

G 5732

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION, JULY 2024

Course I—RESEARCH METHODOLOGY

(I-Common to the Stream : Science, Applied Science and Engineering)

[2020 Admission onwards]

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. Discuss in brief about the objectives of research.
2. What are the sources of literature review ?
3. Evaluate the importance of hypothesis in research.
4. Explain the different graphical representations of data.
5. What are the different types of variables ?
6. Write short notes on intellectual property system in India.
7. Mention emphasis topics of technical report. Write a general outline of a technical report.
8. Discuss the methodology of writing a research paper.
9. Explain how the Impact factor of a journal is calculated.
10. Describe the role of IAEC in the field of biological research.
11. Write a short note on application of MS Excel in research.
12. Write a note on citation indices.

(10 × 4 = 40 marks)

Part B

*Answer any one question.
The question carries 10 marks.*

13. What is Plagiarism ? Differentiate it from self-plagiarism. Name any two tools used to check it. State the basic principle behind these tools.
14. Write a detailed note on logical scientific research methods.

(1 × 10 = 10 marks)

G 5733

(Pages : 2)

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION, JULY 2024

Course I—RESEARCH METHODOLOGY

(II-Common to the Stream : Social Sciences, Management, Commerce, Law and Behavioural Sciences)

[2020 Admission onwards]

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. What is transformative paradigm ? Explain.
2. Write a note on Exploratory research.
3. Highlight the role of literature review in formulation of research problem.
4. Compare 'Interview' and 'Questionnaire' methods of data collection.
5. Differentiate between primary, secondary and tertiary data.
6. Define and explain the need for formulating a "Hypothesis".
7. Define "Population" and "Sample". Explain with examples the different techniques of sampling.
8. Write a short note on Measure of Central Tendency.
9. Discuss the organization of thesis and the important steps in thesis writing.
10. Discuss the usefulness of various software's in research.
11. Write a detailed note on T-test and F-test.
12. Explain the significance of ethics in writing the research report

(10 × 4 = 40 marks)

Turn over

Part B

Answer any one question.

The question carries 10 marks.

13. Define and discuss various types of Research design.
14. An experimenter wanted to study the relative effects of four drugs on the physical growth of rats. The experimenter took a group of 20 rats of same age group, from same species and randomly divided them into four groups, having five rats in each group. The experimenter then gave 4 drops of corresponding drug as a one dose to each rat of the concerned group. The physical growth was measured in terms of weight. After one month treatment, the gain in weight is given below. Determine if the drugs are effective for physical growth ?

(1 × 10 = 10 marks)

G 5734

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION, JULY 2024

Course I—RESEARCH METHODOLOGY

(III-Common to the Stream : Languages)

{2020 Admission onwards}

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions.

Each question carries 4 marks.

1. Define and describe the transformative paradigm in research.
2. Why is the review of literature for research very important ?
3. What are limitations and delimitations of research ?
4. What is anthology in research ? Explain.
5. Discuss the use of conference proceedings in language research.
6. Write a note on the comparative method of research.
7. In what way analysis of document or content helps in language research? Explain
8. Explain the types and techniques of data collection.
9. What is transliteration in research methodology ? Explain.
10. Explain the role of search engines in research.
11. Define Bibliography, What are the steps to be followed in the preparation of a Bibliography ?
12. What are the general principles of writing the thesis ?

(10 × 4 = 40 marks)

Part B

Answer any one question.

The question carries 10 marks.

13. Explain in detail the applied methods and techniques of research.
14. Write a detailed note on the contributions of early writers in research.

(1 × 10 = 10 marks)

Ph.D. COURSEWORK EXAMINATION IN ARABIC JULY 2024

Course II—THEORY AND CONCEPT - ARABIC

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions in Arabic or English.

Each question carries 4 marks.

- 1- هل كانت المسرحمة أصول عند العرب ؟
كيف وصلت إلى العالم العربي ؟
- 2- ماهي خصائص الأدب الموهجر ؟
- 3- بين عن مكانة الأسواق في الجاهلية
- 4- أو صنع الأعراق الشعرية الجديدة التي
ظهرت في أيام الأموي
- 5- ماهي أنواع الشعر الجاهلي ومميزاته ؟
- 6- بين عن خصائص جبران خليل جبران العامة
- 7- ابحث العناصر الإسلامية والغربية في

Turn over

مؤلفات نجيب محفوظ .

8- ما هو الفرق بين القصة والرواية ؟

9- اذكر عن تأسيس حركة أبولو ومساهماتها

في تطور الأدب العربي الحديث .

