R–3341

Sub. Code
421201/ 422201

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Tamil

தமிழ் உரைமரபுகள்

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

ஐந்து வினாக்களுக்கு விடையளிக்க.

(5 × 15 = 75)

1. (அ) உரையின் தோற்றமும் வளர்ச்சியும் குறித்து விவரிக்க.

(அல்லது)

(ஆ) உரைகாணத் துணையாகும் நோக்கு முறை குறித்து விவரிக்க.

2. (அ) இலக்கண உரையின் வகைகள் குறித்து விளக்கியுரைக்க.

(அல்லது)

(ஆ) இளம்பூரணரின் உரைத் திறன் குறித்து தொல்காப்பியம் வழி புலப்படுத்துக.

3. (அ) இலக்கிய உரையாசிரியர்கள் குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) பத்துப்பாட்டு உரைகளின் சிறப்புக் குறித்து விளக்கி எழுதுக.

4. (அ) திருக்குறள் உரையாசிரியர்கள் குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) "பரிமேலழகர் தமிழிலக்கியங்களை ஆழ்ந்து கற்றுத்தேர்ந்த புலமையாளர்" என்பதை அவர் உரை கண்ட நூல்கள் வழி புலப்படுத்துக.

5. (அ) சைவ நூல் உரையாசிரியர்கள் குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) பெரியவாச்சான் பிள்ளையின் உரைச் சிறப்புக் குறித்துக் கட்டுரை வரைக.

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R–3342

Sub. Code
416201/ 417201

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

History

SOCIO-CULTURAL HISTORY OF TAMIL NADU

(CBCS 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) Mention the Social, Economic and Cultural life of Nawabs of Carnatic.

Or

(b) Analyse the contribution of European Scholars to Tamil Literature.

2. (a) Describe the significance and impact of Carnatic Wars.

Or

(b) Write an essay of Missionaries to Tamil Literature.

3. (a) Critically analyse the contribution of Justice Party in Tamil Nadu.

Or

(b) Write and essay about self respect movement of Periyar.

4. (a) Write an essay on C.N. Annadurai Administration.

Or

(b) Narrate the Tamil Renaissance.

5. (a) Narrate the Agricultural Development since 1947.

Or

(b) Discuss the educational development after Independence in India.

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R–3343

Sub. Code
456201/ 457201

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Economics

CONTEMPORARY ISSUES IN INDIAN ECONOMIC DEVELOPMENT

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) Discuss the growth of India's foreign trade in the world economy.

Or

(b) Explain the recent trends in Inflation related issues and fiscal reforms.

2. (a) Discuss the growth pattern of India's Industry since liberalization.

Or

(b) Critically examine the role of Infrastructure and the various factors promoting investment in Infrastructure.

3. (a) Explain the trends in production and productivity of Crops.

Or

(b) Elaborate the role of Agricultural Exports in the Indian Economy.

4. (a) Critically examine Tendulkar's methodology on poverty estimation.

Or

(b) Explain the impact of MGNREGS on Employment, Wages and Poverty, the rural India.

5. (a) Critically examine the various issues related to Self-Help Groups.

Or

(b) Examine the impact of PDS on Poverty.

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R–3344

Sub. Code
460201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Social Work

CONTEMPORARY ISSUES IN SOCIAL WORK AREA OF SPECIALIZATION : COMMUNITY DEVELOPMENT

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Highlight any one problem faced by rural communities in Tamil Nadu and propose Social Work intervention.

Or

(b) Write a critical note on the impact of Globalisation on Indian Communities.

2. (a) "Caste is an integral social element in Rural Communities". Comment how it hampers the development of rural communities.

Or

(b) Explain the role of international voluntary organisations in community development.

3. (a) Discuss in detail the various approaches in Urban development.

Or

(b) Write a brief note on urban Governance structure in India and its effectiveness in service delivery.

4. (a) What are the recent trends in Urban Community development? Substantiate them based on your field work experience.

Or

(b) Comment on the relevance of professional social work practice in Community Development initiatives in India.

5. (a) Explain the significance of "integrated Tribal Development Project" in Tribal Community Development.

Or

(b) Discuss any five Urban Development in programmes in detail.

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R–3345

Sub. Code
460202

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Social Work

CONTEMPORARY ISSUES IN SOCIAL WORK AREA OF SPECIALIZATION : HUMAN RESOURCE MANAGEMENT

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Explain the dimensions, process and need for Human Resource planning.

Or

(b) Discuss the evolution of Human Resource Management in India.

2. (a) Enumerate and explain the current trends in Compensation Management.

Or

(b) Write a note on the processes involved in training need analysis.

3. (a) Assess the various technique involved in Performance Appraisal from your field experience.

Or

(b) Write a note on Employee engagement in HR Planning.

4. (a) Explain the process involved in managing Organisational change.

Or

(b) Discuss the strategies and approaches to impart planned change in an organisation.

5. (a) Discuss the growth and evolution of CSR in India.

Or

(b) Discuss the various parameters for quality assessment in HR.

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R–3346

Sub. Code
466201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Geology

RECENT ADVANCES IN SEDIMENTOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

All questions carry equal marks.

1. (a) Write a detailed note on structures of sedimentary rocks with neat sketches.

Or

(b) Write an essay about the classification of sandstone with neat sketches.

2. (a) Discuss about the texture of sedimentary rocky and its application.

Or

(b) Discuss about the process of diagenesis and lithification.

3. (a) Write a detailed note on grain size analysis and their geological significance.

Or

(b) Discuss about heavy mineral analysis and its usefulness in understanding the provenance.

4. (a) Write detailed note on origin of Coal.

Or

(b) Give an account on Tectonic evolution of sedimentary basins.

5. (a) Give a detailed account on working principle and application of XRF.

Or

(b) Discuss about mapping of sedimentary rocks using geospatial technology.

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R–3347

Sub. Code
505104

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Bioinformatics

RESEARCH AREA SPECIALIZATION

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

All questions carry equal marks.

1. (a) Write about the different methods for protein structure refinement and validation method. Explain in details about the Ramachandran Plot.

Or

(b) Define a Phase problem and discuss about isomorphism replacement and heavy atom methods employed in solving the phase problem.

2. (a) Write about the use of Genetic Algorithms. Neural Networks and Principle Components Analysis used in QSAR equations.

Or

(b) What are the different methods implemented for Computer Aided Drug Designing (CADD)? Mention the criteria and also the steps involved for each method.

3. (a) Give an account on role of bioinformatics in pharmacogenomics.

Or

(b) Write the differences between Classical and Non-Classical Pharmacogenomics. Write a few advantages as well as limitations of pharmacogenomics.

4. (a) Write an essay on Growth factor delivery in tissue engineering.

Or

(b) Discuss the bioinformatics application towards the CRISPR Cas9 technology.

5. (a) Explain the basic principle and theory of differential scanning calorimetry.

Or

(b) Describe the following :

(i) Column chromatography

(ii) Ion exchange chromatography

(iii) Thin layer chromatography.

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R–3348

Sub. Code
516201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Media and Communication

ELECTRONIC MEDIA

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) History and evolution of Radio as a mass media – Discuss in detail with examples.

Or

(b) What are the programme formats followed in radio medium? Explain each format with samples.

2. (a) Growth and development of Doordarshan in India – Elaborate its each stage.

Or

(b) Examine the Indian broadcasting laws and their effects in the media industry.

3. (a) Sketch out and explain the structure of studio and their functions.

Or

(b) Write a detailed note on Lighting for television and video production.

4. (a) What is television production process? Explain the various stages of production and their importance.

Or

(b) Multi-camera production – Why it is used for production? Discuss its technical aspects and advantages.

5. (a) Discuss in detail about different types of applications of multimedia and their benefits.

Or

(b) What are the various types of animation? Explain each type with suitable examples.

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R–3349

Sub. Code
519201/ 520201

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Zoology

ANIMAL BIOTECHNOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Give an account on tools used in genetic engineering.

Or

(b) What are the molecular techniques used in disease diagnosis?

2. (a) What are the methods used for the isolation of proteins?

Or

(b) Write a note on molecular cloning vectors.

3. (a) Describe about the Southern Blotting technique.

Or

(b) Give a brief sketch of recombinant DNA technology.

4. (a) What are the methods used for gene transfer in animals?

Or

(b) Write about Human genome project and its importance.

