Seat
No.

Ph.D. Course Work Examination, 2016
MARATHI (Paper – I)
Research Methodology and Information Communication Technology (ICT)
अभ्यासपत्रिका क्र.१: संशोधनपद्धती व माहिती तंत्रज्ञान

Day and Date : Thursday, 28-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचना : 1) सर्व प्रश्न आवश्यक.
2) सर्व प्रश्नांना समान गुण आहेत.

1. अ) साहित्य संशोधनाची संकल्पना स्पष्ट करून संशोधनाचा हेतू व स्वरूप स्पष्ट करा.   **10**

   ब) खालील **तीन** प्रश्नांपैकी कोणत्याही **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा.   **10**

      1) लेखकनिष्ठ संशोधनाच्या मर्यादा सांगा.

      2) लोकसाहित्याच्या संशोधनाचे महत्व सांगा.

      3) साहित्य संशोधनातील भाषाभ्यासाचे महत्व स्पष्ट करा.

2. अ) वाङ्मयप्रकाराच्या अनुषंगाने करण्यात येणाऱ्या संशोधनाचे स्वरूप व महत्व सांगा.   **10**

   ब) खालील **तीन** प्रश्नांपैकी कोणत्याही **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा.   **10**

      1) अनुवादीत साहित्य संशोधनातील अडचणी.

      2) साहित्य संशोधनातील संशोधकाची भूमिका.

      3) साहित्य संशोधन व समाजहित यांचा अनुबंध स्पष्ट करा.

3. अ) साहित्य संशोधन व समाजशास्त्रीय संशोधन यातील साम्यभेद स्पष्ट करा.   **10**

   ब) खालील **तीन** प्रश्नांपैकी कोणत्याही **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा.   **10**

      1) बोली अभ्यासाचे महत्व स्पष्ट करा.

      2) विशिष्ट साहित्यकृतीच्या संशोधनाच्या मर्यादा.

      3) साहित्य संशोधन व गृहितके.

4. अ) साहित्य संशोधनासाठी उपयुक्त संशोधन पद्धर्तींचा परामर्श घ्या. **10**

ब) खालील **तीन** प्रश्नांपैकी कोणत्याही **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा. **10**

1) 'साहित्य संशोधन म्हणजे समीक्षा नव्हे' या विधानाचा परामर्श घ्या.

2) साहित्य संशोधनातील तौलनिक अभ्यासाचे महत्व सांगा.

3) भाषाभ्यासाच्या विविध पद्धती सांगा.

5. अ) साहित्य संशोधन व नविन वैज्ञानिक साधने यांचा अनुबंध स्पष्ट करा. **10**

ब) खालील **तीन** प्रश्नांपैकी कोणत्याही **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा. **10**

1) मराठी साहित्य संशोधनासाठी उपयुक्त सर्च इंजिने सांगा.

2) ई–जर्नलचे संशोधनातील महत्व सांगा.

3) सर्च इंजिनांची उपयुक्तता स्पष्ट करा.

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Seat No.

Ph.D. (English/Kannada/Urdu) Course Work Examination, 2016
RESEARCH METHODOLOGY AND INFORMATION COMMUNICATION TECHNOLOGY (ICT) (Paper – I)

Day and Date : Thursday, 28-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) *All* questions are *compulsory*.
                           2) *All* questions carry *equal* marks.

1. A) Define the nature and concepts of literary research.   **10**

   B) Answer **any two** :   **10**

      i) Distinguish between literary and social science research.

      ii) Scope of literary research.

      iii) Relationship between literary research and practical review.

2. A) Explain the merits of experimental research.   **10**

   B) Answer **any two** :   **10**

      i) Research methodology

      ii) Field work

      iii) Historical research.

3. A) Write a note on the importance of scientific study of languages.   **10**

   B) Answer **any two** :   **10**

      i) Dimensions of language research

      ii) Linguistics

      iii) Methods of language study.

4. A) Explain the importance and limitations of specific literary work. **10**

   B) Answer **any two** : **10**

      i) Study of specific form

      ii) Research discipline

      iii) Areas of research.

5. A) Define the terms : Research, Discovery, Invention. **10**

   B) Answer **any two** : **10**

      i) e-journals

      ii) Websites

      iii) Bibliography.

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Seat No.

Ph.D. Course Work Examination, 2016
HINDI/PRAKRIT
Research Methodology and Information Communication Technology (ICT)
Paper – I : अनुसंधान प्रक्रिया, जानकारी और तकनीक

Day and Date : Thursday, 28-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचनाएँ : १) *सभी प्रश्न अनिवार्य हैं ।*
       २) *दाईं ओर प्रश्न के पूर्णांक हैं ।*

1. अ) अनुसंधान–पद्धतियों का परिचय दीजिए ।   **10**

   ब) किन्हीं **दो** के संक्षिप्त उत्तर लिखिए :   **10**

      i) अनुसंधान की संकल्पना ।

      ii) शास्त्रीय अनुसंधान ।

      iii) अनुसंधान की व्याप्ति ।

2. अ) साहित्यिक अनुसंधान पर प्रकाश डालिए ।   **10**

   ब) किन्हीं **दो** के संक्षिप्त उत्तर लिखिए :   **10**

      i) बोलियों के अनुसंधान का स्वरूप ।

      ii) क्षेत्रीय कार्य का अनुसंधान में महत्त्व ।

      iii) काल विशेष का अध्ययन ।

3. अ) भाषा–अध्ययन की विविध पद्धतियों का विवेचन कीजिए ।   **10**

   ब) किन्हीं **दो** के संक्षिप्त उत्तर लिखिए :   **10**

      i) प्राक्कल्पना : संकल्पना और स्वरूप ।

      ii) अनुसंधान का स्वरूप ।

      iii) संदर्भ ग्रंथ–सूची ।

4. अ) अनुवाद और तुलनात्मक साहित्यिक अनुसंधान का महत्त्व विशद कीजिए ।   **10**

   ब) किन्हीं **दो** के संक्षिप्त उत्तर लिखिए :   **10**

      i) प्रायोगिक अनुसंधान पद्धति ।

      ii) अनुसंधान में संदर्भों का महत्त्व ।

      iii) शोध–प्रबंध में निष्कर्षों की स्थापना ।

5. अ) ''अनुसंधान–क्षेत्र में आज सूचना प्रौद्योगिकी का ज्ञान अत्यंत उपयोगी सिद्ध होने लगा है '' –

   स्पष्ट कीजिए ।   **10**

   ब) किन्हीं **दो** के संक्षिप्त उत्तर लिखिए :   **10**

      i) परिशिष्ट ।

      ii) शोध प्रबंध की रूपरेखा ।

      iii) अनुसंधान कार्य में ई मेल ः एक साधन ।

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SLR-AN – 7

| Seat |
| No. |

Ph.D. Course Work Examination, 2016
SCIENCE
Paper – I : Research Methodology and Information Communication Technology (ICT)

Day and Date : Thursday, 28-1-2016   Max. Marks : 100

Time :   11.00 a.m. to 2.00 p.m.