10- ابحث عن تأخير التيارات الأدبية

الحديثة في الأدب العربي الحديث
11- بين عن حالة الديتية في شبه الجزيرة العربية

قبل ظهور الإسلام - 12- ما هي العلاقات ؟
(10 × 4 = 40 marks)

Part B

Answer any **one** question in Arabic or English.

The question carries 10 marks.

13- المدح والمهجاء والفخر والحكمة

في شعر المتنبي .

14- تطور الفن القصص في الأدب العربي الحديث .

(1 × 10 = 10 marks)

**Ph.D. COURSEWORK EXAMINATION IN BIOSCIENCE/PHARMACY/
BIOCHEMISTRY/MICROBIOLOGY/BIOTECHNOLOGY, JULY 2024**

Course II—THEORY AND CONCEPT – BIOSCIENCES

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. Explain the medium of animal cell culture.
2. What is the screening method of antitumour drugs ?
3. Define immuno-fluorescence. What are the different types and its advantages ?
4. What is the principle involved in Electrophoresis ?
5. Discuss the significance of free radicals in Biology - add a note on oxidative stress and human diseases.
6. Define centrifugal force and relative centrifugal force.
7. Explain C_{13} NMR and its use in the characterisation of organic compounds.
8. Explain what is direct and indirect ELISA.
9. Write a note on non-enzymatic anti oxidants.
10. Define Chromatography. Explain the normal and reverse phase Chromatography.
11. What is the role of Massspectroscopy in protein characterisation ?
12. Explain the technique for plant transformation.

(10 × 4 = 40 marks)

Part B

*Answer any one question.
The question carries 10 marks.*

13. Discuss the various methods used for molecular marker analysis. Explain each method enlightening the merits.
14. Explain the general methods for isolation, purification and identification of phyto constituents.

(1 × 10 = 10 marks)

G 5737

Reg. No......

Name.....

Ph.D. COURSEWORK EXAMINATION IN BOTANY, JULY 2024

Course II—THEORY AND CONCEPT—BOTANY

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. Write a short note on affinity chromatography and its application.
2. Explain Henderson-Hasselbalch equation.
3. Write a short note on GCMS.
4. Describe different methods of enzyme regulation.
5. Briefly describe ELISA.
6. Explain the principle of electron microscope and illustrate it.
7. Explain the role of plant growth promoting Rhizobacteria.
8. What is the significance of root culture in secondary metabolite production ?
9. Explain different secondary metabolites in plants and their classification.
10. Write a short note on transgenic animals and CPCSEA guidelines.
11. What are the methods phytoremediation ?
12. Describe Radioimmunoassay.

(10 × 4 = 40 marks)

Part B

*Answer any one question.
The question carries 10 marks.*

13. What are the different methods to express concentration of solutions ?
14. Explain various techniques in taxonomy.

(1 × 10 = 10 marks)

G 5738

(Pages : 3)

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN CHEMISTRY JULY 2024

Course II—THEORY AND CONCEPT - CHEMISTRY

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions.

Each question carries 4 marks.

1. a) Account for the peak at 7.24 ppm for CDCl_3 . When used as a solvent in $^1\text{H-NMR}$ even though it does not have hydrogen.
b) Why ethyl alcohol is considered as the best solvent for UV spectroscopy ?
c) What is the selection rule for NQR spectroscopy ?
2. a) What is the principle of Auger Electron Spectroscopy ?
b) Discuss the primary ion sources of Secondary ion mass spectrometry.
c) Describe the instrumentation of X-ray photoelectron spectroscopy.
3. a) Discuss the various deflection-measurement methods of Atomic force microscopy.
b) What is the difference between scanning probe microscopy and scanning tunneling microscopy ?
c) Discuss the use of Fourier Transformation in microscopy.
4. a) Distinguish between Static force thermo-mechanical analysis and Dynamic force thermo-mechanical analysis.
b) What are the advantages of DTA over TGA ?
c) Discuss the steady-state method for the measurement of thermal conductivity.
5. a) What are the detectors used in HPLC ?
b) Discuss the industrial applications of Ion Exchange Chromatography.
c) Discuss the criteria for the choice of column for Gas chromatography.

