प्रयोग कैसे किया जाता है? टी वी कार्यक्रमों में पार्श्व वाचन का क्या महत्व है? स्पष्ट करें। 12X1=12

इकाई–पांच

8. साहित्य की विविध विधाओं को दृश्य श्रव्य माध्यमों में रूपांतरित करने की विधि बताएं।
9. विज्ञापन लेखन की आवश्यकता और उद्देश्य को स्पष्ट करते हुए विज्ञापन के प्रकारों का उल्लेख करें। 12X1=12

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Exam Code: 216302 **Paper Code: 2166**

Programme: Master of Arts (Hindi) Semester: II

Course Title: Raji Seth-Vishesh Adhyayan

Course Code: MHIL-2265

Time Allowed: 3 Hours **Max Marks: 64**

आवश्यक निर्देश- यह प्रश्नपत्र 5भागों में विभाजित है।प्रथम भाग अनिवार्य है जिसमें चार-चार अंकों के सप्रसंग व्याख्या से सम्बधित छः प्रश्न पूछे जाएंगे जिनमें से चार का उत्तर देना अनिवार्य होगा। प्रत्येक प्रश्न का उत्तर 200 शब्दों में देना होगा।भाग दो ,तीन ,चार ,पांच में समानुपात से क्रमशः इकाई 2,3,4 में से 12-12 अंकों के आठ प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थी को प्रत्येक भाग से एक-एक प्रश्न का उत्तर देना होगा। प्रत्येक उत्तर 800 शब्दों में देना होगा।

भाग-1

1)

क) भीतर कुछ तपने लग गया है ।क्यों? पर क्यों? किसलिए जरूरी है किसी न किसी के गले में बांध देना? बैल की गली में पड़े लक्कड़ के लटकेपन को सार्थकता समझने की हठ करना...क्या वहीं एक समाधान है? कहीं जाते होने के लिए मात्र वही एक पगडंडी? वही एक उद्देश्य है अंतिम?

ख) इस उत्साह के सामने सुबह का सांस्कृतिक समारोह एक शिष्ट औपचारिक सम्मेलन का-सा लगता है जिस के नियम क्रूर हैं और स्वरूप पारिभाषिक। उस अनुशासन को सह चुके होने के बाद स्वतःअर्जित हो जाती है आत्म विसर्जन के चूर-चूर हो गए होने की छूट।.

ग) प्रकाश सदा चीजों को ऐसे ही क्यों लेता है, मेरी समझ में नहीं आता। क्यों सूख को छीन झपट कर वह अपने अकेले के हवाले कर लेना चाहता है। बांटने का सुख शायद वह नहीं जानता। सब कुछ हड़प लेना चाहता है। हर चीज को तोड़ मोड़ कर अपने सुख साधन में बदल देना चाहता है । परंतु क्या ऐसा होता है .....हो पाता है?

घ) प्रकाश को वह रात जितनी मधुर और अधिकार पूर्ण लगी थी , मुझे उतनी ही असह्य और क्रूर । हाथ प्यार के लिए उठते हों पर स्पर्श इतने फौलादी इस्पाती कि स्वामित्व भोग का हिंसक एहसास ही गले उतरता हो। अधिकार की हिंसा को प्यार के चोले में आवृत्त मैंने पहली बार देखा।.

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च) शायद इतना बड़ा निर्णय ना हो पाता यदि सुरजीत कोई बाधा देता या मिश्रा ही इतनी शह न देता। रोज-रोज उसके मन को एक बेहतर जीवन जीने की लालसा और देह को नई आंच से सेंक न देता। उसी ने तरह-तरह से समझाया था कि सुरजीत के साथ या किसी के भी साथ (अपनी ईमानदारी जताने को वह अवश्य जोड़ता था) अनिच्छा से रहना अत्याचार को प्रश्रय देना है।

छ) काश ! यह मुश्किल एक सच्चाई होती। सुरजीत ने उसे मुश्किल से छोड़ा होता और मिश्रा ने उसे मुश्किल से पाया होता तो वह अपने को कहीं तान कर रख सकती। एक निष्ठाहीन आवाहन की पुकार के सम्मुख हथियार डाल देने के व्यक्तित्वहीन अनौचित्य के सम्मुख यों ना झुकती-टूटती। लड़ना, लड़ते रहना या लड़ाई जारी रखना-- अपने कुछ होने की पहचान के साथ तो जुड़ा होता।

4×4=16

भाग-2

2) राजी सेठ के व्यक्तित्व और कृतित्व पर प्रकाश डालिये।

3) वसुधा का चरित्र चित्रण कीजिये।. 12×1=12

भाग-3

4) 'अनावृत्त कौन' में अस्तित्ववादी चेतना के दर्शन होते हैं, स्पष्ट कीजिए।

5) राजी सेठ कृत 'अनावृत्त कौन' में दाम्पत्य सम्बन्धों में कड़वाहट दिखाई देती है,कैसे? विस्तार से स्पष्ट करें। 12×1=12

भाग -4

6)'अंधे मोड़ से आगे' में नारी मनोविज्ञान का विस्तृत व उदाहरण सहित चित्रित कीजिये।

7) 'अंधे मोड़ से आगे' में सामाजिक स्तरीकरण का चित्रण हुआ है।स्पष्ट कीजिये। 12×1=12

भाग- 5

8)'तत्सम' में चित्रित अंतर्द्वंद्व को सोदाहरण स्पष्ट कीजिए

9)'तत्सम' की भाषा-शैली पर अपने विचार प्रकट कीजिये। 12×1=12

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(20)

Programme: Master of Arts (Hindi)
Semester-II

Course Title: Natakkaar Mohan Rakesh

Course Code: MHIL-2266 (Opt-I)

Time Allowed: 3 Hours **Max Marks: 64**

यह प्रश्न पत्र पाँच भागों में विभाजित है। प्रथम भाग अनिवार्य है जो सप्रसंग व्याख्या से सम्बन्धित है। इसमें चार–चार अंकों के छः प्रश्न पूछे गये हैं, जिनमें से चार का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर 200 शब्दों/दो पृष्ठों में दें। भाग दो, तीन,चार पाँच में समानुपात से 12–12 अंकों के कुल आठ प्रश्न पूछे गए हैं जिनमें से परीक्षार्थी को प्रत्येक भाग में से एक–एक प्रश्न का उत्तर देना होगा। प्रत्येक उत्तर 800 शब्दों/पाँच पृष्ठों में दें।

भाग–एक

I. 1. सड़क से फुटपाथ पर चढ़ते हुए आप अचानक जिस आदमी से टकरी जाते हैं, वह आदमी मैं हूँ। आप सिर्फ घूरकर मुझे देख लेते हैं। इसके अलावा मुझसे कोई मतलब नहीं रखते कि मैं कहाँ रहता हूँ, क्या काम करता हूँ।

2. मैं इस बार एक रबड़–स्टैंप भी नहीं, सिर्फ एक रबड़ का टुकड़ा हूँ। बार–बार घिसा जाने वाला रबड़ का टुकड़ा इसके

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बाद कोई मुझे वजह बता सकता है, एक भी ऐसी वजह, कि क्यों मुझे रहना चाहिए इस घर में?

3. गले नहीं मिलोगे? मेरा शरीर मैला है, इसलिए? या मुझी से घृणा है? परन्तु इस तरह मेरा तुम्हारा सम्बन्ध नहीं टूट सकता । तुमने कहा था कि हम एक–दूसरे के बहुत निकट पड़ते हैं। नहीं कहा था?मैंने इन वर्षों में उस निकटता में अन्तर नहीं आने दिया।

4. यह क्यों नहीं सोचते हो कि नयी भूमि तुम्हें यहाँ से अधिक सम्पन्न और उर्वरा मिलेगी। इस भूमि से तुम जो कुछ ग्रहण कर सकते थे, कर चुके हो। तुम्हें आज नयी भूमि की आवश्यकता है, जो तुम्हारे व्यक्तित्व को अधिक पूर्ण बना दे।

5. नहीं समा पा रही। आज कामोत्सव की रात को किसी का कमल–ताल में हंसों के जोड़े पर पत्थर फेंकना, उन्हें आहत करना–यह एक आकस्मिक घटना है या जान–बूझकर किया गया प्रयत्न? परन्तु निर्भर तो इस पर करता है कि वह कौन व्यक्ति है जिसने ऐसा प्रयत्न किया है?

6. मैं अच्छी तरह जानती हूँ कि आज कामोत्सव के दिन तुमने ऐसा प्रयत्न क्यों किया है। तुम इस भवन के उन कर्मचारियों में से हो जो यहाँ रह कर भी यहाँ के नहीं हो पाए.....जो सदा इस खोज में रहते हैं कि कब और कैसे यहाँ के उल्लास को खंडित कर सकें। 16 अंक

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भाग–दो

II. आषाढ़ का एक दिन के नाट्यात्मक वैशिष्ट्य की समीक्षा कीजिए।

अथवा

III. आषाढ़ का एक दिन के प्रतिपाद्य और मुख्य समस्याओं का विवेचन कीजिए। 12 अंक

भाग–तीन

IV. लहरों के राहंस मोह और विरक्ति की भंवर में फंसी मानसिकता का प्रतिनिधित्व करता है–सिद्ध करें।

अथवा

V. लहरों के राजहंस में चित्रित विचारधारा को स्पष्ट करें।

12 अंक

भाग–चार

VI. आधे–अधूरे नाटक में चित्रित मध्यवर्गीय जीवन का विवेचन करें।

अथवा

VII. आधे–अधूरे के नाट्कशिल्प का विवेचन करें।

12 अंक

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भाग–पाँच

VIII. मोहन राकेश की नाट्यगत प्रयोगधर्मिता का विवेचना करें।

अथवा

IX. नाटक के विधागत वैशिष्ट्य की चर्चा करते हुए इसके तत्वों पर प्रकाश डालें। 12 अंक

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Exam Code: 217802 **Paper Code: 2152**
(20)

Programme: Master of Arts (Journalism and Mass Communication)Semester-II

Course Title: Development Communication

Course Code: MJML-2311

Time Allowed: 3 Hours **Max Marks: 60**

Note:- Candidates are required to attempt five question, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries twelve marks.

Section A

1. Write a detailed note on the meaning and concept of development?
2. Explain in detail the various theories and models of development?

Section B

3. What are the various issues in development?
4. Write a detailed note on Western and Indian viewpoints on development'?

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Section C

5. Write a note on the role of different media in Development Communication?
6. What is the role of ICT's and emerging technologies in development?

Section D

7. Write a detailed note on Agricultural Communication and rural development?
8. Explain in detail the diffusion of innovation model of agricultural extension.