5. (a) Describe about the techniques used in embryonic stem cell culture.

Or

(b) What are the uses of stem cell culture?

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R–3350

Sub. Code
526201/ 527201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Botany

PHYSIOLOGY OF PLANT PATHOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Describe in detail on the classification of plant diseases with examples.

Or

(b) Give a detailed account on the general characteristics of plant pathogens and their effects on plants with examples.

2. (a) Describe the growth and reproduction in plant pathogens.

Or

(b) Write detailed notes on the influence of Abiotic factors on plant disease development.

3. (a) What is inoculum? Explain the role of Inoculum in pathogens.

Or

(b) Write an essay on the dissemination of plant pathogens and their significances.

4. (a) Describe the processes involved in infection.

Or

(b) Write an account on the effects of nutrients and environment on disease development.

5. (a) Write an elaborate note on plant quarantine system and its significance.

Or

(b) Discuss in detail on the different practices involved in plant disease management.

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R–3351

Sub. Code
552551/ 561551/ 562551

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Computer Science/Computer Application

INFORMATION AND NETWORK SECURITY

(Common for Dept. of Computer Science/Dept. of Computer Application)

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) Discuss about Vernam Cipher with example.

Or

(b) Explain in detail about Classical Encryption methods with example.

2. (a) Discuss Briefly about DES Algorithm.

Or

(b) Explain Elliptic Curve Cryptography.

3. (a) Elaborate Attacks on Flash Functions.

Or

(b) What is Steganalysis? Discuss about various Applications of Steganography.

4. (a) Explain about Entity Authentication Techniques.

Or

(b) What are the Technological Issues in Biometric Systems? Explain it.

5. (a) In What way, Virus, Malware and Worms are affecting the system? Explain it in detail.

Or

(b) Elaborate Network Security.

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R–3352

Sub. Code
552553

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Computer Science

DATA WAREHOUSING AND MINING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) How to build Data Warehouse? Explain it in detail.

Or

(b) How to Map Data Warehouse to Multiprocessor Architecture? Explain.

2. (a) Elaborate OLAP.

Or

(b) Explain about Multidimensional Data Model.

3. (a) Explain in detail about classification of Data Mining Systems.

Or

(b) Explain briefly about Data Mining Functionalities.

4. (a) Explain Bayesian Classification with example.

Or

(b) How to mine various kinds of Association Rules? Discuss it.

5. (a) Discuss in detail about Data Mining Applications.

Or

(b) Explain briefly about Outlier Analysis.

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R–3353

Sub. Code
552560

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Computer Science

WEB DATA MINING

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

Each question carries 15 marks.

1. (a) Explicate the followings concepts and demonstrate practical application with examples.

(i) Basic concepts of association rules (7)

(ii) Apriori algorithm for association rule mining. (8)

Or

(b) (i) Define web data mining. Discuss on basic concepts of Sequential Patterns. (7)

(ii) Critically explain the practical application of Mining sequential patterns on GSP and on PrefixSpan. (8)

2. (a) What do mean by Supervised Learning? Demonstrate the application of decision tree and its concepts.

Or

(b) (i) Explain the Classification based on Association. Use examples to explain. (7)

(ii) Discuss on Naïve Bayesian Classification. (8)

3. (a) Explain Vector Space Model and Statistical Language Model. Summarize its applications and compare.

Or

(b) Discuss on the Inverted index and its compression. Use appropriate examples in the discussion.

4. (a) Analyze the following algorithms and techniques with its applications.

(i) Page Rank algorithm (5)

(ii) HITS algorithm (5)

(iii) Community Discovery. (5)

Or

(b) (i) Why do we need Crawler algorithms? Judge based on its applications. (7)

(ii) Give brief notes on Breadth First Crawler and preferential Crawlers. (8)

5. (a) Discuss on the following mining concepts. Give your analysis report on why do we need these mining techniques.

(i) Opinion Mining (5)

(ii) Sentiment Classification (5)

(iii) Classification based on Sentiment Phrases. (5)

Or

(b) Illustrate the sources and types of data. Give your brief explanation on different types of data processing methodologies and its practical usages with examples.

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R–3354

Sub. Code
571203/572203

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Mathematics

MEASURE THEORY

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

1. (a) (i) If $f_n : X \to [0, \infty]$ is measurable, for each positive integer n, then prove that

$$\int_X \left(\liminf_{n\to\infty} f_n\right) d\mu \le \liminf_{n\to\infty} \int_X f_n d\mu .$$

(ii) If suppose that $f : X \to [0, \infty]$ is measurable, and $\varphi(E) = \int_E f \, d\mu \; (E \in \mathfrak{M})$.

Then prove that φ is a measure on $\mathfrak{M}$, and

$$\int_X g d\varphi = \int_X g f \, d\mu .$$

For every measurable g on X with range in $[0, \infty]$.

Or

(b) (i) If f and $g \in L^1(\mu)$ and α and β are complex numbers. Then prove that $\alpha f + \beta g \in L^1(\mu)$ and $\int_X (\alpha f + \beta g) d\mu = \alpha \int_X f \, d\mu + \beta \int_X g \, d\mu$.

(ii) State and prove Lebesque's monotone convergence theorem.

2. (a) State and prove Riesz representation theorem.

Or

(b) Let X be a locally compact Hausdorffspace in which every open set is σ-compact. If λ be any positive Borel measure on X such that $\lambda(K) < \infty$ for every compact set. K, then show that λ is regular.

3. (a) (i) If X is a locally compact Hausdorff space, then prove that $C_0(X)$ is the completion of $C_c(X)$relative to the metric defined by the supremum norm.

$\|f\| = \sup_{x \in X} |f(x)|$.

(ii) State and prove Jensen's inequality.

Or

(b) Let S be the class of all complex, measurable, simplex functions on X such that

$\mu(\{x : s(x) \neq 0\}) < \infty$.

If $\leq p < \infty$, then show that S is dense in $L^p(\mu)$.

4. (a) State and prove Hahn decomposition theorem.

Or

(b) If suppose that $1 \leq p < \infty$, μ is a c-finite positive measure on X, and Φ is a bounded linear functional on $L^p(\mu)$, then show that there is a unique $g \in L^q(\mu)$, where q is the exponent conjugate to p, such that

$$\Phi(f) = \int_X f\ g\ d\mu\ (f \in L^p(\mu))$$

Morever $\|\Phi\| = \|g\|_q$.

5. (a) Let $(X, \mathcal{S}, \mu)$ and $(Y, \mathcal{T}, \lambda)$ be $\sigma-$ finite measure spaces. Suppose $Q \in \mathcal{S} \times \mathcal{T}$ .If $(\varphi(x)) = \lambda(Q_x)$, $\psi(y) = \mu(Q^y)$ for every $x \in X$ and $y \in Y$, then show that φ is $\mathcal{S}$ -measurable, ψ is $\mathcal{T}$ -measurable, and

$$\int_X \varphi\, d\mu = \int_Y \psi\ d\ \lambda\ .$$

Or

(b) Suppose that , $f : [X \to \infty]$ and μ be a σ-finite positive measure, that $\varphi : [0, \infty] \to [0, \infty]$, is monotonic, absolutely continuous on [0, T] for every $T < \infty$ and $\varphi(0) = 0$ and $\varphi(t) \to \varphi(\infty)$ as $T \to \infty$. Then show that $\int_X (\varphi \circ f)\, d\mu = \int_0^\infty \mu\{f > t\}\ \varphi'(t)\ dt$.

R–3355

Sub. Code
581201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Physics

MATERIALS SCIENCE OF THIN FILMS

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Give detailed explanation of physical and chemical parameters taken in account for deposition of uniform thin film.

Or

(b) (i) Write a note on web coating.

(ii) Give brief account of ion beam assisted evaporation.

2. (a) Discuss in detail about metal organic chemical vapor deposition technique with Necessary diagrams.

Or

(b) Write short note on each of the following deposition processes

(i) Laser Enhanced CVD deposition

(ii) Low pressure CVD.

3. (a) Describe in detail the models for evaporated and sputtered coatings.

Or

(b) (i) Write a note on grain growth mechanism.

(ii) Describe microtexture in thin films.

4. (a) What are the types of optical methods employed to measure the film thickness? Describe any one of them in detail.

Or

(b) Explain any two characterization techniques employed for structural characterization.