Turn over

6.
 - a) What are the sources of X-ray diffractometer ?
 - b) What is dynamic light scattering method ?
 - c) What is principle of turbidimetry ?
7.
 - a) Describe the basic instrumental components of Vapor pressure osmometry.
 - b) Discuss the applications of Membrane Osmometry.
 - c) What is the principle of operation of Differential refractometry ?
8.
 - a) Why is impedance spectroscopy important ?
 - b) What is meant by surface resistivity ? How is it measured ?
 - c) What is the cause of dielectric loss ?
9.
 - a) What are the compression properties of materials ?
 - b) What are the different types of flexural tests ?
 - c) What is creep and stress relaxation in metals ?
10.
 - a) What Are Newtonian and Non-Newtonian Fluids ?
 - b) List out the advantages and disadvantages of capillary rheometer.
 - c) What is the operating principle of rotational rheometer ?
11.
 - a) What do you mean by luminescence ?
 - b) List out the instruments which use the refraction of light ?
 - c) What are gloss and haze ?
12.
 - a) What is 'g' factor in ESR spectroscopy? What is its significance ?
 - b) Which thermal analysis study is the best for the determination of glass transition temperature ? Why ?
 - c) What are the advantages of using TEM ?

(10 × 4 = 40 marks)

Part B

Answer any one question.

The question carries 10 marks.

13. a) Explain the various types of ionizers used in mass spectroscopy.
b) Explain the principle and instrumentation of differential scanning calorimetry.
14. a) What is Size Exclusion Chromatography ? Discuss its principle and applications.
b) Explain the different types of X-ray diffraction techniques.

(1 × 10 = 10 marks)

Ph.D. COURSEWORK EXAMINATION IN COMMERCE JULY 2024**Course II—THEORY AND CONCEPT - COMMERCE****(2020 Admission onwards)****Time : Three Hours****Maximum : 50 Marks****Part A**

*Answer any ten questions.
Each question carries 4 marks.*

1. Explain the features of globalization.
2. Write a note on WTO.
3. List the factors affecting capital structure.
4. Write a note on the recent development in Financial Markets.
5. What is Branding ? State its objectives.
6. What is market segmentation ? Describe factors that determine market segmentation for consumer durables in emerging economies.
7. What is customer value creation ? Explain marketing strategies for customer value creation with apt examples.
8. Differentiate between job description and job specification.
9. What is Human Resource Planning ? Briefly discuss the Human Resource Planning process.
10. Highlight the various methods adopted by industries for maintaining sound employer-employee relations.
11. Write a note on International Financial Reporting Standard.
12. What is Corporate Restructuring ? Explain.

(10 × 4 = 40 marks)**Part B**

*Answer any one question.
The question carries 10 marks.*

13. What is Performance appraisal ? Discuss the modern methods of Performance appraisal.
14. What is risk management ? What are the ways to manage risks ? Explain.

(1 × 10 = 10 marks)

G 5740

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN COMPUTER SCIENCE JULY 2024

Course II—THEORY AND CONCEPT - COMPUTER SCIENCE

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions.

Each question carries 4 marks.

1. Differentiate between agglomerative and divisive clustering techniques.
2. Explain the principal component analysis for dimensionality reduction.
3. Explain Hidden Markov model and its role in the classifier design.
4. Explain about fundamental steps of Image Processing.
5. Write about Image Smoothing and Sharpening.
6. Define the term Web Security. Explain SET and E-mail Security in Web Security.
7. What is meant by Ciphers ? Explain different types of Ciphers in Cryptography.
8. Explain Kerberos in Network Security Applications.
9. How is frequent pattern mined ? Explain the Apriori algorithm with an example.
10. Explain different types of hierarchical clustering methods.
11. State and explain various issues in Cloud Computing.
12. Explain in detail the various threats to Cloud Infrastructure.

(10 × 4 = 40 marks)

Part B

Answer any one question.

The question carries 10 marks.

13. Explain in detail about Cryptographic Protocols and Standards.
14. Explain the importance of data pre-processing in pattern recognition. Describe the common data pre-processing techniques and illustrate each with an example.

(1 × 10 = 10 marks)

G5741

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN ECONOMICS JULY 2024

Course II—THEORY AND CONCEPT - ECONOMICS

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any **ten** questions.*

Each question carries 4 marks.

1. Explain the concept of moral hazard.
2. Discuss some applications of chaos theory in Economics.
3. Explain the principal-agent problem in the context of hidden action.
4. Explain the relevance of Portfolio Theory.
5. What are the key features of endogenous growth-theories ? Explain.
6. What is disequilibrium in economic theory ? Explain.
7. What is Financial Inclusion ? Explain.
8. What are the core concepts of dependency theory in economics ?
9. Explain, the Relevance of New Institutional Economics.
10. Outline the policy framework regarding Foreign Direct Investment (FDI) in India.
11. Describe the main features of India's fiscal policy in recent years.
12. What are some challenges governments faces when implementing Pigovian taxes ?

(10 × 4 = 40 marks)

Part B

*Answer any **one** question.*

The question carries 10 marks.