Instruction : *Answer **all** questions.*

1. A) What is scientific explanation ? Give limits of scientific explanations.   **10**

   B) Write note on **any two** :   **(5+5)**

       i) Dynamics of theory construction.

       ii) Rational explanation.

       iii) Imperial basis of laws.

2. A) Explain in detail process of literature review and it's significance.   **10**

   B) Write note on **any two** :   **(5+5)**

       i) Criteria of good research.

       ii) Search engine.

       iii) Objectives of research.

3. A) How to define the problem and according to that how to plan the experiment ?   **10**

   B) Write notes on **any two** :   **5+5)**

       i) Data collection.

       ii) Record keeping.

       iii) Filing patent.

P.T.O.

4. A) What is immediacy index ? How it is calculated ? **10**

   B) Write notes on **any two** : **(5+5)**
      i) h-index.
      ii) Calculation of impact factor.
      iii) SCOPUS.

5. A) What is MS-Powerpoint ? Explain its history, operation, cultural impact and its different versions. **10**

   B) Write notes on **any two** : **(5+5)**
      i) Key words.
      ii) Search engines available on internet.
      iii) Science abstracts.

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Seat No.

Ph.D. Course Work Examination, 2016
SOCIAL SCIENCE
Paper – I (Compulsory) : Research Methodology and Information Communication Technology (ICT)

Day and Date : Thursday, 28-1-2016
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 100

Instructions : 1) Attempt **all** the questions.
                 2) Figures to the **right** indicate **full** marks.

1. A) What is hypothesis ? Discuss the types of hypothesis and its importance in social science research. **10**

     B) Write short notes on **any two** : **10**

        i) Rational explanation in research.

        ii) Role of theory in research.

        iii) Limitations of scientific explanation.

2. A) Explain the meaning and significance of research design in social science. **10**

     B) Write short notes on **any two** : **10**

        i) Objectives of research

        ii) Qualities of good research

        iii) Importance of review of literature in research.

3. A) Discuss the different types of analysis of data in research. **10**

     B) Write short notes on **any two** : **10**

        i) Importance of report writing in research.

        ii) Significance of field work in research.

        iii) The techniques and importance of presentation in research.

4. A) What is a sample design ? Explain the types of sample design in social research. **10**

   B) Write short notes on **any two** : **10**

      i) Chi-square test

      ii) Qualitative research

      iii) Central tendency.

5. A) Explain the use of internet and computer application in social science research. **10**

   B) Write short notes on **any two** : **10**

      i) Importance of ISSN and ISBN publications.

      ii) The role of statistics in social science research.

      iii) Importance of statistical packages for social sciences (SPSS) in research.

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Seat No.

M.Phil./Ph.D. Course Work Examination, 2016
EDUCATION
Research Methodology and Information Communication Technology (ICT)
(Paper – I)

Day and Date : Thursday, 28-1-2016   Max. Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

1. A) Explain the criteria of good research. **10**

   चांगल्या संशोधनाचे निकष स्पष्ट करा.

   B) Answer **any two** of the following : **10**

   1) Different forms of scientific method.

   वैज्ञानिक पद्धतीचे विविध प्रकार.

   2) Characteristics of good researcher.

   चांगल्या संशोधकाची वैशिष्ट्ये.

   3) Merits and demerits of interview.

   मुलाखतीचे गुण दोष.

2. A) What are the different sources of review of literature ? Explain any two. **10**

   साहित्य अवलोकनाचे विविध स्त्रोत कोणते ? कोणतेही दोन स्पष्ट करा.

   B) Answer **any two** of the following : **10**

   1) Quantitative research

   संख्यात्मक संशोधन

   2) Questionnaire

   प्रश्नावली

   3) Reliability of test

   कसोटीची विश्वसनीयता

3. A) State the role of statistics in research. **10**

संशोधनात संख्याशास्त्राची भूमिका सांगा.

B) Answer **any two** of the following : **10**

1) Analysis of variance (ANOVA)

फरकाचे विश्लेषण

2) F-Test

एफ टेस्ट

3) Factor analysis

घटक विश्लेषण

4. A) Write about the contribution of ICT in research. **10**

माहिती संप्रेषण तंत्रज्ञानाचे संशोधनातील योगदाना बाबत माहिती लिहा.

B) Answer **any two** of the following : **10**

1) E-Book

ई–पुस्तक

2) E-References

ई–संदर्भ

3) E-Submission

ई–सादरीकरण

5. A) Illustrate the meaning of impact factor with suitable example. **10**

योग्य उदाहरणाद्वारे इंपॅक्ट फॅक्टरचा अर्थ समजावून सांगा.

B) Answer **any two** of the following : **10**

1) ISSN Journals

आय एस एस एन जर्नल

2) Patents

पेटन्ट्स

3) Errors in research

संशोधनातील त्रुटी.

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Seat No.

Ph.D. Course Work Examination, 2016
COMMERCE
Research Methodology and Information Communication Technology
(ICT) (Paper – I)

Day and Date : Thursday, 28-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Note : i) Attempt **all** questions.
          ii) **All** questions carry **equal** marks.

1. a) Give the meaning and definition of research. Explain the types of research. **10**

   b) Write short notes on **any two** of the following. **10**

      i) Need of Research Design

      ii) Secondary data

      iii) Formats of Report Writing.

2. a) Which are the information technology issues for management ? Explain in detail. **10**

   b) Write short notes on **any two** of the following. **10**

      i) What is correlation ?

      ii) What is Tabulation ?

      iii) What is Hypothesis ?