5. (a) Describe in detail about the X-ray energy dispersive analysis. How does this method help to identify the composition of the thin films?

Or

(b) Explain in detail the usages of Auger electron spectroscopy in thin film characterization.

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R–3356

Sub. Code
581202

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Physics

SOLID STATE IONICS

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer ALL questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Describe in detail (i) superionic material (ii) crystalline anionic and cationinc conductors.

Or

(b) Explain how does the structural factors responsible for high ionic conductivity.

2. (a) Describe in details about anode materials used in the lithium based batteries.

Or

(b) Explain in detail about recent trends in cathode material synthesis and state how the particle size plays the role in the conventional device.

3. (a) Define SEI. Write the main principles and routes of the SEI formation.

Or

(b) Elaborate the role of the polymeric electrolyte in lithium batteries. Write down its advantages over liquid electrolyte.

4. (a) Describe the usefulness of X-ray and neutron scattering in the superionic conductor.

Or

(b) Describe Fourier-transform infrared spectroscopy and its usefulness in the analysis of superionic conductor.

5. (a) Write note on battery performances and electrode kinetics in solid state batteries.

Or

(b) Enumerate the different types of fuel cell and its applications.

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R–3357

Sub. Code
581203

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Physics

CRYSTAL GROWTH AND CHARACTERIZATION

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

(5 × 15 = 75)

Answer **all the** questions.

All questions carry equal marks.

1. (a) (i) Write short note on crystal symmetry and space lattice.

(ii) Give brief account of nucleation and critical size.

Or

(b) (i) Write the classification of crystal growth.

(ii) Describe the defects, grain boundary and dislocation in the grown crystal.

2. (a) Explain in detail about important parameters taken care to grow good quality single crystal.

Or

(b) (i) Write short note on Distillation and Sublimation.

(ii) Write short note on liquid chromatography and zone melting.

3. (a) Write in detail about the U tube and straight tube methods.

Or

(b) Demonstrate the role of Mier's solubility diagram in crystal growth.

4. (a) (i) Explain Bridgeman technique with necessary diagram.

(ii) Explain hydrothermal technique with necessary diagram.

Or

(b) (i) State the principles of flux growth.

(ii) Summarize the different flux growth techniques.

5. (a) (i) Describe in detail about the crystal cutting and polishing techniques.

(ii) Write the essentials needs of crystal cutting and polishing techniques.

Or

(b) Give qualitative account of available scientific instruments to study the optical, thermal and mechanical properties of the grown single crystal.

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R–3358

Sub. Code
581204

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Physics

NANO SCIENCE AND TECHNOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** the questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Explain in detail about the advancement of nanoscale systems and elaborate the types of nanomachines used in nanotechnology.

Or

(b) Write the significant aspects of :

(i) Top down approach,

(ii) Bottom up approach with appropriate examples.

2. (a) Give brief account of :

(i) Mechanical grinding

(ii) Gas phase synthesis.

Or

(b) Describe nano composite synthesis and write the different steps involved in processing.

3. (a) Illustrate the role of band structure and Fermi surface in nanoscience and technology. Also write any two software packages for calculating band structure.

Or

(b) Describe the concept of length and time scale in nano structures and state how they revolutionize the modern science with new opportunities.

4. (a) Explain the different dimension (2 D, 1 D and 0 D) materials of the nano systems with the aid of quantum mechanics.

Or

(b) Summarize the working method of bio-nano machines with suitable diagrams.

5. (a) Elaborate how the optical, electronic, magnetic and chemical properties of materials are influenced via nano structuring.

Or

(b) Describe the electronics transport in quantum wires and carbon nanotubes with suitable illustrations.

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R–3359

Sub. Code
921201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Library and Information Science

AREA OF SPECIALIZATION : USER STUDIES

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) Briefly describe the basic concepts, purpose and significance of information gathering pattern.

Or

(b) Discuss the role of international organisation in user studies.

2. (a) Describe briefly the individual need and system needs of a research and also write the essentials of user studies.

Or

(b) Elaborate the classification of information needs and approach to information needs.

3. (a) Limitations in behavioural research in librarianship – Elaborate.

Or

(b) Discuss the patterns of user behaviour and write the influencing factors of user.

4. (a) Discuss briefly the definition, need and purpose of user education.

Or

(b) What do you mean by failure analysis? Describe the methodology used for user evaluation.

5. (a) Electronic resource for current information needs – Discuss.

Or

(b) Briefly describe the documentary and non-documentary sources regarding user interaction.

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R–3360

Sub. Code
507203

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Nano Science and Technology

NANO MARINE BIOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) (i) Describe the synthesis of nanoparticles using algae.

(ii) Give an account on nano devices based on environmental monitoring.

Or

(b) (i) How do bacteria and sponges help in synthesising nanoparticles?

(ii) Briefly discuss the mechanism of interaction of nanoparticles with soil and marine species.

2. (a) (i) What is biotransformation? Explain with an example.

(ii) How are pollutants from marine environment degraded?

Or

(b) (i) Describe marine biotic diversity.

(ii) What are plankton and nekton?

3. (a) (i) With an example discuss how nanobiosensors are used to monitor marine environment.

(ii) Differentiate between biocompatible and bioinspired nanomaterials.

Or

(b) (i) Write an account on different types of marine algae and their advantages.

(ii) What is the composition of sea water? Explain how sea water is purified.

4. (a) (i) What are tides and coasts?

(ii) With an example, outline the role of primary producers.

Or

(b) (i) Describe pelagic marine heterotrophs.

(ii) Discuss the classification of species and their advantages.

5. (a) (i) Differentiate continental shelf and continental slope.

(ii) What are submarine canyons?

Or

(b) (i) List the marine polysaccharides.

(ii) Give an account on sea water salinity and chlorinity. Define : salinity-temperature-density relationship.

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R–3361

Sub. Code
507204

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Nanoscience and Technology

SEMICONDUCTOR OPTOELECTRONICS

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

1. (a) (i) Define E-R diagram.

(ii) Sketch the energy bands in solids.

(iii) Point out which factors affect the band gap.

Or

(b) What do you infer from density of states? How does it influence role of surface on property of a solid?

2. (a) Define luminescence. How does it originate?

Or

(b) What is the role of a laser amplifier?

3. (a) How does “electroluminescence” originate? What is its application?

Or

(b) How is a device fabricated?

4. (a) What are Semiconductor Optical Amplifiers (SOA)? Indicate their use.

Or

(b) Mention the characteristics of an SOA.

5. (a) What is an optoelectronic integrated circuit? Describe its role.

Or

(b) Point out the function of a photodetector? Mention the different photodetectors.

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R–3362

Sub. Code
507205

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Nano Science and Technology

NANOPHARMACOLOGY AND TOXICOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) How do you define a quantum dot? Give an example. Briefly illustrate a method to synthesis carbon nanotube and mention their applications.

Or

(b) Describe the procedure adopted sol-gel method. What is its advantage.

2. (a) Write notes on and distinguish between liposomes, cubosomes and hexosomes.

Or

(b) How is a liquid nanodispersion prepared and identified? What is its application in pharmacology and how is it advantages over a bulk system?

3. (a) Describe the use of quantum dots in biomedical engineering with an example.

Or

(b) What are MEMS and NEMS? Indicate their utility?

4. (a) Explain how nanoparticles find use in treatment of cancer? Give an example. Point out the advantages.

Or

(b) Describe the technique involved in nanoencapsulation of phytoconstituents.

5. (a) Classify the sources of nanopollutants. How are they identified and quantified? Indicate how they enter human systems and effect the reactions in the body.

Or

(b) Describe the way be which nanopollutants are inhaled into lungs, deposited and translated? How do they induce toxicity in the metabolic activities?

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R–3363	Sub. Code 642201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Management

ADVANCED FINANCIAL MANAGEMENT

(CBCS – 2013 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks.

1. The working capital of ABC Ltd. has deteriorated in recent years and now stands as under:

Current Assets	Rs.	Current Liabilities	Rs.
Inventory	560,000	Creditors	490,000
Debtors	350,000	Bank loans	210,000
Cash	70,000		
	9,80,000		7,00,000

Compute current and quick ratios.