13. Discuss in detail Paul Krugman's contribution to International Trade Theory.
14. Evaluate the effectiveness of social safety networks in India. Discuss how these programs aim to provide economic security and alleviate poverty.

(1 × 10 = 10 marks)

G 5742

(Pages : 2)

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN EDUCATION JULY 2024

Course II—THEORY AND CONCEPT - EDUCATION

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. Explain the role of Indian Philosophers in value education.
2. What do you mean by "Intelligence" ? Describe its theories with reference to Multiple Intelligence.
3. What is Personality ? Write the importance of personality measurement.
4. Describe how Rogers' theory of personality can be applied in a classroom setting to enhance student learning and development.
5. Explain how Daniel Goleman's theory of Emotional Intelligence can be applied in a classroom setting to enhance student learning and development.
6. How can technology-enhanced learning improve student engagement and participation in the classroom.
7. What key elements should be included in a detailed lesson transcript to ensure clarity and effectiveness ?
8. What are the primary benefits of using concept mapping as a teaching tool in the classroom?
9. Explain the key characteristics of effective classroom assessments and their impact on student learning.
10. Discuss the role of project-based learning (PBL) in modern curriculum development and its impact on student engagement and learning outcomes.
11. What is knowledge management in the context of primary education, and why is it important ?
12. Define inclusive education and explain its importance in primary education.

(10 × 4 = 40 marks)

Turn over

Part B

Answer any one question.

The question carries 10 marks.

13. Discuss in detail, the issues, problems and remedial measures of primary education in Kerala.
14. Explain in detail the modern teaching models.

(1 × 10 = 10 marks)

G 5743

Reg. No.....

Name.....

Ph.D. COURSE WORK EXAMINATION IN ELECTRONICS JULY 2024

Course II—THEORY AND CONCEPT—ELECTRONICS

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. The resistivity of a pure silicon at room temperature is 3000 ohm-m. Calculate the Intrinsic carrier density.
2. Give an account of Czochralski process of single crystal growth.
3. Explain different polarization processes in dielectric materials.
4. With a neat diagram explain the crystal structure of yttrium-barium-copper oxide.
5. Distinguish between multiplexing and multiple access.
6. What are the advantages and disadvantages of TDMA.
7. Explain the principle and working of a successive A/D converter.
8. With the help of a block diagram, explain the working of a microwave LOS transmitter.
9. What is PBX and EPABX ?
10. Explain the role of DFT in digital signal processing.
11. Briefly explain twin tub process.
12. What are super conducting materials ?

(10 × 4 = 40 marks)

Part B

*Answer any one question.
The question carries 10 marks.*

13. Briefly describe Frequency Division Multiple Access (FDMA).
14. (i) Briefly discuss the Fermi level in an intrinsic semi conductor.
(ii) Write a short note on Junction Lasers.

(1 × 10 = 10 marks)

G-5744

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN ENGLISH JULY 2024

Course II—THEORY AND CONCEPT - ENGLISH

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions.

Each question carries 4 marks.

1. Define Colonialism and Postcolonialism with reference to important thinkers in the contemporary Literature.
2. How do Adorno and Horkheimer contest Kant and the positivity of Enlightenment ?
3. Discuss the significance of language in the cultural resistance movement as outlined by Panikkar.
4. Analyze Eagleton's critique of postmodernism. What are his main concerns ?
5. Explain Structuralism in Literature with examples from important thinkers.
6. How did the ideas of Post Structuralism transform Literature ?
7. Explain the Marxist approach to Literature with their assumptions.
8. Write a note on Spivak's key ideas in Feminism and cultural theory.
9. Explain Homi Bhabha's concept of hybridity. How does it challenge traditional notions of cultural identity ?
10. How does Said connect the concepts of 'culture' and imperialism ?
11. What does Benedict Anderson mean by the term "imagined community" ?
12. Analyze Anderson's view on the role of language in the construction of national identity.

(10 × 4 = 40 marks)

Part B

Answer any one question.

The question carries 10 marks.

13. Examine in detail new criticisms relation to modernism.
14. Discuss the contributions of Cultural Materialism to the study of literature and culture.

(1 × 10 = 10 marks)

G 5745

(Pages : 2)

Name.....

Reg. No.....