3. a) What are the uses of ICT Tools ? State the impact of ICT on educational, social and economic development. **10**

   b) Write short notes on **any two** of the following. **10**

      i) Regression

      ii) Classification of data

      iii) Multivariate analysis.

4. a) Explain in detail the use of internet in research. **10**

   b) Write short notes on **any two** of the following. **10**

      i) Management control of I.T.

      ii) Formatting word processing document.

      iii) Printing word documents with various prints options.

5. a) What is internet ? Which are the requirements and technologies of internet ? **10**

   b) Write short notes (**any two**) **10**

      i) Project work

      ii) Assessing information from internet

      iii) Formatting and editing information.

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Seat No.

Ph.D. Course Work Examination, 2016
(Civil Engineering)
Paper – I : RESEARCH METHODOLOGY AND INFORMATION COMMUNICATION TECHNOLOGY (ICT)

Day and Date : Thursday, 28-1-2016
Time : 11.00 a.m. to 2.00 p.m.

Max. Marks : 100

Note : **All** questions are **compulsory**.

1. A) What do you understand by research ? Explain the features of theoretical, applied and experimental research. **10**

   B) Solve **any two** questions from the following : **10**

      1) What are the criteria for good research ?

      2) What are the objectives in undertaking the research ?

      3) What are the problems encountered by researchers in India ?

2. A) Explain the steps involved in research process with suitable flowchart. **10**

   B) Solve **any two** questions from the following : **10**

      1) Describe the steps involved in carrying out Literature Review.

      2) Explain the process of scheduling the research process. What are the constraints involved in scheduling the research plan ?

      3) What is probability sampling ? Explain the procedure for selecting a sample random sample with suitable example.

3. A) What is Monte Carlo simulation ? Explain its applications in Engineering. **10**

   B) Solve **any two** questions from the following : **10**

      1) How are the mathematical models classified ?

      2) Differentiate between parametric and non-parametric data with suitable examples.

      3) List and explain different approaches for design under uncertainty.

4. A) Define experimental design. What are the techniques used for validating the experiments ? **10**

   B) Solve **any two** questions from the following : **10**

      1) Differentiate between controllable and non controllable variable, with suitable examples.

      2) Explain the significance of S/N ratio in design of experiments.

      3) What is analysis of covariance (ANOCOVA) ? Why it is used ?

5. A) What is a research proposal ? What are the contents of a research proposal ? **10**

   B) Solve **any two** questions from the following : **10**

      1) What do you mean by impact factor of a journal ? How is it computed ?

      2) What is the difference between an International and National Patent ?

      3) What is the importance of references and appendices in a thesis ? What are the methods of presenting the references ?

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Seat No.

Ph.D. Course Work Examination, 2016
MARATHI
Paper – II : मराठी साहित्या तले नवे प्रवाह

Day and Date : Saturday, 30-1-2016　　　　　　　　　Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

१. अ) १९६० नंतर निर्माण झालेल्या विविध सामाजिक चळवळींचा साहित्य निर्मितीवरील प्रभाव
स्पष्ट करा. १०

　ब) लघुत्तरी प्रश्न (कोणतेही **दोन**) : १०

　　१) वाहरू सोनवणे यांचे काव्यलेखन

　　२) विविध प्रांतातील बोलीभाषा आणि ग्रामीण कादंबरी

　　३) नागनाथ कोत्तापल्ले यांचे कादंबरी लेखन.

२. अ) नवकथेचे स्वरूप स्पष्ट करा. १०

　ब) लघुत्तरी प्रश्न (कोणतेही **दोन**) : १०

　　१) गंगाधर गाडगीळांची कथा

　　२) भाऊ पाध्ये यांचे कादंबरी विश्व

　　३) राजन गवस यांच्या कादंबरीतील सामाजिक जाणिवा.

३. अ) दलित साहित्याची प्रेरणा व स्वरूप विशद करा. १०

　ब) लघुत्तरी प्रश्न (कोणतेही **दोन**) : १०

　　१) नामदेव ढसाळ यांच्या कवितेतील स्त्री चित्रण

　　२) केशव मेश्राम यांच्या ललित गद्याचे स्वरूप

　　३) दलित कथा.

४. अ) भारतीय स्त्रीवादाचे स्वरूप स्पष्ट करा. १०

ब) लघुत्तरी प्रश्न (कोणतेही **दोन**) : १०

१) गौरी देशपांडे यांचे कादंबरी विश्व

२) १९७५ नंतरच्या स्त्रीवादी कवयित्री

३) मेघना पेठे यांच्या नातिचरामि कादंबरीतील स्त्री व्यक्तिरेखा

५. अ) आदिवासी साहित्याच्या प्रेरणा व स्वरूप विशद करा. १०

ब) लघुत्तरी प्रश्न (कोणतेही **दोन**) : १०

१) आदिवासी साहित्यातील विद्रोही जाणीवा

२) माधव सरकुंडे यांचे कादंबरी लेखन

३) भुजंग मेश्राम यांची कविता.

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Seat
No.

Ph.D. Course Work Examination, 2016
ENGLISH
Recent Trends in Critical Theories (Paper – II)

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions :   1) **All** questions are **compulsory**.
                     2) **All** questions carry **equal** marks.

1. A) Write a note on different approaches to style.   **10**

   B) Write short notes on **any two** of the following.   **10**

   i) Foregrounding

   ii) Objectivity of Stylistics

   iii) Statistics in Stylistics.

2. A) Write a brief note on the history of Feminist Criticism.   **10**

   B) Write short notes on **any two** of the following.   **10**

   i) Feminist Criticism and Psychoanalysis

   ii) French Feminism

   iii) Feminist Stylistics.

3. A) "New Historicism and Cultural Materialism see literary texts as absolutely
      inseparable from their historical context". Comment.   **10**

   B) Write short notes on **any two** of the following.   **10**

   i) Role of ideology in New Historicism and Cultural Materialism

   ii) Culture politics

   iii) Foucault and New Historicism and Cultural Materialism.

4. A) "Ecocriticism is literary and cultural criticism from an environmental viewpoint". Discuss. **10**

   B) Write short notes on **any two** of the following. **10**

      i) Aestheticism and New Aestheticism

      ii) Conceptual Metaphor

      iii) Pastoral studies in Ecocriticism.