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Exam Code: 217802 **Paper Code: 2153**
(20)

Programme: Master of Arts (Journalism and Mass Communication)Semester-II

Course Title: Media Management

Course Code: MJML-2312

Time Allowed: 3 Hours **Max Marks: 60**

Note:- Candidates are required to attempt five question, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries twelve marks.

Section A

1. Write a detailed note on the Principles of Media Management?
2. Explain in detail the ownership pattern in media industry.

Section B

3. What do you mean by Personal Management?
4. Define the concept of Budget? Explain its importance in Media Management.

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Section C

5. Write a note on the concept of Human Resource Management in the field of Media Management?
6. Explain Market Survey Techniques in detail?

Section D

7. Write a detailed note on Editorial Staff Management?
8. Explain in detail the various Ethical issues in Media Management.

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Exam Code: 217802 **Paper Code: 2154**

Programme: Master of Arts (Journalism and Mass Communication) Semester: II

Course Title: Current Affairs

Course Code: MJML-2313

Time Allowed: 3 Hours **Max Marks: 60**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 12 marks.

Section-A

Q1. Where do you see India in the International system of countries in the present times?

Q2. Discuss the present status of Ukraine- Russia conflict.

Section-B

Q3. Do you think that IPL contributes to development of our country? Discuss.

Q4. Discuss the achievements of Indian women players in sports.

Section-C

Q5. Do you think Covid-19 has affected the entertainment industry in any way? Explain.

Q6. How do you see the emergence of OTT platforms or Streaming media in entertainment scenario?

Section-D

Q7. According to you, which is the most important challenge that your region is facing in the present times? Discuss.

Q8. Do you see Climate Change as an important issue for the world today? Comment.

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Exam Code: 217802 **Paper Code: 2155**
(20)

Programme: Master of Arts (Journalism and Mass Communication)Semester-II

Course Title: Communication Research-I

Course Code: MJML-2314

Time Allowed: 3 Hours **Max Marks: 60**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 12 marks.

Section- A

1. Define Communication Research. Differentiate between pure and applied research. 12
2. How is Communication Research different from other research? 12

Section - B

3. 'Research synopsis provides the rationale for research, its objectives, methods, format etc. Discuss. 12
4. What is a research design? Explain its types. 12

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Section - C

5. With the help of an example, explain content analysis in research. 12
6. Draft a survey design to study the viewership of Netflix among post-graduate students of your college. 12

Section - D

7. Which points do you keep in mind while writing a research report? 12
8. What is the role of an index, appendices, and footnotes in a research report? 12

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Exam Code: 217802 **Paper Code: 2156**
(20)

Programme: Master of Arts (Journalism and Mass Communication)Semester-II

Course Title: Radio and TV Programming

Course Code: MJMM-2315

Time Allowed: 3 Hours **Max Marks: 60**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 12 marks.

Section-A

1. Examine the strength and weakness of Radio as a mass medium.
2. 'A news reader is not a news anchor'. How writing for Radio news is different from TV news?

Section-B

3. What are the qualities that make Radio commercial effective? State in brief the strengths and limitations of advertising on Radio.
4. What are the characteristics of a Radio documentary? Why structure is important in Radio documentary?

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Section-C

5. Describe the essential qualities required in a TV news presenter. What are the challenges faced by a TV news anchor?
6. Explain the process involved in the production of a TV documentary.

Section-D

7. What are the various types of camera shots used in TV programme. Explain with diagram.
8. Write short notes on any two of the following topics given below.
   (a) Headroom
   (b) Costumes
   (c) Editing
   (d) Transitions

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Exam Code: 211002 **Paper Code: 2225**
(20)

Programme: Master of Science (Mathematics)
Semester-II

Course Title: Real Analysis-II

Course Code: MMSL-2331

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. (a) The uniform limit of a sequence of continuous functions is continuous. 6

   (b) Show that the series $\sum_{n=0}^{\infty}(1-x)x^n$ is not uniformly convergent on [0,1]. 5

   (c) If $\{f_n\}$ and $\{g_n\}$ converge uniformly on a set E, Prove that $\{f_n + g_n\}$ converges uniformly on E. 5

2. (a) State and Prove Weirstrass Approximation theorem. 8

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(b) Let (x,d) be compact Metric space and $< f_n >$ be a uniformly convergent sequence of continuous functions defined on X. Then$< f_n >$ is equi-continuous on X. 8

Section-B

3. (a) Show that cantor set is measurable with measure zero. 8

(b) Let E $\subseteq$ R is measurable set and $\varepsilon>0$ be Given. Prove that there exists an open set O $\subseteq$ E such that m (0\E) $<\varepsilon$. 8

4. (a) Prove that Intersection of a finite collection of measurable sets is measurable. 8

(b) Prove that every Monotone function $f: [a, b] \rightarrow$ IR is measurable function. 4

(c) Let f and g be two real valued measurable functions defined on measurable set E. Prove that $f + g$ is also measurable function. 4

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Section-C

5. (a) State and Prove Egoroff's theorem. 8

   (b) Give an Example of a function which is Lebesgue integrable but not Riemann integrable. 8

6. (a) Define convergence in measure. 2

   (b) State and Prove Fatou's Lemma. 8

   (c) Prove that characteristic function γ_A is measurable if and only if A is measurable set. 6

Section-D

7. (a) Find the Four Dini's Derivatives of the function $f:[0,1] \to R$ defined by:

$$f(x) = \begin{cases} 0 \; if \; x \epsilon Q \cap [0,1] \\ 1 if \; x \notin Q, x \epsilon [0,1] \end{cases}$$ 8

   (b) If f is bounded and measurable function on [a,b] and $F(x) = \int_a^x f(t)dt + F(a)$ then Prove that $F'(x) = f(x) a.e. on \; [a,b]$. 8

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8. (a) If f is absolutely continuous on [a,b] and $F'(x) = 0$a.e. then Prove that f is constant. 8

(b) If F is absolutely continuous function on [a,b] then F' is integrable over [a,b] and $\int_a^x F'(t)dt = F(x) - F(a)$. 8

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Exam Code: 211002 **Paper Code: 2226**
(20)

Programme: Master of Science (Mathematics)
Semester-II

Course Title: Tensors and Differential Geometry

Course Code: MMSL-2332

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. (a) Define tensor of type (2,0) and prove that it can be expressed as a sum of symmetric tensor and a skew symmetric tensor. (8)
   (b) If A^{ij} is contra variant tensor and B_i is a covariant vector then prove that $A^{ij} B_k$ is a tensor of rank three but $A^{ij} B_j$ is a tensor of rank one. (8)
2. (a) Show that the covariant derivative of second rank mixed tensor is a tensor of rank three. (8)
   (b) Prove that christoffel symbols [j k, i] and $\left\{ \begin{matrix} i \\ j\ k \end{matrix} \right\}$ are symmetric in j and K. (8)

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Section-B

3. (a) Prove that for any curve $[t', t'', t'''] = K^5 \frac{d}{ds}\left(\frac{k}{\tau}\right)$. (8)

   (b) Show that curvature and torsion for the curve $x = a(3u - u^3)$, $y = 3a\,u^2$, z=a $(3\,u + u^3)$ are equal. (8)

4. (a) show that centre of osculating sphere coincides with the centre of the osculating circle if the curve is of constant curvature. (8)

   (b) Find the curvature and torsion for the spherical indirectrix of the tangent. (8)

Section-C

5. (a) Calculate the first and second fundamental form for the monge's form of surface z= $f(x, y)$. (8)

   (b) Define Principle curvatures and find the equation giving principal curvatures. (8)

6. (a) Find the envelope of the plane $\ell x + my + nz = \text{Þ}$ where $a^2\,\ell^2 + b^2\,m^2 + c^2 n^2 = \text{Þ}^2$. (8)

   (b) Prove that the binormal of asymptotic line is the normal to the surface. (8)

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Section-D

7. (a) Define Geodesic and find the differential equation of geodesic. (8)

   (b) Find the geodesic curvature of the parametric curve V=C. (8)

8. (a) State and prove Gauss. Bonnet theorem. (8)

   (b) If a curve on a surface satisfy two of the following properties.

   (i) It is a line of curvature

   (ii) It is a plane curve.

   (iii) Its normal angle is constant then show that the remaining property is also satisfied. (8)

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Exam Code: 211002 **Paper Code: 2227**
(20)

Programme: Master of Science (Mathematics)
Semester-II

Course Title: Algebra-II

Course Code: MMSL-2333

Time Allowed: 3 Hours **Max Marks: 80**

Instructions:- Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. (i) Let R be a ring and let A be a subring of R. Then prove that the set R/A= {r+A: rϵR} is a ring under the operations (s+A)+ (t+A)= s+t+A and (s+A) (t+A)= st+A if and only if A is an ideal of R. 6

   (ii) Show that the ideal $<x^2+1>$ is maximal in the ring of polynomial with real coefficients R[x]. 4

   (iii) Let R be a commutative ring with unity and let A be an ideal of R, prove that R/A is an integral domain only if A is prime. 6

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2. (i) Let F be a field then prove that $F[x]$ is a principal ideal domain. 6

(ii) Let F be a field and $P(x) \in F[x]$, then prove that $<P(x)>$ is a maximal ideal in $F[x]$ if and only if $P(x)$ is irreducible over F. 6

(iii) Prove that the ring of Gaussian integer z(i)= {a+bi : a,bϵz } is Euclidean domain with d(a +bi) =a^2+b^2 4

Section-B

3. (i) Let F be a field and $f(x)$ a non constant polynomial in $F[x]$, then prove that there is an extension field E of F in which $f(x)$ has a zero. 6

(ii) Find the splitting field of x^4+1 over Q. 4

(iii) Let F be a field and Let $P(x) \in F[x]$ be irreducible over F. If a is zero of $p(x)$ in some extension E of F, then prove that $F(a)$ is isomorphic to $F[x]/<P(x)>$. Further more if deg. $P(x)$=n, then show that every member of $F(a)$ can be uniquely expressed in the form $C_{n-1}a^{n-1} + C_{n-2}a^{n-2} - - - - - + C$,a+ $C_0$where $C_0, C_1, - - -, C_{n-1} \in F$. 6

4. (i) Prove that every finite field is perfect. 6

(ii) If F is a field of characteristic 0 and a and b are algebraic over F, then prove that there is an element c in F(a,b) such that F(a,b)= F(c). 6

(iii) Prove that $Q(\sqrt{2}, \sqrt[3]{2}) = Q(\sqrt[6]{2})$ 4

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Section-C

5. (i) State and prove that fundamental theorem of Galois theory. 6

   (ii) Determine the group of field auto morphism of GF(4). 4

   (iii) Let K/F be a finite extension where F is a finite field. then prove that K/F is a Galois extension with G (k/F) cyclic. 6

6. (i) Let K/F be a Galois extension of degree n, (n,p)= 1 such that G =G (k/F) is a Solvable group. Then prove that there exists a radical extension L/F such that K C L. 6

   (ii) Prove that x^8-3 is solvable by radicals over Q. 4

   (iii) Let F be field of characteristic 0 and let $a \in f$ If E is the splitting field of x^n-a over F, then prove that the Galois group (E/F) is solvable. 6

Section-D

7. (i) Let M be an R-module, N a sub module of M and K a sub module of N, then $M/N \simeq \frac{M/K}{N/K}$ 4

   (ii) Let M be a finitely generated free module over a commutative ring R, then prove that all bases of M have the same number of elements. 6

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(iii) Let R be a ring with unity and let M be an R-module then following statement are equivalent. 6

(a) M is simple

(b) M $\neq$ (0) and M is generated by any $0 \neq x \in M$

(c) M$\simeq$R/I, where I is a maximal left ideal of R.