2. State any three limitations of ratio analysis.

3. What are the merits of financial forecasting?

4. What is capital budgeting?

5. What is retained earnings?

6. What is the difference between private equity and venture capital?

7. What is capital market?

Section B (4 × 6 = 24)

Answer any **four** questions.

8. Why is it important to manage working capital?

9. A company is considering raising of funds of about Rs. 100 lakhs by one of two alternative methods, viz., 14% institutional term loan or 13% non-convertible debentures. The term loan option would attract no major incidental cost. The debentures would have to be issued at a discount of 2.5% and would involve cost of issue of Rs. 1,00,000. Advice the company as to the better option based on the effective cost of capital in each case. Assume a tax rate of 50%.

10. Briefly discuss the main stages of a typical, well organized capital budgeting process of a large corporation.

11. What are the shortcomings if any of the EBIT-EPS Analysis?

12. Enumerate the types of mutual funds.

13. What are the roles of SEBI?

Section C (2 × 10 = 20)

Answer **all** questions.

All questions carry equal marks.

14. (a) What are the key components of working capital?

Or

(b) Elaborate the techniques of financial planning.

15. (a) Differentiate the capital structure and financial structure.

Or

(b) Explain the factors affecting the dividend policy.

Section D (1 × 10 = 10)

(Compulsory question)

16. Assess the mechanics of various securities markets, mutual funds/investment companies, and the roles of investment bankers and brokers.

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R–3364

Sub. Code
642203

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Management

ADVANCED MARKETING MANAGEMENT

(CBCS – 2013 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks.

1. Marketing planning is a systematic process involving the assessment of marketing opportunities and resources-comment on this.

2. What is the role of product management?

3. Why is Price an Important Marketing Tool?

4. What is a channel management?

5. What is a marketing promotion?

6. Differentiate the industrial products from consumer products.

7. What is rural marketing?

Section B (4 × 6 = 24)

Answer any **four** questions.

8. Enlist the major important aspects of marketing.

9. The product hierarchy stretches from basic needs to particular items that satisfy those needs-Explain it.

10. How the Break-Even tells us the sales volume we need to achieve in order to make a profit?

11. Why firms are considering the channel management as important?

12. What are the different types of advertising?

13. What are the important features of Indian rural marketing?

Section C (2 × 10 = 20)

Answer **all** questions.

All questions carry equal marks.

14. (a) Explain the role of PEST analysis in marketing.

Or

(b) What are the stages of product life cycle and explain the management of the same.

15. (a) Enumerate the methods of pricing.

Or

(b) What are the functions of logistics management?

Section D (1 × 10 = 10)

Compulsory question.

16. Office Needs is a marketer of good-quality office furniture, carpets, safes and filling cabinets. Within each category, the company offers a wide variety of products with a great many variations of each, product being offered. For instance, the company currently offers around 42 different designs of chairs and 23 varieties of office desks. The company keeps in touch with advances made in the office furniture field worldwide and introduces those products which are in keeping with the needs of the market in terms of design, workmanship, and value for money and technical specifications.

Office Needs trades only in quality furniture which is sturdily constructed. Differences between its products and cheaper, lower quality ones are well known to those who have several years of experience in the business.

An important feature, the company feels, is the availability of a complete list of components of the furniture system. This enables the customer to add bits and pieces of matching designs and colour in the future. Such components are available for sale separately. Systems are maintained in stock by the company for a number of years, and spare parts for chairs and other furniture are always available.

The trade is currently witnessing a downtrend due to recession and players from local unorganized sector. Office Needs has also experienced the same over the last two years. In addition, it had to trim the profit margins. Last year, it barely broke even and this year it is heading for a small loss for the first time in the company's ten year history.

Questions :

(a) Explain the terms Product Item, Product Line and Product Mix in the context of the above situation.

(b) What strategy would you recommend to counter competition from the unorganized sector?

(c) Suggest a suitable promotion strategy for the company.

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R–3365

Sub. Code
642204

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Management

STRATEGIC HUMAN RESOURCE MANAGEMENT

(CBCS – 2013 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

1. Interpret the meaning of strategic human resource management.

2. What is succession planning in human resource management?

3. What is an employee retention strategy?

4. Point out any three benefits of mentoring.

5. Investigate the role of Human Resource Management in Business Process Re-Engineering.

6. Outline the term “Knowledge Management”.

7. Elaborate on the relationship between human resource management and organisational development.

Section B (4 × 6 = 24)

Answer any **four** questions.

8. How SHRM Differs from HRM.

9. Illustrate the steps in human resource planning.

10. Summarize the employee retention methods.

11. Demonstrate the processes of knowledge management.

12. Identify the essential steps in Human Resource Auditing.

13. Explore the objectives of human resource accounting.

Section C (2 × 10 = 20)

Answer **all** questions.

14. (a) Elaborate on applications of strategic human resource management in management of an organisation.

Or

(b) How you are going to compare the corporate career planning with succession planning.

15. (a) Appraise the current trends in performance appraisal.

Or

(b) Compose the key mentoring techniques as learning tools.

Section D (1 × 10 = 10)

Compulsory question.

16. When Adite Technologies Ltd. (ATL) moved one of their divisions to Bangalore, the branch manager in Mumbai decided to transfer those employees who did not wish to go to Bangalore to other local divisions. Ten of the thirty chose to stay and be transferred to another division. Madhuri was one of those. She was assigned to the computer moving-head division.

When Madhuri reported to the new job, Narendar Kumar, her new supervisor, told her he did not know wether or not he would have a permanent position for her. For three days Madhuri sat and watched other employees at their work. On Friday, Narendar announced that their division had received another big contract and he would brief Madhuri on her new assignment on Monday.

Madhuri arrived at 9.00 am. Monday morning and waited anxiously to learn about her new job. Narendar did not arrive until 10.30. He was being briefed on the new contract, he said, and would not be able to meet Madhuri before lunch. At 1.30 p.m. Narendar returned to show Madhuri the operation, "we are reworking model 10-D and it only requires changing two spot welds. With this jig, you can turn one out in about three to five minutes." Narendar added, "By the way, you will be the quality control supervisor on this job. Just double check these six spots on the blueprint." He did not write on the blueprints or mark the areas in any way. Madhuri was given no idea how important the checks might be.

"Please-watch me," said Narendar to Madhuri, taking up the welding torch. "Any one can do it easily. "He repeated the operation five or six times. Madhuri tried it and experienced no difficulty. Neither of them checked their reworked pieces with the blueprint to see if they would pass the quality control check and as a result, Madhuri never checked any pieces after that demonstration. Narendar did not see Madhuri again until Friday.

During the week several things happened. More than half the motors did not work correctly by the time they reached the final assembly. It could not be determined whether the faulty motors were the result of Madhuri's work or the result of a lack of quality checks. A box of 20 parts had been approved by Madhuri since her initials were on the inspection card, but she had not made the necessary alterations. That was when Narendar found time to talk to Madhuri again.

Questions:

(a) What are the significant issues in this case?

(b) What kind of mentoring programme would you suggest for improving the performance?

R–3366

Sub. Code
661201/ 663201

M.Phil./ M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Commerce

RESEARCH FOR BUSINESS DECISIONS

(CBCS – 2013 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks.

1. What is MIS?

2. Define an Enterprise.

3. What do you understand by Distribution Channels?

4. How do you make a research on Strategic Alliances?

5. What is the research on Organizational Climate?

6. State Capital Market Instruments.

7. Write the meaning of Derivatives?

Section B (4 × 6 = 24)

Answer any **four** questions.

All questions carry equal marks.

8. What are the factors influencing research in the field of Business Environment?

9. What do you understand by the term Advertising Research? What areas are covered in Advertising Research?

10. Enumerate the research on Leadership Traits and Style.

11. Explain the importance of research on Organizational Issues.

12. Highlight the various aspects of research on the Secondary Market.

13. What is research on Capital Structure? Explain the role of research on Capital Structure in the financial Decision Making of an Organization.

Section C (2 × 10 = 20)

Answer **all** questions.

14. (a) Briefly explain the importance of Policy Research and Institutional Research in the context of the New Economic Policy.

Or

(b) "Research on Enterprise is really required due to the Challenges". Examine this statement.

15. (a) Discuss the Risk-return patterns of a Project Decision.

Or

(b) Explain how research is to he carried out in finding tools of Effective Motivation. Is there any difference

in approach in motivating Administrative Staff and Executive Staff. Justify your answer.