5. A) "The purpose of Cognitive Poetics is to rationalize and explain interpretation of literature". Discuss. **10**

   B) Write short notes on **any two** of the following. **10**

      i) Problems in defining 'lesbian text'

      ii) Feminism and Lesbian Criticism

      iii) Gay Criticism.

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Seat
No.

Ph.D. Course Work Examination, 2016
HINDI
Paper – II (New) : हिन्दी साहित्य: आलोचना और विमर्श

Day and Date : Saturday, 30-1-2016   Total. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचनाएँ : 1) *सभी प्रश्न अनिवार्य हैं।*
2) *दाईं ओर लिखे अंक प्रश्नों के गुण दर्शाते हैं।*

1. अ) आलोचना का स्वरूप स्पष्ट करते हुए मार्क्सवादी आलोचना का विवेचन कीजिए।   **10**

अथवा

स्वाधीनता आंदोलन में हिंदी की भूमिका स्पष्ट कीजिए।

आ) निम्नलिखित में से किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**

1) अंबेडकरवाद

2) मनोविश्लेषणवाद

3) ग्रामबोध

2. अ) साहित्य की संकल्पना स्पष्ट करके 'साहित्य का समाजशास्त्र' को विशद कीजिए।   **10**

अथवा

'हिंदी साहित्य में दलित विमर्श ' का विवेचन कीजिए।

आ) निम्नलिखित में से किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**

1) तुलनात्मक अध्ययन स्वरूप

2) आंचलिकता के भेद

3) नवभांडवलदार (नवउपभोक्तावाद)

3. अ) गांधीवाद का स्वरूप स्पष्ट कीजिए। **10**

अथवा

इतिहास दर्शन की संकल्पना विशद कीजिए।

आ) निम्नलिखित में से किन्हीं **दो** प्रश्नों के उत्तर लिखिए: **10**

1) महानगरीय बोध–स्वरूप

2) अस्तित्ववाद की विशेषताएं

3) मंडल आयोग और जनजागरण।

4. अ) साहित्य का मनोवैज्ञानिक अध्ययन का स्वरूप स्पष्ट कीजिए। **10**

अथवा

उत्तर आधुनिकतावाद का स्वरूप बताकर उसकी विशेषताएं स्पष्ट कीजिए।

आ) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए: **10**

1) आदिवासी विमर्श

2) घुमंतू जातियों का जागरण

3) भाषा वैज्ञानिक अध्ययन।

5. अ) सांस्कृतिक अध्ययन की आवश्यकता बताइए। **10**

अथवा

मार्क्सवाद का स्वरूप बताकर विशेषताएं स्पष्ट कीजिए।

आ) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए: **10**

1) समाजशास्त्रीय आलोचन

2) स्त्री विमर्श

3) आधुनिकताबोध।

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SLR-AN– 43A

Seat
No.

Ph.D. Course Work Examination, 2016
HINDI (Old)
Paper – II : हिंदी साहित्य : नये प्रवाह

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचनाएँ :   1) *सभी प्रश्न अनिवार्य हैं ।*

           2) *दाईं ओर निर्देशित पूर्णांक हैं ।*

1. अ) साहित्य और विचारधारा के पारस्परिक अनुबंध को स्पष्ट कीजिए ।   **10**

अथवा

वैदिक दर्शन वैचारिक पृष्ठाभूमि विशद कीजिए ।

   आ) किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**

      1) ईसाई मिशनरी और हिंदी गद्य ।

      2) हिंदी प्रसार और आर्य समाज ।

      3) सत्यशोधक समाज ।

2. अ) चार्वाक दर्शन का स्वरूप विशद कीजिए ।   **10**

अथवा

भारतीय स्वतंत्रता आंदोलन पर प्रकाश डालिए ।

   आ) किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**

      1) बौद्ध दर्शन का प्रभाव ।

      2) जैन दर्शन का अहिंसा मार्ग ।

      3) पुनरुत्थान और हिंदी ।

3. अ) पुनर्जागरण और हिंदी लोकजागरण का परिचय दीजिए ।   **10**

<div align="center">**अथवा**</div>

औद्योगिक संस्कृति की व्याख्या करते हुए उसके प्रभाव को स्पष्ट कीजिए ।

आ) किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**
1) राष्ट्रीयता और हिंदी ।
2) अंतरराष्ट्रीयता की संकल्पना ।
3) आधुनिकता बोध का स्वरूप ।

4. अ) मनोविश्लेषणवादी विचारधारा को समझाइए ।   **10**

<div align="center">**अथवा**</div>

गांधीवादी साहित्य का परिचय दीजिए ।

आ) किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**
1) मार्क्सवादी चिंतन प्रणाली ।
2) अस्तित्ववाद की प्रेरणाभूमियाँ ।
3) उत्तर आधुनिकतावाद की विशेषताएँ ।

5. अ) स्त्री–विमर्श की आधारभूमि का विवेचन कीजिए ।   **10**

<div align="center">**अथवा**</div>

आदिवासी विमर्श का स्वरूप समझाइए ।

आ) किन्हीं **दो** प्रश्नों के उत्तर लिखिए :   **10**
1) मंडल आयोग ।
2) दलित साहित्य में विद्रोह ।
3) घुमन्तू जातियों का जागरण ।

<div align="center">————————————</div>

Seat No.

Ph.D. Course Work Examination, 2016
PRAKRIT
Paper – II : Recent Trends in Prakrit
प्राकृत का भाषात्मक इतिहास

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : i) **All** questions are **compulsory**.
सर्व प्रश्न आवश्यक आहेत.
ii) Figures to the **right** indicate **full** marks.
उजवीकडील अंक पूर्ण गुण दर्शवितात.

1. अ) प्राकृत भाषेचा विकास विशद करा.   **10**

अथवा

मध्य भारतीय भाषांवर प्राकृत भाषेचा प्रभाव लिहा.

आ) कोणत्याही **दोहोंवर** सविस्तर टीपा लिहा :   **10**

i) अर्धमागधी प्राकृत

ii) मध्य स्वरलोप

iii) चूलिका पैशाची चे स्वरूप.