8. (i) Let M be an R-module, where R is a domain then prove that the set t(M) of torsion elements of M is a sub module of M. 4

(ii) Let M be a finitely generated torsion over a PID with exponent p^r, p prime ($r \geq 1$), then prove that M can be expressed as a direct sum of cyclic modules $M = \frac{R}{(p^{r_1})} \oplus \frac{R}{(p^{r_2})} \oplus - - - - \oplus \frac{R}{(p^{r_K})}$ with $r, \geq r_2 \geq \ldots\ldots\ldots r_K \geq 1$. 6

(iii) Let M be a finitely generated module over a PID. Then prove that M can be expressed as $M = F \oplus t(M)$ where F is free. Moreover F is unique up to iso morphism. 6

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Exam Code: 211002 **Paper Code: 2228**
(20)

Programme: Master of Science (Mathematics)
Semester-II

Course Title: Mechanics-II

Course Code: MMSL-2334

Time Allowed: 3 Hours **Max Marks: 80**

Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1. Two particles, of masses m_1 and m_2 at A and B are connected by a rigid mass less rod AB. Their velocities V_1 and V_2 Are suddenly changed by the application of external impulses J_1 And J_2. Prove that the Magnitude J of the impulsive reaction of the rod on m_1 is $\{m_1m_2e/(m_1+m_2)\}. (J_2/m_2-J_1/m_1)$ Where e is a unit vector

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in $\overrightarrow{AB}$. Also prove that energy of the system is increased by on an amount $J_1 V_1 + J_2 V_2 + \frac{1}{2}\left(J_1^2/m_1 + J_2^2/m_2\right) - \frac{1}{2}(m_1+m_2)J^2/m_1 m_2$. 16

2. Discuss the motion of a compound pendulum. 16

Section-B

3. Discuss Euler's dynamical equations for the motion of a rigid body about a fixed point. 16

4. A rigid body is free to rotate about its centroid G, the principle moment of inertia at which are 7, 25,32 units respectively. The body is given an angular velocity Ω about a line through G whose direction ratios are 4:0:3. Show that after t the components of angular velocity about the principal axes of inertia at G are $\frac{4}{3}\Omega\cos\phi$, $\frac{4}{3}\Omega \sin\phi$, $\frac{3}{5}\Omega\cos\phi$ where $\tan\left(\frac{\phi}{2}\right) = \tan h\,(3\Omega t/10)$. Deduce that ultimately the body rotates about the principal axies of inter-mediate moment of inertia.

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Section-C

5. Derive Lagrange's Equations for a holonomic dynamical system. Also express Kinetic energy as a quadratic function of Velocities. 16

6. AB, BC,CD are three equal uniform rods each of mass m, freely jointed at B,C. They lie at rest in a straight line on a smooth horizontal table. If a blow J is administered at B in a horizontal direction perpendicular to the rods, find the initial velocities of A,B,C,D and show that the angular velocities of the rods are in rotios 7: -6: 2. 16

Section-D

7. Discuss principle of least action. 16

8. (a) Solve the Boundary value Problem $y'' - y + x = 0$, $y(0) = 0, y(1)=0$ by Rayleigh Ritz method. 8

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(b) Find the extremals of the functional $\emptyset\ (y(x))=$ $\int_a^b (y")^2 - (y')^2 + y^2 - 2y\ sin\ x]\ dx$. (8)

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Exam Code: 211002 **Paper Code: 2229**
(20)

Programme: Master of Science (Mathematics)
Semester-II

Course Title: Differential and Integral Equations

Course Code: MMSL-2335

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section-A

1(a) Form a partial differential equation by eliminating the arbitrary function $\emptyset$ from $\emptyset(x+y+z, x^2+y^2-z^2)=0$. What is the order of partial differential equation so formed?

(b) Find the general integral of the partial differential equation $(2xy-1)p+(z-2x^2)q=2(x-yz)$ and also find the particular integral which passes through the line $x=1, y=0$. [8,8]

2(a) Find the complete Integral of the equation $2(z+px+qy)=yp^2$

(b) Solve: $r+s-6t=y\cos x$ [8,8]

Section-B

3 (a) Reduce $x\frac{\partial^2 z}{\partial x^2}+\frac{\partial^2 z}{\partial y^2}=x^2\ (x>0)$ to canonical form.

(b) Solve $\frac{\partial^2 u}{\partial t^2}=c^2\left(\frac{\partial^2 u}{\partial x^2}\right)$ *where* $u(0,t)=u(1,t)=0, u(x,0)=A\sin\pi x$ and $(\partial u/\partial t)=0$ at t=0 [8,8]

4(a) Find an Integral of the equation $z(1+q^2)r-2pqsz+z(1+p^2)t+(rt-s^2)z^2+(1+p^2+q^2)=0$ involving three arbitrary constants.

(b) Obtain the solution of $\frac{\partial^2 z}{\partial x\partial y}=\frac{1}{x+y}$ such that $z=0, p=\frac{2y}{x+y}$ *on* $y=x$. [8,8]

Section-C

5(a) Define Volterra Integral equation of second kind. Reduce the initial value problem $y''(x)-2xy'(x)-3y(x)=0$ with the conditions $y(0)=1$, $y'(0)=0$ into an integral equation.

(b) With the help of Resolvent kernel, find the solution of

$$F(x)=e^{x^2}+\int_0^x e^{x^2-\eta^2}F(\eta)d\eta$$ [8,8]

6. Solve Non-homogeneous Volterra's integral equation of second kind by the method of successive substitutions. [16]

Section-D

7(a) Show that the Integral equation $y(x)=f(x)+\frac{1}{\pi}\int_0^{2\pi}\sin(x+t)y(t)dt$ possesses no solution for $f(x)=x$.

(b) Solve the integral equation by the method of successive approximations

$$y(x)=x+\lambda\int_0^1 xt\,y(t)dt$$ [8,8]

8. Show that the solution $F(x)=G(x)+\lambda\int_a^b R(x,\eta;\lambda)G(\eta)d\eta$ of the non-homogeneous Fredholm's integral equation of second kind is unique provided $D(\lambda)\neq 0$ [16]

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(Only for Reappear Candidates (2021-2022))

Exam Code: 214902 **Paper Code: 9204**

Master of Arts (Music Vocal) Semester-II

Course Title: An Analytical Study of Granthas

Course Code: MMVL-2362

Time Allowed: 3 Hours **Max. Marks: 80**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth may be attempted from any section. Each question carries 16 marks.

SECTION-A

1. Explain in detail about the Granth 'Natya Shashtra'. Who wrote it?
2. Pt. Sharang Dev has done one of the major contributions in the field of music. Explain the contribution done by him.

SECTION-B

3. Give detailed description of the Granth 'Sangeet Prijat written by Pt. Ahobal.
4. Throw light on the Granth 'Swar Melakala Nidhi'.

SECTION-C

5. Describe the Granth 'Rag Tatavvibod' and its writer Pt. Shri Niwas.
6. Write in detail about the Granth 'Sangeet Chintamani written by Acharya Brihaspati.

SECTION-D

7. Who is the writer of the Granth 'Pranav Bharati'? Give detailed description of it.
8. Write in detail about the Granth 'Dhwani and Sangeet' written by Lalit Kishor Singh.

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Punjabi Version

ਸੈਕਸ਼ਨ-ਏ

1. ਗ੍ਰੰਥ 'ਨਾਟਯ ਸ਼ਾਸਤਰ' ਬਾਰੇ ਵਿਸਥਾਰ ਨਾਲ ਵਿਆਖਿਆ ਕਰੋ। ਇਹ ਗ੍ਰੰਥ ਕਿਸਨੇ ਲਿਖਿਆ?

2. ਪੰਡਿਤ ਸ਼ਾਰੰਗ ਦੇਵ ਨੇ ਸੰਗੀਤ ਦੇ ਖੇਤਰ ਵਿੱਚ ਇੱਕ ਵੱਡਾ ਯੋਗਦਾਨ ਪਾਇਆ ਹੈ। ਉਸ ਵੱਲੋਂ ਪਾਏ ਯੋਗਦਾਨ ਬਾਰੇ ਦੱਸੋ।

ਸੈਕਸ਼ਨ-ਬੀ

3. ਪੰਡਿਤ ਅਹੋਬਲ ਦੁਆਰਾ ਰਚਿਤ ਗ੍ਰੰਥ 'ਸੰਗੀਤ ਪ੍ਰਜਾਤ' ਦਾ ਵਿਸਤ੍ਰਿਤ ਵੇਰਵਾ ਦਿਓ। ।

4. ਗ੍ਰੰਥ 'ਸਵਰ ਮੇਲਕਲਾ ਨਿਧੀ' 'ਤੇ ਰੌਸ਼ਨੀ ਪਾਓ।

ਸੈਕਸ਼ਨ-ਸੀ

5. ਗ੍ਰੰਥ 'ਰਾਗ ਤੱਤਵਿਬੋਧ' ਅਤੇ ਇਸਦੇ ਲੇਖਕ ਪੰਡਿਤ ਸ਼੍ਰੀ ਨਿਵਾਸ ਬਾਰੇ ਵਰਣਨ ਕਰੋ ।

6. ਆਚਾਰੀਆ ਬ੍ਰਿਹਸਪਤੀ ਦੁਆਰਾ ਰਚਿਤ ਗ੍ਰੰਥ 'ਸੰਗੀਤ ਚਿੰਤਾਮਣੀ' ਬਾਰੇ ਵਿਸਥਾਰ ਨਾਲ ਲਿਖੋ।

ਸੈਕਸ਼ਨ-ਡੀ

7. 'ਪ੍ਰਣਵ ਭਾਰਤੀ' ਗ੍ਰੰਥ ਦਾ ਲੇਖਕ ਕੌਣ ਹੈ? ਇਸ ਦਾ ਵਿਸਤ੍ਰਿਤ ਵੇਰਵਾ ਦਿਓ।

8. ਲਲਿਤ ਕਿਸ਼ੋਰ ਸਿੰਘ ਦੁਆਰਾ ਲਿਖੇ ਗ੍ਰੰਥ 'ਧਵਨੀ ਅਤੇ ਸੰਗੀਤ' ਬਾਰੇ ਵਿਸਥਾਰ ਨਾਲ ਲਿਖੋ।

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Exam Code: 216502 **Paper Code: 2168**
(20)