Section D (1 × 10 = 10)

Compulsory.

16. A Watch band company is considering two mutually exclusive projects. The expected cash flows for each project are as follows:

Year	Project A	Project B
0	–5000	–8000
1	1000	6000
2	2000	5000
3	3000	5000
4	4000	3000

The certainty equivalent of each project are as follows:

Year	Project A	Project B
0	1.00	1.00
1	0.90	0.90
2	0.80	0.70
3	0.70	0.60
4	0.60	0.50

Which of the two projects to be selected if the risk free discount rate is six percent?

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R–3367

Sub. Code
662201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

International Business

MULTINATIONAL BUSINESS MANAGEMENT

(CBCS-2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks

1. State the gains from global trade.
2. What is the significance of foreign direct investment?
3. What are the different types of MNCs?
4. What is CAPM?
5. What are the instruments of global equity?
6. What are export processing zones?
7. What are the risks in foreign exchange market?

Section B (4 × 6 = 24)

Answer any **Four** questions
All questions carry equal marks

8. Explain the theories of global investment. Are they valid in current situtation?

9. What are the determinants of exchange rate? How is exchange rate determined?

10. How are international projects evaluated in terms of risk and return?

11. Explain the key areas of global personal decisions.

12. What are the instruments in global short term investment market?

13. Examine the status of India's BOP.

Section C (2 × 10 = 20)

Answer **all** questions choosing either (a) or (b)

All questions carry equal marks

14. (a) What are the determinants of Non–resident citizen's investment? Examine the trends in such investment in the last ten years.

Or

(b) Explain the derivative instruments and their use in global markets.

15. (a) Explain the significance of strategic management of MNCs. Examine the application of SWOT with a suitable example.

Or

(b) Examine the trends in overseas investment by Indian companies. What suggestions do you offer to them?

Section D $(1 \times 10 = 10)$

(Compulsory)

16. A study is formulated with the following objectives:

(a) To review the trend of India's foreign trade during 2008 to 2018

(b) To analyze the changing trends in the composition and direction of India's Foreign trade during 2008 to 2018

How do you formulate hypotheses and develop research methodology for this.

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R–3368

Sub. Code
671201

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Corporate Secretaryship

RESEARCH FOR CORPORATE DIVISIONS

(CBCS – 2013 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks.

1. How is policy research different from institutional research?
2. Explain how risk can be measured.
3. What are the determinants of trend in primary market?
4. How do you evaluate code of ethics?
5. Identify the tools of corporate restructuring.
6. What can the focus of research on laws?
7. Can investor behaviour be studied and predicted?

Section B (4 × 6 = 24)

Answer any **four** questions.

All questions carry equal marks.

8. Explain the role and value of research in corporate decisions.
9. What are the key issues of and methods for research on working capital?

10. Can stock markets be predicted with precision? Identify the methods of prediction of stock market trends.

11. What is social policy research ? What are the difficulties in CSR research?

12. What is disinvestment? How do you assess effectiveness of disinvestment decision and the process of implementation?

13. Critically evaluate research methods used in environmental protection.

Section C $(2 \times 10 = 20)$

Answer **all** questions.

All questions carry equal marks.

14. (a) Which types of the following research suitable for corporate decision making — (a Qualitative vs Quantitative and case method vs survey method)?

Or

(b) Explain the methodology for evaluating the efficacy of a credit policy.

15. (a) What is corporate governance? Explain the approaches to study the effectiveness of corporate governance of a company.

Or

(b) How do investors make decisions? Do they go by rational analysis or emotional drives? State the methodology, you would adopt to find answers to the above questions.

Section D (1 × 10 = 10)

(Compulsory)

16. Rao has formulated the following research topic:

"Transfer of shares – Law and Procedure – A critical study with reference to the jurisprudential issues, legal position of the contracting parties and the company and their rights and duties.

Suggest appropriate methods of inquiry and data analysis.

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R–3369

Sub. Code
681104

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Bank Management

PRINCIPLES AND PRACTICE OF BANKING AND INSURANCE

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

All questions carry equal marks.

1. What is the role of banks in financial inclusion?.
2. What are the approaches to bank mechanisation?
3. Explain the meaning of bank marketing.
4. What is the role of HRD in banking?
5. Explain the importance of insurance.
6. List the life insurance products and their features.
7. What is marketing information system in case of banking?

Section B (4 × 6 = 24)

Answer any **four** questions.

All questions carry equal marks.

8. State the principles of lending.
9. Discuss privacy and security issues in internet banking.

10. Explain the distribution channels employed by banking sector.

11. What is the role and impact of training in banking?

12. Has privatisation contributed to the growth of insurance in India?

13. Examine the benefits of reforms in insurance.

Section C (2 × 10 = 20)

Answer **all** questions, choosing either (a) or (b).

All questions carry equal marks.

14. (a) Describe the credit appraisal techniques used by banks.

Or

(b) Explain the technology used in facilitating home banking.

15. (a) What are the legal aspects in banking?

Or

(b) Critically evaluate the role of IRDA in protecting customers.

Section D (1 × 10 = 10)

(Compulsory)

16. Examine the promotion of banking services and discuss the methods of evaluating its effectiveness.

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R–3371

Sub. Code
644202

M.Phil. DEGREE EXAMINATION, APRIL 2019

Second Semester

Logistics Management

ADVANCED SUPPLY CHAIN MANAGEMENT

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (7 × 3 = 21)

Answer **all** questions.

1. What is supply chain metrics?

2. What is RFID? Mention three applications.

3. What are cross functional drivers of supply chain?

4. What is visible supply chain? Give example.

5. Explain CRM in supply chain context.

6. Mention the challenges that has to be faced to manage supply chain within the organisation.

7. What is sustainability in supply chain management?

Part B (4 × 6 = 24)

Answer any **four** questions.

8. Explain about the supply chain drivers.

9. What is e-business? Explain the applications of supply chain to e-business.

10. Explain how will you ensure the quality in supply chain network.

11. Write a brief note on supply chain performance management.

12. Who are all the supply chair, stakeholders of textile export business?

13. How will you manage the supply chain organisation?

Part C (2 × 10 = 20)

Answer **all** questions, choosing either (a) or (b).

14. (a) Explain about the best practices in supply chain management.

Or

(b) Mention and explain the criteria followed to design global supply chain network.

15. (a) Explain the role of information technology in supply chain management.

Or

(b) Explain the necessity of sustainability in supply chain with examples.

Part D (1 × 10 = 10)

Case Study

16. Compulsory.

Starbucks is pretty much a household name. But like many of the most successful worldwide brands, the coffee shop giant has been through its periods of supply chain pain. In fact, during recent times, Starbucks leadership began to have serious doubts about the company's ability to supply its 16,700 outlets. As in most commercial sectors at that time, sales were falling. At the same time though, supply chain costs rose by more than $75 million.

When the supply chain executive team began investigating the rising costs and supply chain performance issues, they found that service was indeed falling short of expectations. Findings included the following problems:

(a) Fewer than 50% of outlet deliveries were arriving on time

(b) A number of poor outsourcing decisions had led to excessive 3PL expenses

(c) The supply chain grown by design and had hence become unnecessarily complex.

Suggest your strategies to solve the issues quoting the subject concepts.

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R–3372

Sub. Code
731201/ 732201

M.Phil./ M.Phil (SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

Education

TEACHER BEHAVIOUR

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** the questions.

(5 × 15 = 75)

1. (a) Describe the concept of acceptable behaviour of teachers in detail.

Or

(b) Describe the concept of learner behaviour with its characteristics.

2. (a) How can you ensure the 'classroom management' in a class?

Or

(b) Is it possible to modify the behaviour of the class room? How?

3. (a) 'Teaching is communication' – Justify.

Or

(b) How do you overcome the barriers in communication?

4. (a) 'Parent teacher Association' – Why is it necessary?

Or

(b) How can you make your working environment a happy one? Recommend it.

5. (a) What are the professional dynamism of a teacher?

Or

(b) Do you think that personal life could enhance the professional life?

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R–3373

Sub. Code
761202/ 762202

M.Phil./M.Phil.(SSP) DEGREE EXAMINATION, APRIL 2019

Second Semester

English

INDIAN ENGLISH LITERATURE

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) Write an essay on the mystic vision of Rabindranath Tagore with special reference to his Gitanjali.