2. अ) प्राकृत व्याकरणकार परिचय व उद्देश्य स्पष्ट करा.   **10**

अथवा

अपभ्रंश व हिंदी अंत: संबंध स्पष्ट करा.

आ) कोणत्याही **दोहोंवर** सविस्तर टीपा लिहा :   **10**

i) शौरसेनी प्राकृत

ii) अर्धमागधीची जडणघडण

iii) अंत्य व्यंजनलोप.

3. अ) प्राकृत भाषेचा प्रारंभिक काळ निबंध लिहा. **10**

<div align="center">**अथवा**</div>

   अशोक शिलालेखांची भाषा व संदेश स्पष्ट करा.

   आ) कोणत्याही **दोहोंवर** सविस्तर टीपा लिहा : **10**

   i) अपभ्रंश प्राकृत

   ii) आदि व्यंजनलोप

   iii) विकृत वृद्धी संधी.

4. अ) प्राकृत भाषा व उत्तर भारतीय भाषा अंत: संबंध विशद करा. **10**

<div align="center">**अथवा**</div>

   द्वितीय युगीन प्राकृत भाषांचा परिचय द्या.

   आ) कोणत्याही **दोहोंवर** सविस्तर टीपा लिहा : **10**

   i) मध्य व्यंजनलोप

   ii) 'नो ण: सर्वत्र'चे विश्लेषण करा.

   iii) खारवेल शीलालेख.

5. अ) द्राविडी भाषांवर प्राकृत भाषा प्रभाव स्पष्ट करा. **10**

<div align="center">**अथवा**</div>

   प्राकृत भाषेचे संरक्षक जैनाचार्य स्पष्ट करा.

   आ) कोणत्याही **दोहोंवर** सविस्तर टीपा लिहा : **10**

   i) आदि स्वरागम

   ii) मध्य व्यंजनागम

   iii) अनुनासिक व्यंजन.

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Seat
No.

Ph.D. Course Work Examination, 2016
PHYSICS
Paper – II : Recent Trends in Physics

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. Explain principle and working of XPS. Explain in detail data analysis and chemical shift.

2. Explain determination of lattice parameter/s for cubic and hexagonal systems. What is advantage of low angle XRD ? What is texture coefficient ?

3. Explain principle of image formation in FESEM. What are its advantages over SEM ?

4. Describe determination of band gap energy of a semiconductor from optical absorption data. What is difference between direct and indirect band gap energy semiconducting materials ?

5. Describe AFM based nano-lithography and surface force.

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M.Phil./Ph.D. Course Work Examination, 2016
ORGANIC CHEMISTRY
Paper – II : Recent Trends in Organic Chemistry

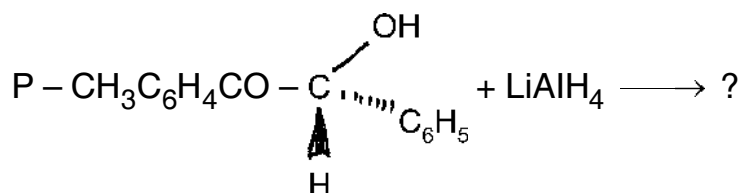Day and Date : Saturday, 30-1-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions :   i) *Attempt in **all five** questions.*

            ii) ***All** the questions carry **equal** marks.*

            iii) *Figures to the **right** indicate **full** marks.*

1. A) Discuss the stereochemistry of the ring system in cholestane.   **10**

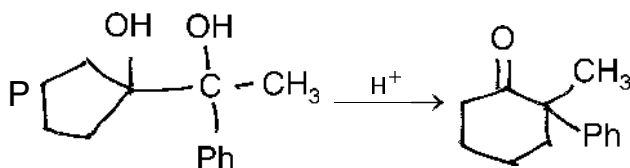   B) Answer the following (**any two**) :   **10**

      i) Explain the stereochemistry of the following reaction with respect to asymmetric synthesis

   $$P - CH_3C_6H_4CO - \underset{\underset{H}{\overset{|}{\big|}}}{\overset{OH}{\underset{C_6H_5}{C}}} + LiAlH_4 \longrightarrow ?$$

      ii) Discuss the stereochemistry of Yohimbine.

      iii) Explain enantioface differentiation in Meerwein-Ponndorf – Verley reaction with an example.

2. A) Give the synthetic application of Phosphorous (P) and Sulphur(S) reagents.   **10**

   B) Answer the following (**any two**) :   **10**

      i) What is meant by IPSO substitution ? Explain with respect to 1-chloro-2, 4-dinitrobenzene.

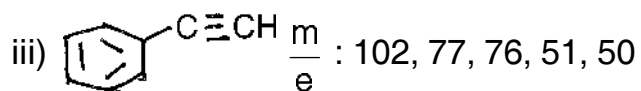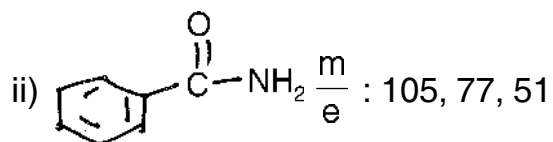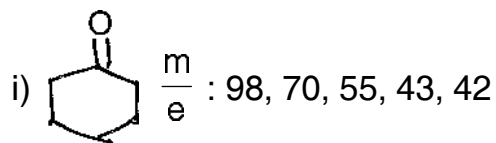   ii) Explain the mechanism of the following reaction and write the type of rearrangement

      iii) Explain the reaction, mechanism and application of Hoffmann rearrangement.

3. A) Explain in detail with example the factors that influence the c = 0 stretching vibration. **10**

   B) Answer the following (**any two**) : **10**

   i) Molecular formula $C_7H_{10}O_3$
   IR : 1800, 1765 cm^{-1}
   PMR : 2.8 (t, J = 7 Hz 2H), 1.3(s, 6H), 1.8(t, J = 7Hz, 2H)
   Mass : 142, 70, 56

   ii) Mass – 158
   IR – 3077, 2857 cm^{-1}, 1828, 1757 cm^{-1}
   PMR – 3.1 (Sept, J = 6.7Hz, 2H), 1.55(d, J = 6.7 Hz 12H)

   iii) $C_{12}H_{14}O$
   IR = 2240 cm^{-1}
   Mass – 174, 156, 141, 102, 43
   PMR – 7.1 (m, 5H), 1.90(s, 3H), 1.3(q, 2H), 1.2(t, 3H), 9(s, 1H)

4. A) What is HSQC experiment ? Explain the use of HSQC experiments with suitable examples. **10**

   B) Answer the following (**any two**) : **10**

   i) Explain nuclear overhauser effect with an example.

   ii) Explain off-resonance decoupling experiment with an example.

   iii) Discuss different type of techniques used in 'HNMR to solve complex spectrum.