Programme: Master of Arts (Punjabi)
SEMESTER-II

Course Title: Bhagat Bani

Course Code: MPBL-2421

Time Allowed: 3 Hours **Max Marks: 64**

ਸੈਕਸ਼ਨ–ਏ

ਹੇਠ ਲਿਖੇ 10 ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚੋਂ ਕਿਸੇ 8 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦਿਉ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦਾ ਉਤਰ ਲਗਭਗ 50 ਸ਼ਬਦਾਂ ਵਿਚ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ: ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੋ ਅੰਕ ਦਾ ਹੈ।

1. (ੳ) ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਵਿਚ ਦਰਜ ਭਗਤ ਬਾਣੀ ਬਾਰੇ ਸੰਖਿਪਤ ਜਾਣਕਾਰੀ ਦਿਉ।
   (ਅ) ਧਾਰਮਿਕ ਕਾਂਵਿ ਤੋਂ ਕੀ ਭਾਵ ਹੈ?
   (ੲ) ਭਗਤੀ ਸਾਹਿਤ ਦਾ ਆਰੰਭ ਕਦੋਂ ਹੋਇਆ ਮੰਨਿਆਂ ਜਾਂਦਾ ਹੈ?
   (ਸ) ਭਗਤ ਨਾਮਦੇਵ ਜੀ ਦੀ ਗੁਰੂ ਗ੍ਰੰਥ ਸਾਹਿਬ ਵਿਚ ਕੁੱਲ ਕਿੰਨੀ ਬਾਣੀ ਦਰਜ ਹੈ ਅਤੇ ਇਹ ਕਿੰਨੇ ਰਾਗਾਂ ਵਿਚ ਹੈ?
   (ਹ) ਕਬੀਰ ਬਾਣੀ ਵਿਚ ਕਿਹੜੇ-ਕਿਹੜੇ ਪ੍ਰਮੁੱਖ ਵਿਸ਼ੇ ਛੋਹੇ ਗਏ ਹਨ?
   (ਕ) ਭਗਤ ਰਵਿਦਾਸ ਜੀ ਨੇ ਕੁੱਲ ਕਿੰਨੇ ਰਾਗਾਂ ਵਿਚ ਬਾਣੀ ਰਚੀ ਹੈ? ਇਨ੍ਹਾਂ ਰਾਗਾਂ ਦੇ ਨਾਂ ਵੀ ਲਿਖੋ?
   (ਖ) ਭਗਤ ਬਾਣੀ ਨੇ ਭਾਰਤੀ ਸਮਾਜ ਵਿਚ ਪ੍ਰਚੱਲਿਤ ਜਹਾਤੀ ਪ੍ਰਥਾ ਨੂੰ ਕਿਵੇਂ ਪਰਿਵਰਤਿਤ ਕੀਤਾ?

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(ਗ) ਭਗਤ ਬਾਣੀ ਦੀ ਕੋਈ ਇਕ ਸਾਂਝੀ ਵਿਸ਼ੇਸ਼ਤਾ ਬਾਰੇ ਲਿਖੋ।
(ਘ) ਭਗਤ ਬਾਣੀ ਦੀ ਭਾਸ਼ਾ ਬਾਰੇ ਸੰਖਿਪਤ ਟਿੱਪਣੀ ਕਰੋ।
(ਙ) ਬਾਣੀ ਤੇ ਕਾਵਿ ਵਿਚ ਕੀ ਅੰਤਰ ਹੈ? (8×2=16)

ਸੈਕਸ਼ਨ-ਬੀ, ਸੀ, ਡੀ ਅਤੇ ਈ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਦਾ ਉਤਰ ਦੇਣਾ ਲਾਜ਼ਮੀ ਹੈ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 12 ਅੰਕ ਹੋਣਗੇ।

ਸੈਕਸ਼ਨ-ਬੀ

2. ਕਾਵਿ ਅਤੇ ਧਾਰਮਿਕ ਕਾਵਿ ਵਿਚ ਅੰਤਰ ਸਪਸ਼ਟ ਕਰੋ।
3. ਭਗਤੀ ਸਾਹਿਤ ਦੀ ਭਾਰਤੀ ਸਭਿਆਚਾਰ ਨੂੰ ਦੇਣ ਬਾਰੇ ਨੋਟ ਲਿਖੋ।

ਸੈਕਸ਼ਨ-ਸੀ

4. ਭਗਤ ਨਾਮਦੇਵ ਜੀ ਦੇ ਜੀਵਨ ਅਤੇ ਉਨ੍ਹਾਂ ਦੀ ਬਾਣੀ ਦੇ ਦਾਰਸ਼ਨਿਕ ਪਰਿਪੇਖ ਦੀ ਚਰਚਾ ਕਰੋ।
5. ਭਗਤ ਨਾਮਦੇਵ ਜੀ ਬਾਣੀ ਰਚਨਾ ਦੇ ਕਲਾਤਮਕ ਪਹਿਲੂਆਂ ਉਪਰ ਚਰਚਾ ਕਰੋ।

ਸੈਕਸ਼ਨ-ਡੀ

6. ਭਗਤ ਕਬੀਰ ਦੇ ਜੀਵਨ ਅਤੇ ਬਾਣੀ ਉਪਰ ਵਿਸਤਾਰਪੂਰਵਕ ਨੋਟ ਲਿਖੋ।
7. ਕਬੀਰ ਬਾਣੀ ਦੀਆਂ ਰਚਨਾਤਮਕ ਜੁਗਤਾਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦਿਉ।

ਸੈਕਸ਼ਨ-ਈ

8. ਭਗਤ ਰਵਿਦਾਸ ਬਾਣੀ ਵਿਚ ਦਲਿਤ ਚੇਤਨਾ ਦੇ ਪਾਸਾਰ ਬਾਰੇ ਚਰਚਾ ਕਰੋ।
9. ਭਗਤ ਰਵਿਦਾਸ ਬਾਣੀ ਦੀ ਦਾਰਸ਼ਨਿਕਤਾ ਬਾਰੇ ਵਿਸਥਾਰਪੂਰਵਕ ਨੋਟ ਲਿਖੋ।

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Exam Code: 216502 **Paper Code: 2169**
(20)

Programme: Master of Arts (Punjabi)
SEMESTER-II

Course Title: Punjabi Kissa ate Birtaant Kav

Course Code: MPBL-2422

Time Allowed: 3 Hours **Max Marks: 64**

ਸੈਕਸ਼ਨ–ਏ

I. **ਕੋਈ ਅੱਠ ਪ੍ਰਸ਼ਨ ਕਰੋ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਅੰਕ ਹਨ।**

1.ਬਿਰਤਾਂਤ ਦੇ ਤੱਤ ਦੱਸੋ।

2.ਜੰਗਨਾਮਾ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿਓ।

3. 'ਟੱਕਰ' ਤੋਂ ਕੀ ਭਾਵ ਹੈ?

4.ਅਧਿਆਤਮਕ ਵਾਰਾਂ ਅਤੇ ਬੀਰ ਰਸੀ ਵਾਰਾਂ ਵਿਚ ਕੀ ਅੰਤਰ ਹੈ?

5.ਚੰਡੀ ਦੀ ਵਾਰ ਦਾ ਨਾਇਕ ਕੌਣ ਹੈ?

6.ਚੰਡੀ ਦੀ ਵਾਰ ਦੀਆਂ ਕਿੰਨੀਆਂ ਪੌੜੀਆਂ ਹਨ?

7.'ਹੀਰ ਰਾਂਝਾ' ਦਾ ਕਿੱਸਾ ਲਿਖਣ ਵਾਲੇ ਕੋਈ ਚਾਰ ਕਿੱਸਾਕਾਰਾਂ ਦੇ ਨਾਮ ਲਿਖੋ।

8.ਰਾਂਝਾਂ ਆਪਣਾ ਘਰ ਕਿਉਂ ਛੱਡ ਜਾਂਦਾ ਹੈ?

9.ਜੰਗਨਾਮਾ ਸ਼ਾਹ ਮੁਹੰਮਦ ਵਿਚੋਂ ਉਪਮਾ ਅਲੰਕਾਰ ਦੀ ਕੋਈ ਉਦਾਹਰਣ ਦਿਓ।

10.ਜੰਗਨਾਮਾ ਸ਼ਾਹ ਮੁਹੰਮਦ ਦੇ ਕੋਈ ਚਾਰ ਪਾਤਰਾਂ ਦੇ ਨਾਮ ਦੱਸੋ।

8x2=16

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ਨੋਟ ਸੈਕਸ਼ਨ ਬੀ, ਸੀ, ਡੀ ਅਤੇ ਈ ਵਿਚੋਂ ਹਰੇਕ ਸੈਕਸ਼ਨ ਇੱਕ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰੋ।