Or

(b) Comment on the projection of themes in Toru Dutt's poetry.

2. (a) How does Ezekiel recount the experiences of his life from his boyhood days in "Background casually"?

Or

(b) Write a note on Mahatma Gandhi's ideologies on non-violence.

3. (a) Bring out the views of Sri Aurobindo regarding the evolution of Indian Renaissance.

Or

(b) Comment on the heinous behaviour of Ramnik in Final solutions.

4. (a) Attempt a critical assessment of Vijay Tendulkar as a dramatist as seen through his play, Silence ! The Court is in session.

Or

(b) What picture of women does Tendulkar present in his play Silence ! The Court is in session?

5. (a) Write a note on the thematic structure of The shadow lines by Amitav Ghosh.

Or

(b) Examine Arundhati Roy's critique of social issues and problems in The God of Small Things.

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R–3374

Sub. Code
82121/ 82821

M.Phil./M.Phil. SSP DEGREE EXAMINATION, APRIL 2019

Second Semester

Physical Education

AREA OF DISSERTATION

(CBCS – 2015 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) What is your area of interest? Write down the title, purpose and usefulness of the topic along with limitation and hypotheses of study.

Or

(b) Write down title of the study and describe the front materials of dissertation.

2. (a) Explain the methodology you would adopt in relation to the study and describe the training schedule.

Or

(b) Based on the title of your study explain the apparatus and methods of collecting data and how will you proceed in fixing load during training period?

3. (a) Define research design. Explain different types of research designs and what design you would adopt in your study and why?

Or

(b) Define the term sample. Write down the principles, types and steps of sampling design.

4. (a) Define data. How would you collect the data in relation to your study and explain the method of testing hypotheses and making conclusions.

Or

(b) Define data. How would you collect the data with regard to your study and explain the method for processing and analysing data through statistical tool.

5. (a) Explain the significance of research writing. What steps you would follow in research writing?

Or

(b) Describe the precautions for writing a research report and explain method of writing conclusion and bibliography.

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R–3375

Sub. Code
571101/ 572101

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Mathematics

RESEARCH METHODOLOGY FOR ALGEBRA

(CBCS – 2015 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

Each questions carries equal marks.

$(5 \times 15 = 75)$

1. (a) (i) Let G be a finite group and 'p' a prime number dividing the order of G. Prove that there exists a p–sylow subgroup of G.

(ii) Let G be a finite group

(1) If H is a p–subgroup of G, then prove that, H is contained in some p–sylow subgroup. and

(2) All p–sylow subgroups are conjugate.

(3) The number of p–sylow subgroups of G is congruent to 1(mod p).

Or

(b) (i) Let G be a cyclic group. Prove that every subgroup of G is cyclic. If f is a homeomorphism of G, prove that the image of G is cyclic.

(ii) (1) Let G be a cyclic group of order n. Let d be a positive number dividing n. Prove that there exists a unique subgroup of G of order d.

(2) Let G_1, G_2 be cyclic of order m, n respectively. If m, n are relatively prime, then prove that $G_1 \times G_2$ is cyclic.

(3) Let G be a finite abelain group. If G is not cyclic, prove that there exists a prime p and a subgroup of G isomorphic to $C \times C$, where C is cyclic of order p.

2. (a) (i) Let A be a finitely generated torsion-free abelian group. Prove that A is free.

(ii) Prove that the completion and the inverse limit $\lim G|H$ are isomorphic under natural mappings.

Or

(b) (i) Prove that the coproducts exist in the category of groups.

(ii) Let G be a group and $\{G_i : i \in I\}$ a family of subgroups with the conditions that the family generates G and if $x = x_{i1}.....x_{in}$ with $x_{ik} \in G_{ik}$, $x_{ik} \neq e$ and $i_k \neq i_{k+1}$ for all v then $x \neq e$. Prove that the natural homomorphism of the coproduct of the family into G sending G_i on itself.

3. (a) (i) Let G be a monoid and let $f : A \to B$ be a homomorphism of com-mutative rings, prove that there is a unique homomorphism $h : A[G] \to B[G]$ such that $h\left(\sum_{x \in G} a_x x\right) = \sum_{x \in G} f(a_x)x$.

(ii) Let A be a principal entire ring and $a, b \in A, a, b \neq 0$. Let $(a, b) = (c)$ Prove that C is a greatest common divisor of a and b.

Or

(b) (i) Let A be a principal entire ring, then Prove that A is factorial.

(ii) If M is a maximal ideal of A, Prove that $A|M$ is a field.

4. (a) (i) Let M be an $A-$module and n an integer ≥ 1. For each $i = 1,2,...,n$. Let $\phi_i : M \to M$ be an A-homomorphism such that $\sum_{i=1}^{d} \phi_i = id$ and $\phi_i \circ \phi = 0 if i \neq j$, Prove that $\phi^2{}_i = \phi_i$ for all i. Let $M_i = \phi_i(M)$ and let $\phi : M \to \prod M_i$ be such that

$\phi(x) = (\phi_1(x),...., \phi_n(x))$

Prove that ϕ is an A-isomorphism of M onto the direct product $\prod M_i$.

(ii) Let $0 \to M' \xrightarrow{f} M \xrightarrow{g} M'' \to 0$ be an exact sequence of modules. The following conditions are equivalent

(1) There exists a homomorphism $\phi : M'' \to M$ such that $g \circ \phi = id$.

(2) There exists a homomorphism $\psi : M'' \to M$ such that $\psi \circ f = id$.

If the above conditions are satisfied, prove that we have isomorphism:

$M = \text{Im } f \oplus \ker \psi, M = \ker g \oplus \phi$

$M \approx M' \oplus M''$.

Or

(b) (i) Let V be a vector space over a field K, Prove that two bases of V over K have the same cardinality.

(ii) Let E be a finite free module over a commutative ring A of finite dimension n then E^V is also free and dim $E^V = n$. If $\{x_1,....x_n\}$ is a basis for E and f_i is the functional such that $f_i(x_j) = \delta_{ij},$, then prove that $\{f_1,.....f_n\}$ is a basis for E^V.

5. (a) (i) Let E be finitely generated, Prove that $E|E_{tor}$ is free. Also prove that there exists a free submodule F of E such that E is a direct sum $E = E_{tor} \oplus F$ and the dimension of such a submodule F is uniquely determined.

(ii) Prove that the Direct limit exist in the category of abelian groups or more generally in the category of modules over a ring.

Or

(b) (i) Let E be a finitely generated torsion module, $E \neq 0$, Prove that E is isomorphic to a direct sum of non-zero factors

$R|(q_1) \oplus ....R|(q_r)$

where $q_1,....,q_r$ are non zero elements of R, and $q_1|q_2|.....|q_r$. The sequence of ideals $(q_1),.....(q_r)$ is uniquely determined.

(ii) Let ϕ be a rule which to each simple module associates an element of a commutative group Γ, and such that if $M \approx M'$ then prove that $\phi(M) = \psi(M')$ and also prove that ϕ has a unique extension to an *Euler — poincare* mapping defined on all modulus of finite length.

R–3376

Sub. Code
571102/ 572102

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Mathematics

FUNCTIONAL ANALYSIS

(CBCS – 2015 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

1. (a) Let K and C are subsets of a topological vector space X, K is compact, C is closed and $K \cap C = \emptyset$. Prove that 0 has a neighborhood V such that

$$(K+V) \cap (C+V) = \emptyset$$

(b) Prove that every topological vector space is a Hausdorff space.

Or

(c) If X is a complex topological vector space and $f : \mathbb{C}^n \to X$ is linear, prove that f is continuous.

(d) If n is a positive integer and Y is an n-dimensional subspace of a complex topological vector space X, prove the following :

(i) every isomorphism of $\mathbb{C}^n$ onto Y is a homeomorphism, and

(ii) Y is closed.

2. (a) State and prove Bahe's theorem.

(b) State and prove Banach-Steinhaus theorem.

Or

(c) State and prove closed graph theorem.

3. (a) State and prove Banach-Alaoglu theorem.

(b) Let E be a convex subset of a locally convex space X. Prove that the weak closure $\overline{E}_w$ of E is equal to its original closure $\overline{E}$.

Or

(c) State and prove Krein-Milman theorem.