5. A) Explain McLafferty rearrangement in mass spectroscopy. **10**

   B) Answer the following (**any two**) : **10**

   i) $\dfrac{m}{e}$: 98, 70, 55, 43, 42

   ii) $\dfrac{m}{e}$: 105, 77, 51

   iii) $\dfrac{m}{e}$: 102, 77, 76, 51, 50

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Seat No.

M.Phil./Ph.D. Course Work Examination, 2016
INORGANIC CHEMISTRY
Recent Trends in Inorganic Chemistry (Paper – II)

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

> ***Instructions*** : 1) *Attempt in* **all five** *questions.*
> 2) **All** *the questions carry* **equal** *marks.*
> 3) *Figures to the* **right** *indicate* **full** *marks.*

1. A) Describe the Sn^{+2} and Sn^{+4} compounds with nature of metal-ligand bonding, coordination number and its structure. What is the bonding and structure of Fe^{+2} and Fe^{+3} compounds ? **10**

   B) Answer the following (**any two**) : **10**

   i) Explain the effect of magnetic field on Mossbauer spectroscopy.

   ii) Applications of metal oxides in sensors.

   iii) A photon of wavelength λ has an equivalent momentum by λ / λ. Calculate the recoil velocity of a free Mossbauer nucleus of mass 1.67×10^{-25} Kg (i.e. Atomic weight – 100) when emitting a γ-rays 0.1 nm wavelength. What is the Doppler shift of the γ-ray frequency to an outside observer ?

   (Given, h = 6.626×10^{-34} Js, C = 2.998×10^{8} ms^{-1})

2. A) Explain intermetallic compounds of monomolecular solids. Describe the Tin halides and Tin chalcogenides with suitable examples. **10**

   B) Answer the following (**any two**) : **10**

   i) What the role of Tin in inorganic system ?

   ii) Give an account of inorganic complexes of Sn^{+2} and Sn^{+4} with nitrogen donor ligands.

   iii) Give the synthesis and applications of Fe_2O_3.

3. A) Describe the principle, instrumentation and applications of TGA technique. **10**

   B) Answer the following (**any two**) : **10**

   i) What is the glass transition temperature ? Explain with suitable example.

   ii) Explain the difference between power compensated and heat flux in DSC instrument.

   iii) Explain the mechanism of photodegradation with suitable examples.

4. A) Sketch the optical ray diagram of transmission electron microscope and describe the functioning of each component involved in it. **10**

   B) Answer the following (**any two**) : **10**

   i) Explain the detectors used in XRD.

   ii) Write note on interference (SQUID) magnetometry.

   iii) What do you mean by catalysis ? How do metal oxides act as catalyst ? Explain its mechanism.

5. A) Describe principle, working and applications of X-ray photoelectron spectroscopy. **10**

   B) Answer the following (**any two**) : **10**

   i) Give a short account on multiplate splitting and valence orbital spectra in XPS.

   ii) Explain the spectra of transition metal complexes in X-ray absorption spectroscopy.

   iii) Write short note on synthesis and applications of TiO_2.

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SLR-AN – 50

Ph.D. Course Work Examination, 2016
ZOOLOGY
Paper – II : Recent Trends in Zoology

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions: 1) *All* questions are *compulsory*.

2) Figures on *right* hand side indicate marks.

3) Draw labeled diagrams *wherever* necessary.

1. A) Give an account of different immunohistochemical methods.   **10**

   B) Write short notes (**any two**) :   **10**

      i) Rotary microtome.

      ii) Principle and application of phase contrast microscope.

      iii) Histological staining.

2. A) Define carbohydrate ? Give its types and add a note on qualitative detection of carbohydrates.   **10**

   B) Write short notes (**any two**) :   **10**

      i) Differential count of leucocytes.

      ii) Paper chromatography.

      iii) Spectrophotometer.

3. A) Give an account of DNA finger printing.   **10**

   B) Write short notes (**any two**) :   **10**

      i) Agarose gel electrophoresis.

      ii) Standard cell culture technique.

      iii) Chemistry and classification of hormones.

4. A) What is biodiversity ? Explain the various applications of computer in
   biodiversity study. **10**

   B) Write short notes (**any two**) : **10**
   i) Proteomics.
   ii) Biostatistics and biological research.
   iii) Analysis of gene structure and expression.

5. A) What is phylogeny ? Explain the role of bioinformatics in analyzing phylogeny. **10**

   B) Write short notes (**any two**) : **10**
   i) Search engine.
   ii) Use of internet to biologist.
   iii) Components of bioinformatics.

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SLR-AN – 51

Seat
No.

Ph.D. Course Work Examination, 2016
GEOGRAPHY (Paper – II)
Recent Trends in Geography

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) "Geography as a Scientific Discipline" explain.   **10**
   B) Short answer type **any two** :   **10**
      1) Strabo
      2) Types of law
      3) Family planning and Maternity and Child Health (MCH) strategies.

2. A) Describe Geography as a ideographic discipline.   **10**
   B) Short answer type **any two** :   **10**
      1) Concept of space
      2) Human Development Index (HDI)
      3) German School of geography.

3. A) Explain regional concept and attributes of region.   **10**
   B) Short answer type **any two** :   **10**
      1) Behavioral approach
      2) Importance of measurement in geography
      3) Indian geographical concepts.

4. A) Explain need and significance of model in geography.   **10**
   B) Short answer type **any two** :   **10**
      1) Geography and health care planning
      2) Concept of area
      3) Human Poverty Index (HPI).

5. A) Explain application of geography in planning and development of tourism.   **10**
   B) Short answer type **any two** :   **10**
      1) Role and utility of theory
      2) Geography and industrial planning
      3) National population policy (2000) in India.

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Seat No.