Ph.D. COURSE WORK EXAMINATION IN HINDI, JULY 2024

Course II—THEORY AND CONCEPT—HINDI

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

खंड 'क'

किन्हीं दस प्रश्नों के उत्तर लिखें।

*Answer any ten questions.
Each question carries 4 marks.*

1. बाज़ारवाद और सांस्कृतिक संकट पर विचार करें।
2. उत्तराधुनिक साहित्यिक विमर्श की चर्चा करें।
3. उत्तराधुनिक समाज और विज्ञापन पर विचार करें।
4. संरचनावाद।
5. अजनबीपन।
6. मार्क्सवादी साहित्य-चिंतन।
7. हिन्दी साहित्य पर सोशल मीडिया के प्रभाव पर प्रकाश डालिए।
8. हिन्दी साहित्य में पारिस्थितिक स्त्रीवाद।
9. समकालीन हिन्दी कहानी का शिल्पमत् वैशिष्ट्य।
10. प्रभा खेतान के उपन्यास में चित्रित भूमण्डलीकृत स्त्री पर विचार करें।
11. 'समकालीन हिन्दी उपन्यास में वृद्ध विमर्श'—निर्मल वर्मा और चित्रा मुद्गल के उपन्यासों के आधार पर उक्त कथन की आलोचना कीजिए।
12. 'उदय प्रकाश की कहानी उत्तराधुनिक संस्कार का दस्तावेज कहा जाता है' पठित कहानियों के आधार पर उक्त मंतव्य का समर्थन कीजिए।

(10 × 4 = 40 marks)

Turn over

अंड 'अ'

किसी एक प्रश्न के उत्तर निबन्ध रूप में लिखें ।

Answer any one question.

The question carries 10 marks.

13. समकालीन हिन्दी उपन्यास में अस्मितामूलक विमर्श विषय आलोचनात्मक लेख लिखें ।
14. भूमण्डलीकरण की चुनौतियाँ विषय पर विद्यारत्मक निबंध लिखें ।

(1 × 10 = 10 marks)

G 5746

(Pages : 2)

Reg. No.....

Name.....

Ph.D. COURSEWORK EXAMINATION IN HISTORY JULY 2024

Course II—THEORY AND CONCEPT - HISTORY

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

Answer any ten questions.

Each question carries 4 marks.

1. Environmental history is the study of human interaction with the natural world in influencing human affairs and vice versa. Explain
2. Bring out the difference between Micro and Macro history with suitable examples.
3. Examine the new perspectives on historical writings.
4. Did Objectivity become possible in historical writings ?
5. Estimate the difference between Post-Structuralism and Post Modernism.
6. Discuss the role of economic development, land ownership, and class conflict in pre-colonial India in deciding the Marxian historiography.
7. Review the works of Bipan Chandra in the context of Indian nationalism.
8. Describe the salient aspects of structuralism and its approach to geography.
9. Discuss the recent trends of nationalism as presented by Eric Hobsbawm.
10. Trace the works of third generations of the Annales School and their attitude for gender equality.
11. What are the works of Partha Chatterjee ?
12. Critically evaluate the outstanding features of subaltern studies and its impact on recent trends in history.

(10 × 4 = 40 marks)

Turn over

Part B

Answer any one question.

The question carries 10 marks.

13. Assess the significance of Oral history in the reconstruction of main stream history as propounded by Jan Vansina.
14. How did Ranajit Guha contribute for the evolution of a new historiographical tradition in India ?

(1 × 10 = 10 marks)

G 5747

Reg. No.....

Name.....

PH.D. COURSE WORK EXAMINATION IN ISLAMIC HISTORY JULY 2024

Course II—THEORY AND CONCEPT—ISLAMIC HISTORY

(2020 Admission onwards)

Time : Three Hours

Maximum : 50 Marks

Part A

*Answer any ten questions.
Each question carries 4 marks.*

1. Elaborate the evolution of religio-political concepts in Islam with special emphasis on scholasticism.
2. Elaborate the concepts of structuralism and post structuralism..
3. Illuminate the contribution of Ibn Rushd in Islamic Scholasticism.
4. Evaluate the contribution of Ranajit Guha in subaltern studies.
5. Identify the relationship between feminist history and women's history.
6. Define the term Islamic Modernism and assess its prospects in the contemporary Islamic world.
7. Evaluate the significance of diplomatic history in a historical study.
8. Define positivism as a scientific method.
9. Explain the application of Marxist dialectic in historical materialism.
10. Intricate the theory of ethics as enunciated by Al Ghazzali.
11. Identify Mappila literature as an alternative literacy movement.
12. Elaborate peculiar features of the Indo-Islamic architecture.

(10 × 4 = 40 marks)

Part B

*Answer any one question.
The question carries 10 marks.*

13. Explicate the prominence of "Tahfatul Mujahideen" in the history of Kerala Historiography.
14. Compare and contrast the cultural history with religious history with special emphasis on the peculiar feature of Islamic History.

(1 × 10 = 10 marks)