(d) Let Ω be open in $\mathbb{C}$, let X be a complex. Frechlet space, and assume that

$$f : \Omega \to X$$

is weakly holomorphic. Prove that f is stronly continuous in Ω.

4. (a) Prove that $\mathcal{N}(T^*)$ is a week*–closed in Y^*.

(b) Prove that T is one-to-one if and only if $\mathcal{R}(T^*)$ is a week*–dense in X^*.

Or

(c) Let X and Y are Banach spaces, and $T \in \mathcal{B}(X, Y)$. Prove that

(i) $\mathcal{R}(T) = Y$ iff

(ii) T^* is one-to-one and $\mathcal{R}(T^*)$ is norm-closed.

(d) Let X and Y are Banach spaces and $T \in \mathcal{B}(X, Y)$. Prove that T is compact iff T^* is compact.

5. (a) Prove that a convex balanced subset V of $\mathcal{D}(\Omega)$ is open iff $V \in \beta$.

(b) Prove that in $\mathcal{D}(\Omega)$, every Cauchy sequence converges.

Or

(c) Let $\wedge_i \to \wedge$ in $\mathcal{D}'(\Omega)$ and $g_i \to g$ in $C^\infty(\Omega)$. Prove that $g_i \wedge_i \to g \wedge$ in $\mathcal{D}'(\Omega)$

(d) Let $u \in \mathcal{D}'$, $\phi \in \mathcal{D}$, $\psi \in \mathcal{D}$ Prove that $T_x(u * \phi) = (T_x u) * \phi = u * (T_x \phi)$ for all $x \in R^n$.

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R–3511

Sub. Code
642101/ 671101/ 661101/ 662101/ 644101/ 681101

M.Phil. DEGREE EXAMINATION, APRIL 2019

First Semester

Management/Corporate Secretaryship/ Commerce/International Business/ Logistics Management/Bank Management

BUSINESS RESEARCH METHODS/ METHODOLOGY OF BUSINESS RESEARCH

(Common for M.Phil. Mgt/CS/Commerce CBCS-2013 onwards/IB/LM/BM- CBCS 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (7 × 3 = 21)

Answer **all** questions.

1. Distinguish between an experience survey and stranger survey.

2. Describe the construction of a summated scale.

3. How does 'snowball sampling' apply to a unique research study?

4. Compare the significance of a pilot study and a main study.

5. Distinguish between recode into a same variable and different variable.

6. Draw the cross, table format with suitable example.

7. Enumerate the use of footnote and abbreviations.

Part B $(4 \times 6 = 24)$

Answer any **four** questions.

8. Draw the framework of research process.

9. What are the components of 'semantic differential scale'?

10. Describe various methods of drawing samples using non-probability techniques.

11. Enumerate the steps and procedure of a work-plan with time periods to expedite in order of flavor of activities.

12. What are the specific procedure to use secondary data?

13. Compare different styles of referencing citations.

Part C $(2 \times 10 = 20)$

Answer **all** questions.

All questions carry equal marks.

14. (a) How does inflitnet and end note help in the search and compilation of review of literature? Discuss about online tools for it.

Or

(b) How does error in measurement reflect the validity and reliability of research?

15. (a) Distinguish between the survey and observation procedure administered in collecting data.

Or

(b) Draw the framework of the structure of research report.

Part D (1 × 10 = 10)

Compulsory.

16. Improved Customer Service and Customer experience in retail banking.

Trans Union's client is a large retail bank that provides a range of simple and convenient personal banking and insurance products designed to specifically meet the needs of its customers. By putting the customer first and rewarding loyalty. The bank makes life easier for customers with all products and services offered online, mobile and over the phone.

In 2012, the bank launched their mortgage offering and required a robust solution platform that could handle multiple categories of transactions across multiple customer tochpoints and communication channels.

The key challenged faced included :

(a) A critical need to uphold brand reputation whilst entering the market and creating a complaint and scalable solution to meet FCA requirements and scrutinizing.

(b) Loyalty card integration enabling card holders to be rewarded for monthly mortgage payments.

(c) Migration of six million customers to new technology platforms.

The implementation of the Call credit decision CX solution enabled the complaint launch of a new lending operations in 2012. This successful solutions orchestrates mortgage organizations, payments and document fulfillment processes at the heart of the bank's award-winning customer offering.

Phase one saw the implementation of decision CX Email management to help manage customer queries. This was to categorize the high priority email enquiries from potential customers.

Phase two was aligned to the bank's formal launch and saw the deployment of a multichannel capability creaty channel choice for bank customer.

The customer online portal was designed to handle customer communications through multiple channels within the my account area of the banks website.

Assignment questions :

(i) Design a research proposal to quantify the performance of portal.

(ii) How does the data support enhance customer service experience?

R–3512

Sub. Code
642102/ 671102/ 661102/ 662102/ 644102/ 681102

M.Phil. DEGREE EXAMINATION, APRIL 2019

First Semester

Management/Corporate Secretaryship/Commerce/International Business/Logistics Management/Bank Management

TECHNIQUES OF RESEARCH/STATISTICAL TECHNIQUES OF RESEARCH/TECHNIQUES OF BUSINESS RESEARCH

(Common for M.Phil. Mgt/CS/Commerce CBCS – 2013 onwards, M.Phil. IB/LM/BM CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Section A (7 × 3 = 21)

Answer **all** questions.

1. What is the scope of qualitative research?
2. How does 'Co-efficient of determination' reflect the results of a study?
3. How does "Multicollinearity" affect the outcome of a study?
4. Explain the procedure of 'yates correction'.
5. How does a cluster vary from a stratum?
6. What are the application of 'test of association'?
7. How does ARCH apply for heteroscdasticity?

Section B (4 × 6 = 24)

Answer any **four** questions.

All questions carry equal marks.

8. Explain the intelligent use of measures of central tendency.

9. Enumerate the procedure for stepwise multiple regression.

10. Describe the procedure for testing of hypothesis.

11. Draw the format of latin square design of research.

12. Describe the randomness test procedure for 'run test'.

13. How does the application of canonical correlation signify?

Section C (2 × 10 = 20)

Answer **all** questions.

All questions carry equal marks.

14. (a) What are various research applications of both quantitative and qualitative research?

Or

(b) Describe the use of parametric tests with distinctive statistics and parameters.

15. (a) Explain the procedure for conducting two-way analysis of variance with suitable applications.

Or

(b) Critically examine the scope for applications of non-parametric tests.

Section D (1 × 10 = 10)

(Compulsory)

16. Banking company employees were contacted for different banking services products by customer. The accessible of customers with all the categories of employees was open and encouraged in promoting banking system. The number of customers contacted chief finance officers to front line employees were given in table as below.

Company Rank of Banking services

Rank of Employee	Frequency	Percent	Valid percent	Cumulative percent
Chief Finance officer	6	8.6		
Vice President	13	18.6		
Sir. Manager	18	25.7		
Jr. Manager	11	15.7		
Employee	11	15.7		
Total	59	84.3		
Missing Don't know	11	15.7		
Total	70	100.0		

Questions :

(a) Compute the frequency distribution of the company ranks contacted for banking services.

(b) Find out the valid and cumulative percent.

(c) Draw a bar chart for the above data.

(d) Interpret the results and draw conclusion.

(e) What are your recommendation based on the results?

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R–3513

Sub. Code
421101

M.Phil. DEGREE EXAMINATION, APRIL 2019

First Semester

Tamil

ஆராய்ச்சி நெறிமுறைகள்

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

ஐந்து வினாக்களுக்கு விடையளிக்க.

1. (அ) ஆய்வுத் தலைப்பைத் தேர்ந்தெடுக்கும் முறைகள் குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) ஆய்வின் வளமைக்கு நூலகத்தின் பங்களிப்புக் குறித்து விவரிக்க.

2. (அ) தனியார் நிறுவனங்களின் ஆய்வுப் பணி நிலை குறித்து விரித்துரைக்க.

(அல்லது)

(ஆ) பேட்டியின் வகைகள் குறித்துக் கட்டுரை வரைக.

3. (அ) உற்றுநோக்களின் வகைகள் குறித்து விவரிக்க.

(அல்லது)

(ஆ) கருதுகோளை உருவாக்கும் வாயில்கள் குறித்து விரித்துரைக்க.

4. (அ) அமைப்பியல் ஆய்வு முறையின் இன்றியமையாமை குறித்து விவரிக்க.