M.Phil./Ph.D. Course Work Examination, 2016
APPLIED GEOLOGY
Paper No. – II : Recent Trends in Geology

Day and Date : Saturday, 30-1-2016　　　　　　　　　　　Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Answer **all** questions.
　　　　　　　　 2) **All** question carry **equal** marks.

1. A) Discuss in brief sample preparation, their digestion and analysis.
   B) Answer **any two** :
   a) Geological significance of fluid inclusions.
   b) Preparation of geological maps.
   c) X-ray diffraction.

2. A) What is Atomic Absorption Spectrophotometry. Add a note on applications of AAS.
   B) Write note on **any two** :
   a) Application of Remote Sensing in Geology
   b) Fission track dating
   c) Scale of mapping.

3. A) Discuss the salient aspects of Geological report writing.
   B) Explain **any two** :
   a) Differential thermal analysis.
   b) Sampling methods
   c) Mass spectrographic analysis.

4. A) Give various quality controls involved in geochemical analytical methods for geological samples.
   B) Discuss **any two** :
   a) Statistical methods used in Geology
   b) Optical properties of minerals.
   c) Radioactivity.

5. A) Explain the basic principle of SEM and its application in ore petrography.
   B) Answer **any two** :
   a) Accessories of transmitted light microscope.
   b) Drilling and logging
   c) Classification of fluid inclusions.

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Seat
No.

Ph.D. Course Work Examination, 2016
MICROBIOLOGY
Paper – II : Recent Trends in Microbiology

Day and Date : Saturday, 30-1-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) ***All*** questions are ***compulsory***.
               2) *Figures to the **right** indicate **full** marks.*

1. A) Explain Sanger's dideoxy method of DNA sequencing.   **10**

    B) Write notes on (**any two**) :   **10**
       i) Principle of NMR.
       ii) Applications of autoradiography.
       iii) FAME analysis.

2. A) Discuss in detail principle, working and applications of atomic absorption
      spectroscopy.   **10**

    B) Explain in brief **any two** of the following :   **10**
       i) DNA fingerprinting by STR.
       ii) Principle of molecular sieve chromatography.
       iii) DGGE.

3. A) What do you understand from affinity chromatography ? Explain with suitable
      example.   **10**

    B) Write short notes on (**any two**) :   **10**
       i) Construction of phylogenetic tree.
       ii) Applications of MSMS.
       iii) DNA fingerprinting by AFLP.

4. A) Explain in detail principle, working and applications of SDS-PAGE. **10**

   B) Explain in short (**any two**) : **10**
      i) Principle of UV-visible spectrophotometer.
      ii) Applications of radioisotopes in biology.
      iii) Northern blot.

5. A) What is meant by DNA fingerprinting ? Explain any one method in detail. **10**

   B) Explain in short (**any two**) : **10**
      i) Applications of fluorescence spectroscopy.
      ii) Principle of TLC.
      iii) Analytical ultracentrifugation.

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Seat No.

Ph.D. Course Work Examination, 2016
ENVIRONMENTAL SCIENCE
Paper – II : Recent Trends in Environmental Science

Day and Date : Saturday, 30-1-2016　　　　　　　　　　Total. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

N.B. : 1) **Each** questions carry **equal** marks.
　　　　2) Part – **A** of the questions are **compulsory**.
　　　　3) Solve **any two** from given **three** questions from Part – **B** of question.

1. A) How flame photometer works, draw a labelled diagram ?　　　　**10**

　　B) Write in brief on **any two** of the following :　　　　　　　**10**
　　　　i) Types of aerial photographs
　　　　ii) FTIR
　　　　iii) Satellite imaginaries.

2. A) Applications of GIS in Marine Resources management.　　　　**10**

　　B) Write in brief on **any two** of the following :　　　　　　　**10**
　　　　i) Application of GPs
　　　　ii) Types of camera and characteristics
　　　　iii) NMR.

3. A) Explain principle and applications of Colorimeter.　　　　　**10**

　　B) Write in brief on **any two** of the following :　　　　　　　**10**
　　　　i) Application of GIS in ecology
　　　　ii) Mass spectrophotometer
　　　　iii) Use of GIS in agriculture.

P.T.O.

4. A) What are the uses of X-ray ? Explain the principle. **10**

   B) Write in brief on **any two** of the following : **10**
      i) Types and uses of sensors
      ii) Nephelometer
      iii) GIS in disaster management.

5. A) Applications of GIS and RS in water resource management. **10**

   B) Write in brief on **any two** of the following : **10**
      i) Gas chromatography
      ii) Main components of GIS
      iii) Application of GIS in Geological mapping.

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SLR-AN – 60

Ph.D. Course Work Examination, 2016
LIBRARY AND INFORMATION SCIENCE
Paper – II : Recent Trends in Library and Information Science

Day and Date : Saturday, 30-1-2016　　　　　　　　　　　Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) Discuss Web 2.0 and their tools and application in library. **10**

   B) Short answers type (Solve **any two**) : **10**
      1) Impact of ICT in Higher and Academic Library.
      2) Application of library 2.0.
      3) E-Governance.

2. A) What is digital library ? Give their need and characteristics. **10**

   B) Short answers type (Solve **any two**) : **10**
      1) Open sources software and their types.
      2) Process of digital preservation.
      3) Intellectual Property Right (IPR).

3. A) Discuss on Consortia ? Give their importance and need. **10**

   B) Short answers type (Solve **any two**) : **10**
      1) Resource sharing in Internet era.
      2) INDEST.
      3) Resource sharing in National level.

4. A) What is DBMS ? Discuss the DBMS details. **10**

   B) Short answers type (Solve **any two**) : **10**
      1) LINUX.
      2) Introduction and concept of RDBMS.
      3) Discuss the interfaces for RDBMS using My SQL.

5. A) Describe different security measures in LIS centers ? Discuss any two models. **10**

   B) Short answers type (Solve **any two**) : **10**
      1) Routers.
      2) Concept of Information Literacy.
      3) Computer literacy.

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Seat
No.

Ph.D. Course Work Examination, 2016
ECONOMICS (Old)
Paper No. – II : Recent Trends in International Economics

Day and Date : Saturday, 30-1-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions :   1) **All** questions are **compulsory**.

2) Figures to the **right** indicate **full** marks.