ਸੈਕਸ਼ਨ-ਬੀ

II. ਵਾਰ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿੰਦੇ ਹੋਏ ਇਸ ਦਾ ਵਿਧਾਗਤ ਅਧਿਐਨ ਕਰੋ।

III. ਕਿੱਸਾ, ਵਾਰ ਅਤੇ ਜੰਗਨਾਮਾ ਵਿਚ ਅੰਤਰ ਅਤੇ ਸਮਾਨਤਾ ਸਪੱਸ਼ਟ ਕਰੋ। (12)

ਸੈਕਸ਼ਨ-ਸੀ

IV. ਚੰਡੀ ਦੀ ਵਾਰ ਦੀਆਂ ਕਾਵਿਕ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ ਲਿਖੋ।

V. ਚੰਡੀ ਦੀ ਵਾਰ ਵਿਚਲੇ ਨਾਇਕਾ ਤੇ ਸੰਕਲਪ ਨੋਟ ਲਿਖੋ। (12)

ਸੈਕਸ਼ਨ-ਡੀ

VI. ਹੀਰ ਵਾਰਿਸ ਦੀ ਕਾਵਿ ਕਲਾ ਤੇ ਨੋਟ ਲਿਖੋ।

VII. ਹੀਰ ਵਾਰਿਸ ਵਿੱਚੋਂ ਤੱਤਕਾਲੀਨ ਸਮਾਜਿਕ ਸਭਿਆਚਾਰ ਦੀ ਕਿਹੋ ਜਿਹੀ ਤਸਵੀਰ ਉਭਰਦੀ ਹੈ? (12)

ਸੈਕਸ਼ਨ-ਈ

VIII. ਜੰਗਨਾਮਾ ਸ਼ਾਹ ਮੁਹੰਮਦ ਦੀ ਸਾਹਿਤਕਤਾ ਤੇ ਨੋਟ ਲਿਖੋ।

IX. "ਸ਼ਾਹ ਮੁਹੰਮਦ ਪੰਜਾਬੀਅਤ ਦਾ ਕਵੀ ਹੈ।" ਜੰਗਨਾਮਾ ਸ਼ਾਹ ਮੁਹੰਮਦ ਦੇ ਆਧਾਰ ਤੇ ਇਸ ਕਥਨ ਦੀ ਪੁਸ਼ਟੀ ਕਰੋ। (12)

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Exam Code: 216502 **Paper Code: 2170**
(20)

Programme: Master of Arts (Punjabi)
SEMESTER-II

Course Title: Khoj ate Punjabi Alochna

Course Code: MPBL-2423

Time Allowed: 3 Hours **Max Marks: 64**

ਨੋਟ- ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜ ਸੈਕਸ਼ਨ ਹਨ।ਪਹਿਲੇ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਦੋ-ਦੋ ਅੰਕਾਂ ਵਾਲੇ ਅੱਠ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ। ਸੈਕਸ਼ਨ ਦੂਜਾ, ਤੀਜਾ, ਚੌਥਾ ਅਤੇ ਪੰਜਵਾਂ ਵਿੱਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 12 ਅੰਕ ਹਨ।

ਸੈਕਸ਼ਨ-1

1. 1.ਖੋਜ ਸ਼ਬਦ ਦੀ ਉਤਪਤੀ ਕਿਵੇਂ ਹੋਈ?
   2. ਖੋਜ ਵਿਧੀਆਂ ਦੇ ਨਾਮ ਲਿਖੋ?
   3. ਖੋਜ ਸੰਦ ਤੇ ਜੁਗਤਾਂ ਦੇ ਨਾਂ ਦੱਸੋ?
   4. ਮਾਰਕਸ ਅਤੇ ਏਂਗਲਜ਼ ਦਾ ਸੰਬੰਧ ਕਿਸ ਆਲੋਚਨਾ ਪ੍ਰਣਾਲੀ ਨਾਲ ਹੈ?
   5.ਸਰੰਚਨਾਵਾਦੀ ਆਲੋਚਨਾ ਪ੍ਰਣਾਲੀ ਕਿਸ ਭਾਸ਼ਾ ਵਿਗਿਆਨਕ ਮਾਡਲ 'ਤੇ ਆਧਾਰਤ ਹੈ?
   6.ਮੁੱਢਲੇ ਪੰਜਾਬੀ ਆਲੋਚਕ ਬਾਵਾ ਬੁੱਧ ਸਿੰਘ ਦੀਆਂ ਦੋ ਆਲੋਚਨਾ ਪੁਸਤਕਾਂ ਦੇ ਨਾਂ ਦੱਸੋ?
   7.ਦੋ ਮਾਰਕਸਵਾਦੀ /ਪ੍ਰਗਤੀਵਾਦੀ ਪੰਜਾਬੀ ਆਲੋਚਕਾਂ ਦੇ ਨਾਂ ਦੱਸੋ?

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8.ਡਾ.ਹਰਿਭਜਨ ਸਿੰਘ ਤੇ ਡਾ.ਤਰਲੋਕ ਸਿੰਘ ਕੰਵਰ ਪੰਜਾਬੀ ਦੀ ਕਿਸ ਆਲੋਚਨਾ ਪ੍ਰਣਾਲੀ ਨਾਲ ਸੰਬੰਧਿਤ ਹਨ?

9.ਨਵ-ਮਾਰਕਸਵਾਦੀ ਪੰਜਾਬੀ ਆਲੋਚਨਾ ਬਾਰੇ ਸੰਖੇਪ ਜਾਣਕਾਰੀ ਦਿਓ?

10.ਡਾ. ਜੋਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀਂ ਦਾ ਲੇਖ "ਸਾਹਿਤਕ ਕਿਰਤਾਂ ਦੀ ਇਤਿਹਾਸਕਤਾ" ਕਿਸ ਪੁਸਤਕ ਵਿੱਚੋਂ ਲਿਆ ਗਿਆ ਹੈ?

(2*8=16 ਅੰਕ)

ਸੈਕਸ਼ਨ-2

2. ਖੋਜ ਵਿਧੀਆਂ ਬਾਰੇ ਜਾਨਕਾਰੀ ਦਿਉ।
3. ਖੋਜ ਦੀ ਪਰਿਭਾਸ਼ਾ ਤੇ ਪ੍ਰਕਿਰਤੀ ਤੇ ਨੋਟ ਲਿਖੋ। 12ਅੰਕ

ਸੈਕਸ਼ਨ-3

4. ਮਾਰਕਸਵਾਦੀ ਆਲੋਚਨਾ ਤੇ ਨੋਟ ਲਿਖੋ।
5. ਸਰੰਚਨਾਵਾਦੀ ਆਲੋਚਨਾ ਪ੍ਰਣਾਲੀ ਬਾਰੇ ਚਰਚਾ ਕਰੋ। 12ਅੰਕ

ਸੈਕਸ਼ਨ-4

6. ਪੰਜਾਬੀ ਪ੍ਰਗਤੀਵਾਦੀ /ਮਾਰਕਸਵਾਦੀ ਆਲੋਚਨਾ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦਿਓ।
7. ਪੰਜਾਬੀ ਆਲੋਚਨਾ ਦੇ ਵਰਤਮਾਨ ਰੁਝਾਨਾਂ ਬਾਰੇ ਚਰਚਾ ਕਰੋ।

12ਅੰਕ

ਸੈਕਸ਼ਨ-5

8. ਡਾ. ਅਤਰ ਸਿੰਘ ਦੇ ਲੇਖ 'ਪਰੰਪਰਾ ਤੇ ਆਧੁਨਿਕਤਾ' ਬਾਰੇ ਚਰਚਾ ਕਰੋ।
9. ਪ੍ਰੋ. ਸੰਤ ਸਿੰਘ ਸੇਖੋਂ ਦੇ ਲੇਖ 'ਕਵਿਤਾ ਤੇ ਸਮਾਜਿਕ ਆਲੋਚਨਾ' ਤੇ ਆਲੋਚਨਾਤਮਕ ਨੋਟ ਲਿਖੋ। 12ਅੰਕ

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Exam Code: 216502 **Paper Code: 2171**
(20)

Programme: Master of Arts (Punjabi)
SEMESTER-II

Course Title: Sabhyachaar ate Punjabi Sabhyachaar

Course Code: MPBL-2424

Time Allowed: 3 Hours **Max Marks: 64**

ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਹੱਲ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ।

ਭਾਗ–1

1. ਹੇਠ ਲਿਖੇ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚੋਂ ਅੱਠ ਦੇ ਸੰਖੇਪ ਉੱਤਰ ਲਗਭਗ 50–50 ਸ਼ਬਦਾਂ ਵਿੱਚ ਲਿਖੋ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਅੰਕ ਹਨ।

ੳ) ਸਭਿਆਚਾਰ ਦੇ ਸ਼ਾਬਦਿਕ ਅਰਥ ਕੀ ਹਨ?

ਅ) ਖਿੰਡਾਅ ਤੋਂ ਕੀ ਭਾਵ ਹੈ?

ੲ) ਸੱਭਿਆਚਾਰ ਸਾਪੇਖਤਾ ਤੋਂ ਕੀ ਭਾਵ ਹੈ?

ਸ) ਸੱਭਿਆਚਾਰ ਅਤੇ ਸੱਭਿਅਤਾ ਵਿਚ ਮੂਲ ਅੰਤਰ ਦੱਸੋ।

ਹ) ਭਾਸ਼ਾ ਅਤੇ ਸਭਿਆਚਾਰ ਦੀਆਂ ਕੋਈ ਦੋ ਸਾਂਝਾਂ ਦੱਸੋ।

ਕ) 1947 ਦੀ ਪੰਜਾਬ ਵੰਡ ਨੇ ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਉਪਰ ਕੀ ਪ੍ਰਭਾਵ ਪਾਏ?

ਖ) ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦਾ ਭੂਗੋਲਿਕ ਖਿੱਤਾ ਨਿਸ਼ਚਿਤ ਕਰੋ।

ਗ) ਸ਼ਹਿਰੀਕਰਨ ਦੇ ਸੰਕਲਪ ਨੂੰ ਸਪੱਸ਼ਟ ਕਰੋ।

ਘ) ਪੰਜਾਬੀ ਖਾਣ–ਪੀਣ ਬਾਰੇ ਦੱਸੋ।

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ਛ) ਪੰਜਾਬੀ ਰਹਿਣ-ਸਹਿਣ ਦੇ ਮੂਲ ਨੁਕਤੇ ਕਿਹੜੇ ਹਨ?