(அல்லது)

(ஆ) அடிக்குறிப்பிடுதலின் வகைகள் குறித்து விவரிக்க.

5. (அ) ஆய்வேடு உருவாக்கும் முறைகள் குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) ஆய்வேட்டின் கட்டமைப்பு குறித்து விவரிக்க.

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R–3514

Sub. Code
421102

M.Phil. DEGREE EXAMINATION, APRIL 2019

First Semester

Tamil

ஆராய்ச்சி அணுகுமுறைகள்

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

அனைத்து வினாக்களுக்கு விடையளிக்க.

(5 × 15 = 75)

1. (அ) ஆராய்ச்சியில் அணுகுமுறையின் பங்கும் அதன் இன்றியமையாமையும் குறித்து விவரிக்க.

(அல்லது)

(ஆ) அணுகுமுறைகளால் ஆய்வுப் பொருள் தெளிவு பெறும் முறைகள் குறித்துக் கட்டுரை வரைக.

2. (அ) பாரதிதாசன் கவிதைகளும் அறிவியல் அணுகுமுறையும் குறித்து விவரிக்க.

(அல்லது)

(ஆ) பிராய்டு உளவியல் அணுகுமுறையைப் பின்பற்றி சங்க இலக்கியத்தை மதிப்பீடு செய்க.

3. (அ) காலந்தோறும் சமூகம் இலக்கியத்தில் இடம்பெறும் முறை குறித்து விவரிக்க.

(அல்லது)

(ஆ) தமிழிலக்கியத்தில் அமைப்பியல் அணுகுமுறை பெற்றுள்ள இடம் குறித்து ஆராய்க.

4. (அ) தமிழ் இலக்கியத்தில் அழகியல் அணுகுமுறையைப் பயன்படுத்தும் முறை குறித்து விவரிக்க.

(அல்லது)

(ஆ) தமிழில் ஒப்பியல் அணுகுமுறையின் தோற்றமும் வளர்ச்சியும் குறித்து விவரிக்க.

5. (அ) வரலாற்றியல் அணுகுமுறையின் இயல்பு குறித்துக் கட்டுரை வரைக.

(அல்லது)

(ஆ) தமிழில் இலக்கியத்தில் வகைமை நிலையியல் அணுகுமுறை பெறுமிடத்தை ஆராய்க.

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R–3515

Sub. Code
519101/520101

M.Phil., M.Phil (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Zoology

RESEARCH METHODOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions. (5 × 15 = 75)

All questions carry equal marks.

1. (a) Lists out and the various components required for preparation of thesis.

Or

(b) Write a note on :

(i) *h*–index ;

(ii) impact factor ;

(iii) citation index and

(iv) e–journals

2. (a) Elucidate the principles and applications of UV spectrophotometer.

Or

(b) What are the laboratory practices employed as biosafety measures? Explain.

3. (a) Explain the principles and applications of confocal microscopy.

Or

(b) Discuss the types of chromatography and its applications.

4. (a) Explain the principles and applications of PCR.

Or

(b) Explain the role of animal cell lines biological research.

5. (a) Write detailed notes on sampling and data processing.

Or

(b) Derive the steps involved in one–way ANOVA.

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R–3516

Sub. Code
519102

M.Phil. DEGREE EXAMINATION, APRIL 2019

First Semester

Zoology

ADVANCED ZOOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) With a suitable example, verify Mendel's dihybrid ratio of 9:3:3:1.

Or

(b) Discuss the significance of multiple alleles and its inheritance.

2. (a) Elucidate the formation of urine in human beings.

Or

(b) Explain the Kreb's cycle and give details of energy produced during Kreb's cycle.

3. (a) With illustrations, explain the life cycle of *Wuchereria bancrofti.*

Or

(b) Comment on the various larval stages of *Fasciola hepatica.*

4. (a) Deliberate the significance and present status of aquaculture in India.

Or

(b) Explain the biology, damage, infestation and control measures of *Scirpophaga ineertulas*.

5. (a) Bioremediation has the potential to solve many environmental problems – Investigate.

Or

(b) Trace the causes for ozone depletion and discuss on its consequences.

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R–3523

Sub. Code
416102/417102

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

History

THEORIES OF INDIAN NATIONAL MOVEMENT

(CBCS – 2016 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

All questions carry equal marks.

(5 × 15 = 75)

1. (a) The subsidiary alliance was the most effective instruments for the expansion of the British territory. Explain.

Or

(b) What were the consequences of the Revolt of 1857?

2. (a) Describe the causes and circumstances which helped in the growth of Indian Nationalism.

Or

(b) The Congress was established as a safety valve for the British rule in India. How for do you agree with this view?

3. (a) Highlight the Non-cooperation movement and its results.

Or

(b) Discuss the causes of the partition of India.

4. (a) Write an essay on R.S. Sharma's Marxist interpretation in Indian History.

Or

(b) Examine the contributions of Bipanchandra to modern Indian history.

5. (a) Sketch the contributions of Ranajit Guha to Subaltern studies.

Or

(b) Evaluate the role of Sumit Sarkar in bring out the Subaltern history.

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R–3524

Sub. Code
731101/ 732101

M.Phil./M.Phil.(SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Education

INSTRUCTIONAL DYNAMICS

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) Explain the features of Lecture method and its limitations in detail.

Or

(b) Define a model of teaching. Explain the John Keller's ARCS model in detail.

2. (a) Write a detailed notes on :

(i) On-line instruction and learning.

(ii) Co-operative and learning.

Or

(b) Describe the Gagne's nine steps of instruction.

3. (a) How can discovery learning be promoted among students?

Or

(b) Explain the need and significance of Peer-Group discussion.

4. (a) Define learning style. Discuss about the various types of learning styles in brief.

Or

(b) What is meant by blocking? Discuss the various forms of blocking.

5. (a) Explain the concepts of 'content analysis' and 'systems analysis".

Or

(b) Explain the terms 'Hermeneutics' and 'Narrative phenomenology'.

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R–3525

Sub. Code
731102/ 732102

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Education

ADVANCED EDUCATIONAL RESEARCH METHODOLOGY

(CBCS – 2018 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) What do you mean by 'research'? Describe the different steps involved in a research process.

Or

(b) Describe in detail the emerging trends in educational researches. List out the thrust areas in educational researches.

2. (a) How should we choose a research problem? Explain the criteria for justifying the problem selection.

Or

(b) How do we frame hypothesis of a research problem? Give the importance and role of null hypothesis.

3. (a) What is a survey research? Discuss the process of conducting survey research in detail.

Or

(b) Explain and illustrate the following research designs.

(i) Single group experimental design

(ii) Simple factorial design.

4. (a) Discuss 'observation' as a technique of data collection.

Or

(b) What is a standardized tool? Explain the role of item analysis in standardizing a research tool.

5. (a) Narrate the various advantages of using non-parametric tests. Also point out their limitations.

Or

(b) Write short notes on the following :

(i) Significance of the analysis of variance

(ii) Additive property of chi-square test.

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R–3526

Sub. Code
561102/ 562102

M.Phil./M.Phil. (SSP) DEGREE EXAMINATION, APRIL 2019

First Semester

Computer Science

ADVANCED DATABASE MANAGEMENT

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Answer **all** questions.

(5 × 15 = 75)

1. (a) (i) With suitable example explain query processing in distributed database. (10)

(ii) What are the major issues to be handled in cloud-based databases? (5)

Or

(b) Discuss about the issues of transaction management in object oriented database.

2. (a) (i) Discuss about data warehouse environment in detail. (10)

(ii) List the technical issues are to be considered when designing a data warehouse environment. (5)

Or

(b) (i) What are the steps to he followed to store the external source into the data warehouse? (5)

(ii) Explain various methods of data cleaning process in detail. (10)

3. (a) (i) Narrate the Spatial database characteristics. (10)

(ii) Briefly explain the temporal database design. (5)

Or

(b) Describe the Spatial data model in detail.

4. (a) Explain the different types of multimedia architecture in detail.

Or

(b) Discuss the types of metadata in detail.

5. (a) Explain :

(i) Elements of a graph schema. (5)

(ii) Lambda architecture. (10)

Or

(b) (i) Explain the working principles of Distributed File System. (10)

(ii) "Unstructured data is rawer than normalized data". Comment. (5)

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