(8*2=16)

ਭਾਗ 2,3,4 ਅਤੇ 5, ਹਰੇਕ ਭਾਗ ਵਿੱਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰੋ।

ਭਾਗ-2

2. ਸਭਿਆਚਾਰ ਨੂੰ ਪਰਿਭਾਸ਼ਿਤ ਕਰੋ ਅਤੇ ਇਸਦੇ ਮੁੱਖ ਲੱਛਣ ਦੱਸੋ।
3. ਸਭਿਆਚਾਰਕ ਸੰਪਰਕ, ਸਭਿਆਚਾਰੀਕਰਨ,ਸਭਿਆਚਾਰ ਪਛੜੇਵੇਂ ਅਤੇ ਖਿੰਡਾਅ ਬਾਰੇ ਉਦਾਹਰਨਾਂ ਸਹਿਤ ਸਪੱਸ਼ਟ ਕਰੋ। 12

ਭਾਗ-3

4. ਸਭਿਆਚਾਰ ਅਤੇ ਸਹਿਤ ਦੇ ਸੰਬੰਧਾਂ ਬਾਰੇ ਵਿਸਤ੍ਰਿਤ ਚਰਚਾ ਕਰੋ।
5. ਸਭਿਆਚਾਰ ਦੀ ਨਿਰਮਾਣਕਾਰੀ ਅਤੇ ਰੂਪਾਂਤਰਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿੱਚ ਇਤਿਹਾਸ ਅਤੇ ਧਰਮ ਦੀ ਭੂਮਿਕਾ ਬਾਰੇ ਚਰਚਾ ਕਰੋ। 12

ਭਾਗ-4

6. ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਮੂਲ ਸੋਮਿਆਂ ਬਾਰੇ ਜਾਣਕਾਰੀ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦਿਓ।
7. ਪੰਜਾਬ ਦੀਆਂ ਲੋਕ ਕਲਾਵਾਂ ਨੂੰ ਇੱਥੋਂ ਦੀ ਭੂਗੋਲਿਕ ਸਥਿਤੀ ਨੇ ਕਿਹੜੇ-ਕਿਹੜੇ ਢੰਗਾਂ ਰਾਹੀਂ ਪ੍ਰਭਾਵਿਤ ਕੀਤਾ ਹੈ? ਚਰਚਾ ਕਰੋ। 12

ਭਾਗ-5

8. ਪੰਜਾਬੀ ਸਭਿਆਚਾਰ ਦੇ ਨਿਵੇਕਲੇ ਲੱਛਣਾਂ ਨਾਲ ਜਾਣ-ਪਛਾਣ ਕਰਾਓ।
9. ਵਿਸ਼ਵੀਕਰਨ ਨੇ ਪੰਜਾਬੀ ਰਹਿਣ ਸਹਿਣ ਨੂੰ ਕਿਵੇਂ ਪ੍ਰਭਾਵਤ ਕੀਤਾ ਹੈ? 12

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Exam Code: 216502 **Paper Code: 2172**
(20)

Programme: Master of Arts (Punjabi)
SEMESTER-II

Course Title: Punjabi Media ate Patarkaari

Course Code: MPBL-2425 (Opt-I)

Time Allowed: 3 Hours **Max Marks: 64**

ਨੋਟ- ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਪੰਜ ਸੈਕਸ਼ਨ ਹਨ।ਪਹਿਲੇ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ-ਦੋ ਅੰਕਾਂ ਵਾਲੇ ਅੱਠ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਲਾਜ਼ਮੀ ਹਨ।ਸੈਕਸ਼ਨ ਦੂਜਾ, ਤੀਜਾ, ਚੌਥਾ ਅਤੇ ਪੰਜਵਾਂ ਵਿਚੋਂ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ।ਹਰੇਕ ਪ੍ਰਸ਼ਨ 12 ਅੰਕਾਂ ਦਾ ਹੈ।

ਸੈਕਸ਼ਨ 1

1. a ਪੱਤਰਕਾਰੀ ਨੂੰ ਪਰਿਭਾਸ਼ਤ ਕਰੋ?
   b ਪੱਤਰਕਾਰੀ ਦੇ ਕੋਸ਼ਗਤ ਅਰਥ ਕੀ ਹਨ?
   c ਪੱਤਰਕਾਰੀ ਦੇ ਪ੍ਰਮੁੱਖ ਰੂਪ ਕਿਹੜੇ-ਕਿਹੜੇ ਹਨ?
   d ਖ਼ਬਰ ਨੂੰ ਪਰਿਭਾਸ਼ਤ ਕਰੋ?
   e ਸੰਪਾਦਕੀ ਲੇਖ ਤੋਂ ਕੀ ਭਾਵ ਹੈ?
   f ਮੁਲਾਕਾਤ ਦਾ ਪੱਤਰਕਾਰੀ ਵਿਚ ਕੀ ਸਥਾਨ ਹੈ?
   g ਰੀਵੀਊ ਤੋਂ ਕੀ ਭਾਵ ਹੈ?
   h ਸਿੰਘ ਸਭਾ ਲਹਿਰ ਦਾ ਆਰੰਭ ਕਦੋਂ ਅਤੇ ਕਿਸ ਮਨੋਰਥ ਲਈ ਹੋਇਆ?
   i ਸਾਹਿਤਕ ਪੱਤਰਕਾਰੀ ਨੂੰ ਪਰਿਭਾਸ਼ਤ ਕਰੋ?

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j ਕੋਈ ਚਾਰ ਪ੍ਰਮੁੱਖ ਪੰਜਾਬੀ ਚੈਨਲਾਂ ਦੇ ਨਾਂ ਦੱਸੋ।

(2×8=16 ਅੰਕ)

ਸੈਕਸ਼ਨ 2

2. ਪੱਤਰਕਾਰੀ ਤੋਂ ਕੀ ਭਾਵ ਹੈ? ਪੱਤਰਕਾਰੀ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਸੰਕਲਪ ਉਤੇ ਵਿਚਾਰ ਕਰੋ।
3. ਪੱਤਰਕਾਰੀ ਦੇ ਪ੍ਰਮੁੱਖ ਰੂਪ ਖ਼ਬਰ ਅਤੇ ਰਿਵੀਊ ਬਾਰੇ ਵਿਸਥਾਰਪੂਰਵਕ ਲਿਖੋ। 12 ਅੰਕ

ਸੈਕਸ਼ਨ 3

4. ਮੀਡੀਆ ਤੇ ਸੋਸ਼ਲ ਮੀਡੀਆ ਦੇ ਵਿਭਿੰਨ ਰੂਪਾਂ ਫੇਸਬੁੱਕ ਅਤੇ ਟਵਿੱਟਰ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦਿਓ।
5. ਪ੍ਰਮੁੱਖ ਪੰਜਾਬੀ ਚੈਨਲਾਂ ਤੇ ਸੰਖੇਪ ਨੋਟ ਲਿਖੋ। 12 ਅੰਕ

ਸੈਕਸ਼ਨ 4

6. ਪੰਜਾਬੀ ਪੱਤਰਕਾਰੀ ਨੂੰ ਦਰਪੇਸ਼ ਚੁਣੌਤੀਆਂ ਤੇ ਚਰਚਾ ਕਰੋ।
7. ਪੰਜਾਬੀ ਇਲੈਕਟ੍ਰਾਨਿਕ ਮੀਡੀਆ ਬਾਰੇ ਵਿਸਥਾਰਪੂਰਵਕ ਜਾਣਕਾਰੀ ਦਿਓ। 12 ਅੰਕ

ਸੈਕਸ਼ਨ 5

8. ਪੰਜਾਬੀ ਮੀਡੀਆ ਵਿੱਚ ਰੁਜ਼ਗਾਰ ਦੀਆਂ ਸੰਭਾਵਨਾਵਾਂ ਤੇ ਚਰਚਾ ਕਰੋ।
9. ਪ੍ਰੀਤਲੜੀ ਸਾਹਿਤਕ ਰਸਾਲੇ ਦੇ ਇਤਿਹਾਸ ਅਤੇ ਵਰਤਮਾਨ ਸਥਿਤੀ ਬਾਰੇ ਜਾਣਕਾਰੀ ਦਿਓ। 12 ਅੰਕ

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Exam Code: 216902 **Paper Code: 2173**

Programme: Master of Arts (Punjabi) Semester: II

Course Title: Tourism Ate Punjabi Sabhyachar

Course Code: MPBL-2426

Time Allowed: 3 Hours **Max Marks: 64**

ਨੋਟ -ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਕੁੱਲ ਪੰਜ ਸੈਕਸ਼ਨ ਹਨ| ਪਹਿਲੇ ਸੈਕਸ਼ਨ ਵਿਚੋ 8 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਜ਼ਰੂਰੀ ਹਨ| ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਦੋ ਅੰਕ ਹਨ ਦੂਜਾ,ਤੀਜਾ, ਚੌਥਾ ਅਤੇ ਪੰਜਵਾਂ ਸੈਕਸ਼ਨ ਵਿਚੋਂ ਇਕ -ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ| ਹਰੇਕ ਪ੍ਰਸ਼ਨ 12 ਅੰਕਾਂ ਦਾ ਹੈ|

ਸੈਕਸ਼ਨ।

1.ਹੇਠਾਂ ਦਿੱਤੇ ਪ੍ਰਸ਼ਨਾਂ ਵਿਚੋਂ ਕੋਈ ਅੱਠ ਪ੍ਰਸ਼ਨ ਕਰੋ-

ੳ .ਟੂਰਿਜ਼ਮ ਤੋਂ ਕੀ ਭਾਵ ਹੈ|

ਅ .ਟੂਰਿਜ਼ਮ ਸ਼ਬਦ ਦੀ ਵਰਤੋਂ ਸਭ ਤੋਂ ਪਹਿਲਾਂ ਕਿਸ ਨੇ ਕੀਤੀ?

ੲ. ਪ੍ਰਾਕਿਰਤਕ ਵਿਰਾਸਤ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿਉ?

ਸ. ਜੀਵੰਤ ਵਿਰਾਸਤ ਤੋਂ ਕੀ ਭਾਵ ਹੈ ?

ਹ. ਸਭਿਆਚਾਰਕ ਟੂਰਿਜ਼ਮ ਤੋਂ ਕੀ ਭਾਵ ਹੈ ?

ਕ. ਇਤਿਹਾਸਕ ਟੂਰਿਜ਼ਮ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿਉ|

ਖ. ਪੰਜਾਬੀਆਂ ਦੇ ਖਾਣ ਪੀਣ ਤੇ ਚਰਚਾ ਕਰੋ ?

ਗ. ਰਵਾਇਤੀ ਮਨੋਰੰਜਨ ਤੋਂ ਕੀ ਭਾਵ ਹੈ|

ਘ .ਰਵਾਇਤੀ ਜੀਵਨ ਅਤੇ ਜੰਕ ਫੂਡ ਤੇ ਆਪਣੇ ਵਿਚਾਰ ਪੇਸ਼ ਕਰੋ|

ਙ.ਰਵਾਇਤੀ ਪ੍ਰਾਹੁਣਚਾਰੀ ਤੇ ਕੀ ਭਾਵ ਹੈ? 8X2=16

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ਸੈਕਸ਼ਨ II

2. ਟੂਰਿਜ਼ਮ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿੰਦਿਆ ਇਸਦੇ ਸੰਕਲਪ ਤੇ ਚਰਚਾ ਕਰੋ| 12

3. ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰ ਵਿਚ ਟੂਰਿਜ਼ਮ ਦੇ ਪਿਛੋਕੜ ਤੇ ਵਿਕਾਸ ਤੇ ਚਰਚਾ ਕਰੋ| 12

ਸੈਕਸ਼ਨ III

4. ਸੱਭਿਆਚਾਰਕ ਵਿਰਾਸਤ ਦੀ ਪਰਿਭਾਸ਼ਾ ਦਿੰਦਿਆਂ ਇੰਟੈਂਜੀਬਲ ਵਿਰਾਸਤ ਤੇ ਚਰਚਾ ਕਰੋ| 12

5. ਪ੍ਰਕਿਰਤਕ ਵਿਰਾਸਤ ਤੋਂ ਤੁਸੀਂ ਕੀ ਸਮਝਦੇ ਹੋ| 12

ਸੈਕਸ਼ਨ IV

6. ਟੂਰਿਜ਼ਮ ਅਤੇ ਪੰਜਾਬੀ ਸੱਭਿਆਚਾਰ ਤੇ ਵਿਚਾਰ ਪੇਸ਼ ਕਰਦਿਆਂ ਸੱਭਿਆਚਾਰਕ ਟੂਰਿਜ਼ਮ ਤੇ ਨੋਟ ਲਿਖੋ| 12

7. ਧਾਰਮਿਕ ਟੂਰਿਜ਼ਮ ਤੇ ਵਿਸਥਾਰ ਸਹਿਤ ਚਰਚਾ ਕਰੋ| 12

ਸੈਕਸ਼ਨ V

8. ਟੂਰਿਜ਼ਮ ਸੱਭਿਆਚਾਰ ਅਤੇ ਰਵਾਇਤੀ ਜੀਵਨ ਵਿਚ ਰਵਾਇਤੀ ਪ੍ਰਾਹੁਣਚਾਰੀ ਦਾ ਕੀ ਮਹੱਤਵ ਹੈ| 12

9. ਰਵਾਇਤੀ ਖਾਣ ਪੀਣ ਤੇ ਨੋਟ ਲਿਖੋ| 12

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Exam Code: 209002 **Paper Code: 2214**

Programme: Master of Science (Physics) Semester: II

Course Title: Quantum Mechanics-I

Course Code: MPHL-2391

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 16 marks.

SECTION A

1 (a) Discuss the representation of wave function in position and momentum space. Also explain the relationship between the two types of wave functions. (10,6)
(b) How two orthonormal basis are related.

2 (a) Explain in details experimental setup of the Stern Gerlach experiment. Discuss the main implications of the experiment. (10,6)
(b) Explain the term complex linear vector space, dual space, inner product.

SECTION B

3 (a) State and prove the Ehrenfest theorem.
(b) Explain the properties of Time evolution operator. (10,6)

4 Solve the one dimensional quantum mechanical harmonic oscillator for its eigen values and eigen kets using operator/ladder method approach. (16)

SECTION C

5 Explain in detail the symmetries in Classical and Quantum mechanics. Also explain the conservation laws associated with symmetries. (16)

6 Explain the term Parity, space inversion and behavior of wave function under parity. (16)

SECTION D

7 If $\vec{J}_1 = 1, \vec{J}_2 = 1, \vec{J} = \vec{J}_1 + \vec{J}_2$ find the Clebsch-Gordan (C.G.) coefficients. (16)

8 (a) Obtain the eigen states and eigen values of the angular momentum operator.
(b) Evaluate $J_{\pm}|jm\rangle$ state. (10,6)

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Exam Code: 209002 **Paper Code: 2215**
(20)

Programme: Master of Science (Physics)
Semester-II

Course Title: Electrodynamics-I

Course Code: MPHL-2392

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section- A

1. a) Explain multipole expansion. Discuss each term. Also find electric field of Dipole. (12)

   (b) A electric dipole consists of two equal and opposite charges separated by a distance d. Find the approximate potential at points far from the dipole. (4)

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Section-C

5. a) State Poynting's Theorem and derive its differential form (10)

   (b) Derive Continuity Equation. (6)

6. Prove that in a non-conducting isotropic medium the energy density associated with an EM-wave propagates with the phase velocity of the wave. (16)

Section-D

7. a) Prove that energy flux and energy density in a conducting medium are damped' Explain the concept of skin depth. (14)

   b) The constitution parameters of Al are given by $\mu_r 1$, $\varepsilon_r = 1$ and $\sigma = 3.54\text{-}X10^7$ mho/m. Find the frequency for which the skin depth of in A1 is 0.01 mm.

   (2)

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2. Define the electric susceptibility and dielectric constant. Deduce the effect of point charge in a dielectric fluid. Prove that medium reduces the point charge +q to a value q/k (14)

   b) Calculate the dipole moment of system of three charges —q coulomb placed at the vertices of an equilateral triangle of side 1m. (2)

Section-B

3. a) Find out the magnetic field of a distant current loop and prove that it does not depend on its detailed geometry. (12)

   b) Prove that magnetic vector potential (A) satisfies the poisson's equation. (2)

   c) Find out relation between A and Øm. (2)

4. (a) Explain Multipole Expansion of the vector potential. Show that monopole does not exist and find dipole moment. (10)

   (b) Explain boundary conditions in magnetostatics. (6)

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Section-C

5. a) State Poynting's Theorem and derive its differential form (10)

   (b) Derive Continuity Equation. (6)

6. Prove that in a non-conducting isotropic medium the energy density associated with an EM-wave propagates with the phase velocity of the wave. (16)

Section-D

7. a) Prove that energy flux and energy density in a conducting medium are damped' Explain the concept of skin depth. (14)

   b) The constitution parameters of Al are given by $\mu_r 1$, $\varepsilon_r = 1$ and $\sigma = 3.54\text{-}X10^7$ mho/m. Find the frequency for which the skin depth of in A1 is 0.01 mm.

   (2)

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8. Derive Fresenel's equations for reflection and refraction of EM waves at the boundary of two non-conducting media. (16)

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Exam Code: 209002 **Paper Code: 2216**
(20)

Programme: Master of Science (Physics)
Semester-II

Course Title: Condensed Matter Physics-I

Course Code: MPHL-2393

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section A

1. (a) Explain in detail Einstein Model of specific heat. (8)
   (b) Write a note on Born cut off procedure (8)
2. (a) Explain in detail about Debye model of specific heat for solids. (8)
   (b) What are elastic compliance and stiifness constants of a crystal ? Show how these constants are reduced for cubic crystals (8)

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Section B

3. Explain different types of defects in a crystal and hence derive an expression for concentration of Schottky and Frenkel defects. (16)
4. Write a note on the following
   (a) Edge and screw dislocations
   (b) Burger vectors and F-centres
   (c) Grain Boundaries
   (d) Dislocations and crystal growth (16)

Section C

5. Write a note on each
   (a) Sommerfeld theory of conductivity
   (b) Drift velocity and relaxation time (16)
6. Explain in detail
   (a) Ionic conductivity in pure alkali halides
   (b) Mathieson's rule and Wiedemann-Franz law. (16)

Section D

7. Derive an expression for local field and Claussius-Mossotti relation. (16)
8. Write a note on dipole theory of ferroelectricity and objections against dipole theory. (16)

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Exam Code: 209002 **Paper Code: 2217**
(20)

Programme: Master of Science (Physics)
Semester-II

Course Title: Atomic and Molecular Spectroscopy

Course Code: MPHL-2394

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks. The Students are allowed to use Non-programmable calculator.

Section-A

1. a) Derive an expression for Larmor processional frequency .What is its importance? 8

   b) Calculate the possible orientations of the total angular momentum vector $\vec{j}$corresponding to j = 3/2 with respect to a magnetic field along z-axis. 4

   c) Express the following states in spectroscopic notation:

   (i) $L = 1, S = \frac{3}{2}$

   (ii) $L = 2, S = \frac{7}{2}$

   (iii) L=3,S=3

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(iv) $L=1, S=\frac{1}{2}$ 4

2. a) Calculate the spin orbit interaction energy for a single non penetrating valence electron. 8

b) What are the selection rules for allowed transitions in an atom. Obtain the spectral terms arising from equivalent electrons in case of carbon atom (Z=6}. 8

Section B

3. a) Show that the line width due to Doppler broadening increases with temperature and decreases with increasing atomic weight. 8

b) Discuss the Zeeman pattern of a line due to transition $^3P_{0,\,1,\,2} - {}^3S_1$. 5

c) Differentiate between normal and anomalous Zeeman Effect. 3

4. a) Explain with the help of diagram the splitting of ^2D levels of sodium in the presence of

(i) a weak magnetic field, 8

(ii) a strong magnetic field. 8

Section C

5. a) Discuss rotational spectrum of a diatomic molecule, treating it as non-rigid rotator. 4

b) Explain in detail the behavior of vibrating diatomic molecule as simple harmonic oscillator. 4

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c) What is the effect of isotopic substitution on the rotational spectrum of diatomic molecules . 4

d) The moment of inertia of the CO molecule is 1.46 X 10^{-46} kg-m^2. Calculate the energy and the angular velocity in the lowest rotational energy level of CO molecule. 4

6. a) What are P, Q and R branches in the vibration - rotation spectra? Explain their origin. 4

b) How does the thermal distribution of the rotational levels of a diatomic molecule differ from that of vibrational levels at a particular temperature? Describe in detail. 12

Section D

7. a) What is Raman Effect? Briefly explain the chief characteristics of vibrational and pure rotational Raman spectra. 10

b) The values of ω_e and $\omega_e x_e$ are 1580.36 cm^{-1} and 12.07cm^{-1} respectively for the ground state of O_2 molecule. Calculate the zero point energy and the expected Raman vibrational displacement . 6

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8. a) State Franck Condon principle. Explain intensity distribution in emission and absorption band from Franck Condon principle. 12

b) What are the salient features of molecular electronic spectrum? 4

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Exam Code: 910202 **Paper Code: 2157**

Programme: Master of Arts (Psychology) Semester-II

Course Title: Approaches to Personality

Course Code: MSYL-2441

Time Allowed: 3 Hours **Max. Marks: 80**

Note: Attempt five question out of eight, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. Explain Ego Defense Mechanism given by Freud in detail with suitable example. (16)
2. Write a detailed note on Ericksons's theory of personality development. (16)

Section B

3. Define Cognitive psychology with a special reference of George Kelley. (16)
4. Write a detailed note on the theory given by Albert Bandura. (16)

Section C

5. Write a detailed note Raymond Cattell's theory of Personality. (16)
6. Write a note on- (8,8)
   a) Eysenck theory b) Big Five Factor

Section D

7. Explain E.P. Seligman theory of Personality. (16)
8. How the role of Jullian Rotter is important in personality theory? Explain in detail. (16)

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Old Syllabus (2021-22)

Exam Code: 910202 **Paper Code: 9205**

Programme: Master of Arts (Psychology) Semester-II

Course Title: Approaches to Personality

Course Code: MSYL-2441

Time Allowed: 3 Hours **Max. Marks: 80**

Note: Attempt five question out of eight, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. Write a detailed note on the Psychoanalytic theory given by Freud. (16)

2. Explain the theory of Erick Erickson in the field of Personality Psychology. (16)

Section B

3. Explain the Need Hierarchy model given by Maslow. (16)

4. Write a detailed note on the Carl Roger's theory of Personality. (16)

Section C

5. How Bandura's Social learning theory contributed to Personality Psychology. (16)
6. Explain the George Kelley's cognitive approach of personality. (16)

Section D

7. Explain Raymond Cattell's theory of 16 PF. (16)
8. Write a note on – (8,8)
   a) Eysenck's trait theory
   b) Big five Factor Model

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Exam Code: 910202 **Paper Code: 2158**
(30)

Programme: Master of Arts (Psychology)
Semester-II

Course Title: Motivation

Course Code: MSYL-2442

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

SECTION A

1. What is Motivation? Discuss its characteristics in detail. 16
2. What is Hull's contribution in the field of motivation? 16

SECTION B

3. Discuss in detail Lewin's Theory of Motivation. 16
4. Highlight the contributions of Herzberg. 16

SECTION C

5. Write a note on the concept of Thirst. What are its types ? Discuss in detail. 16

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6. Write a detailed note on the physiological basis of hunger. 16

SECTION D

7. Write a note on the concept of sleep. Discuss the physiological basis of sleep. 16
8. Explain the Following:
   a. Biological clocks
   b. Stages of sleep 8,8

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Exam Code: 910202 **Paper Code: 2159**
(30)

Programme: Master of Arts (Psychology)
Semester-II

Course Title: Experimental Designs in Psychology

Course Code: MSYL-2443

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions, selecting atleast one question from each section. The fifth question may be attempted from any section. All questions carry 16 marks. Use of statistical tables and non-programmable calculators is allowed.

Section-A

1. Write a detailed note on Quasi Experimental designs (16)
2. Write short notes on:
   a) Assumptions of ANOVA
   b) Naturalistic Observation (8,8)

Section-B

3. Write short notes on:
   (a) Randomized Block design
   (b) Randomized Group design (8,8)

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4. Show your familiarity with Greco Latin square design using a hypothetical example. (16)

Section-C

5. Hypothetically show your acquaintance with two way ANOVA (16)
6. Throw light an three way ANOVA with a hypothetical design. (16)

Section-D

7. Define multiple comparison tests. Hypothetically solve Neumankeuls multiple comparison test (4,12)
8. Write a detailed note on.
   ANCOVA as a statistical technique (16)

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Exam Code: 910202 **Paper Code: 2160**
(30)

Programme: Master of Arts (Psychology)
Semester-II

Course Title: Physiological Psychology

Course Code: MSYL-2444

Time Allowed: 3 Hours **Max Marks: 80**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 16 marks.

Section A

1. Explain the structure and function of- (8,8)
   a) Brain
   b) Spinal Cord
2. With the help of diagram explain the structure and function of Neurons. (16)

Section B

3. Write a note on:-
   a) Limbic system
   b) Hypothalamus (8,8)
4. Describe in detail structure and Function of Autonomic Nervous System. (16)

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Section C

5. What do you mean by research techniques in physiology. Explain the Histological procedure in physiological studies, (16)
6. Write a note on :-
   a) Stereotaxic Surgery
   b) Study of living brain (8,8)

Section D

7. Explain the contribution of Lashley and Hebb in physiology of learning. (16)
8. Describe a biochemical basis of memory. (16)

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Exam Code: 910202 **Paper Code: 2161**
(30)

Programme: Master of Arts (Psychology)
Semester-II

Course Title: Abnormal Psychology

Course Code: MSYL-2445

Time Allowed: 3 Hours **Max Marks: 80**

Note:- Attempt five questions in all, selecting at least one question from each section. Fifth question can be attempted from any section. Each question carries 16 marks.

Section-A

1. Define the term Abnormality with the help of critcria of abnormality. (16)
2. Discuss the biological causes that can lead to abnormal behavior. (16)

Section B

3. Explain obsessive compulsive disorder with its causes and treatment. (16)
4. Discuss Mood related disorders with special reference to its causes and treatment. (16)

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Section C

5. Enumerate the causes, symptoms and treatment plans for Paranoid personality disorders. (16)
6. Discuss the causes, symptoms and treatment strategies for Antisocial behavior. (16)

Section D

7. Write a note on Schizophrenia with special reference to its types, causes and treatment. (16)
8. Write a note on Attention Deficit hyperactivity disorder with special focus on its symptoms and treatment. (16)

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Exam Code: 211202 **Paper Code: 2239**
(20)

Programme: Master of Science (Zoology)
Semester-II

Course Title: Biostatistics

Course Code: MZOL-2334

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. Each question carries 8 marks. The students are allowed to use Statistical Table, Non programmable & Non storage type calculator.

SECTION-A

Ques 1. Calculate the Mean, Median, Mode for the following data.

Wages	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60	Less than 70	Less than 80
No. of Workers	15	35	60	84	96	127	198	250

8

Ques 2 (a). Show that for the three events A, B, C, the probability that at least one of the events will occur is $P(A \cup B \cup C) = P(A) + P(B) + P(C) - P(A \cap B) - P(B \cap C) - P(A \cap C) + P(A \cap B \cap C)$

(b). A card is drawn from a pack of 52 cards and then a second card is drawn. What is the probability that both the cards drawn are queen? (4,4)

SECTION-B

Ques 3. A random variable has the following probability mass function.

X	0	1	2	3	4	5	6	7
f(X)	0	k	2k	2k	3k	k^2	$2k^2$	$7k^2 + k$

(i) Find k.
(ii) Find $P(X \geq 6)$
(iii) Find Mean and Variance of variable X.
(iv) Also find the Distribution function. 8

Ques 4. There are 64 beds in a garden and 3 seeds of particular type of flower are sown in each bed. The probability of a flower being white is $\frac{1}{4}$. Find the number of beads with 3,2,1 and 0 white flowers.

8

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SECTION-C

Ques 5. The rank of 16 students in Mathematics and Physics are as follows. Calculate the rank correlation coefficient.

Maths	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Physics	1	10	3	4	5	7	2	6	8	11	15	9	14	12	16	13

8

Ques 6. The lines of regression in a bivariate distribution are given by $X + 9Y = 7$ and $Y + 4X = \frac{49}{3}$ and $\sigma_X^2 = 18$ Find

(i) Coefficient of correlation 'r'
(ii) $\bar{X}, \bar{Y}$ and σ_Y. 8

SECTION-D

Ques 7. A survey of 800 families with four children each revealed the following distribution:

Number of Boys	0	1	2	3	4
Number of Girls	4	3	2	1	0
Number of Families	32	178	290	236	64

Test the fitness of binomial distribution given that male and female births are equally probable. 8

Ques 8. In a sample survey of public opinion, answers to the questions. (i) Do you drink? (ii) Are you favour of local option on sale of liquor?

	Yes	No	Total
Yes	56	31	87
No	18	6	24
Total	74	37	111

Can you infer whether or not the local option on the sale of liquor is dependent or individual drink. 8

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Exam Code: 211202 **Paper Code: 2236**
(20)

Programme: Master of Science (Zoology)
Semester-II

Course Title: Functional Organization of Animals-II

Course Code: MZOL-2481

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five question in all, selecting at least one question from each section A-D respectively. The fifth question may be attempted from any section. Draw well labelled diagrams wherever necessary. Each question carries 16 marks.

Section-A

1. (a) Mention the Modification in the amphibian or fish skin. 8
   (b) Write a note on evolution of skin. 8
2. (a) Describe the electric organs of fishes. 6
   (b) Explain the Mechanism of Muscle. 10

Section-B

3. Discuss the Appendicular Sketeton in vertebrates along with its evolution. 16

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4. Give the homologies of forelimb bones and Hindlimb bones with the help of a table. 16

Section-C

5. (a) Briefly explain the physiology of Nerve net system and giant fibre system in invertebrates. 10
   (b) Distinguish between- Diabetes insipidius and diabetes Mellitus. 6
6. Give a comparative account of vertebrate brain by emphasizing on functional anatomy of vertebrate brain. 16

Section-D

7. Explain the various free sensory receptors and Associated sensory receptors forms in Animals. 16
8. Explain the following in detail-
   (a) Function of cristae and maculae. 8
   (b) Jacabson's organ 8

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Exam Code: 211202 **Paper Code: 2237**

Programme: Master of Science (Zoology) Semester: II

Course Title: Applied Zoology – I (Invertebrates)

Course Code: MZOL-2482

Time Allowed: 3 Hours **Max Marks: 80**

Attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 16 marks.

Section A

Q1. Discuss the various species of honey bee used in apiculture and write a detail note on the social organization of colony. 16

Q2. Discuss the following

a) Products of bee keeping b) Flora for apiculture 8+8

Section B

Q3. Discuss the enemies of lac insect and host plants of lac industry in India. 16

Q4. Explain various diseases and pests of silkworm. 16

Section C

Q5. Give a detailed account on the processing and preservation of prawns. 16

Q6. Discuss the methods of prawn farming in detail. 16

Section D

Q7. Give an overview of conditions for efficient vermiculture. 16

Q8. Write in detail the various problems of pearl industry. 16

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Exam Code-211202 **Paper Code- 2238**

Master of Science (Zoology) Semester- II

Course Title - Evolution

Course code - MZOL-2483

Time Allowed: 3 Hours **Max Marks:** 80

Note: Attempt five questions in all, selecting atleast one question from each section. Fifth question can be attempted from any section. Each question carries equal marks. Draw diagrams wherever necessary.

Section A

1. a. Explain Homology and Analogy in favour of organic evolution. 8
   b. Discuss Lamarckism with suitable examples. 8

2. Explain origin of Eukaryotes from micro-molecules. 16

Section B

3. Discuss different types and causes of variations. 16

4. Explain following:
   a. Industrial Melanism 8
   b. Polymorphism 8

Section C

5. What is speciation? Discuss different types of speciation by giving suitable examples. 16

6. Explain kinds and causes of major extinctions. 16

Section D

7. State Hardy Weinberg's law of equilibrium. Discuss its significance and salient features. 16

8. Write short notes on:
   i. Evolution of Genome in Eukaryotes 8
   ii. Evolution of Horse 8