1. A) Discuss the effects of economic growth on trade.   **10**

   B) Answer **any two** questions of the following :   **10**

      i) Explain the role of trade in technological transmission.

      ii) Examine the growth of MNCs in India.

      iii) Elucidate the drawbacks of the working of the MNCs.

2. A) Discuss the Kravis theory of trade.   **10**

   B) Answer **any two** questions of the following :   **10**

      i) State the functions of the GATT.

      ii) Describe the structure of the WTO.

      iii) Comment on the post WTO economic environment of the world.

3. A) Explain the Kenen's theory of human capital.   **10**

   B) Answer **any two** questions of the following :   **10**

      i) Explain the competitiveness of export firms in India.

      ii) What is meant by direction of international trade ?

      iii) Assess the trends in composition of India's foreign trade in the post reform
           era.

4. A) Elucidate the Emmuanuel's theory of unequal exchange. **10**

   B) Answer **any two** questions of the following : **10**

   i) Comment on liberalization in India.

   ii) What are the peculiarities of direction of India's trade in the liberalization era ?

   iii) Explain the impact of liberalization on technological up gradation of India.

5. A) Examine the trends in FDI in the post reform India. **10**

   B) Answer **any two** questions of the following : **10**

   i) Discuss the export promotion measures adopted in India after 1991.

   ii) Describe the role of SEZs in the promotion of international trade.

   iii) How does human capital development help in export promotion ?

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Seat
No.

Ph.D. Course Work Examination, 2016
ECONOMICS (Paper – II) (New)
Advanced Theories in Economics

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
                   2) ***All*** *questions carry* ***equal*** *marks.*

1. A) Examine two sector IS-LM model of rate of interest.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Cobb-Douglas production function.
      ii) Production possibility curve.
      iii) Difference between chamber lain and Mrs. Robinson's contribution to imperfect competition.

2. A) State the maximum rate of growth and profits hypothesis of Morris.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Sylos-Labini model.
      ii) Hall and Hitch report.
      iii) Satisfying behaviour of the firm.

3. A) State the Keynesian theory of rate of interest.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Price and income elasticity of demand.
      ii) Technical progress and production function.
      iii) Cartels.

4. A) Examine the price leadership model under oligopoly.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Substitution effect.
      ii) Group equilibrium with product differentials.
      iii) Bertand's views on oligopoly.

5. A) Why the cost curves are U shaped ? What is difference between MC and AC ? **10**

B) Write short notes on **any two** of the following : **10**

    i) Limit pricing

    ii) Iso cost approaches

    iii) Properties of indifference curves.

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SLR-AN – 69

| Seat | |
| No. | |

Ph.D. Course Work Examination, 2016
JOURNALISM AND MASS COMMUNICATION
Paper No. – II : Mass Communication and Society

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
                2) **All** questions carry **equal** marks.

1. A) Define Mass Communication and state seven characteristics of Mass Communication. **10**

    B) Short answer type (**any two**) : **10**
       i) Describe Bullet theory and cultivation theory of communication.
       ii) How uses and gratifications theory of communication useful to study of media ?
       iii) Write two step flow theory of communication to understand communication process.

2. A) Discuss the role of Indian Press during the freedom movement. **10**

    B) Short answer type (**any two**) : **10**
       i) Write about social reform journalist and women's issues in 19th century.
       ii) Write the structure of television channel management.
       iii) What is print media research ? State the areas of print media research.

3. A) 'Advertising research is applied research' explain. **10**

    B) Short answer type (**any two**) : **10**
       i) Write the importance of public opinion research in public relations.
       ii) Explain the term of rating and non-rating research in television.
       iii) Write the need of social media research.

4. A) Define culture and state the need to understand cultural imperialism process in the context of Indian Media. **10**

   B) Short answer type (**any two**) : **10**
      i) Write emerging issues in environmental journalism.
      ii) State the need of women's programme on AIR.
      iii) Write on 'Media and Society'.

5. A) Discuss the role of PCI in journalistic ethics. **10**

   B) Short answer type (**any two**) : **10**
      i) Write the self regulatory authorities for private television channels.
      ii) Write the constitutional provision of freedom of press in India.
      iii) Explain FDI in print media.

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Seat
No.

Ph.D. Course Work in Rural Development Examination, 2016
Paper – II : THEORIES AND PRACTICES OF RURAL DEVELOPMENT

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) *All* questions are *compulsory*.
                              2) *Figures to the* **right** *indiate* **full** *marks.*

1. A) Differentiate Subsistence farming and Capitalist farming in brief.   **10**
   B) Write short notes on **any two** :   **10**
      a) IRDP   b) Social Accountability   c) MGNAREGA.

2. A) Elaborate the Capitalistic Mode of Production in Agriculture.   **10**
   B) Write short notes on **any two** :   **10**
      a) Right to Food
      b) Forest Right Act
      c) Khadi and Village Industries Commission.

3. A) Elaborate with suitable examples the role of Information Technology in Rural
      Poverty Reduction.   **10**
   B) Write short notes on **any two** :   **10**
      a) Primitive accumulation
      b) Owner cultivator
      c) Community Development Program.

4. A) What do you mean by Bottom up Approach of development, describe the role
      of local governance visualised in this approach with suitable example ?   **10**
   B) Write short notes on **any two** :   **10**
      a) Financial Inclusion
      b) Gender Budgeting
      c) Participatory Rural Appraisal (PRA).

5. A) Define sustainable development and critically examine the impact
      of Industrialisation and Urbanisation on environment and sustainability.   **10**
   B) Write short notes on **any two** :   **10**
      a) Eco feminism   b) Rio Summit   c) Public Distribution System (PDS).

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SLR-AN – 71A

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M.Phil./Ph.D. Course Work Examination, 2016
EDUCATION (Paper – II) (Old)
Recent Trends in Education

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
                 2) **All** questions carry **equal** marks.
                 3) Draw necessary diagrams **wherever** required.

1. A) Describe any two innovative programmes in teacher education.   **10**

    B) Answer **any two** of the following :   **10**
       a) Importance of alternative assessment.
       b) Internationalization of education.
       c) Importance of leadership in educational administration.

2. A) Describe any two traits theories of leadership in educational administration.   **10**

    B) Answer **any two** of the following :   **10**
       a) Salient features of character education.
       b) Significance of active and enjoyable education.
       c) Need of quality audit.

3. A) Discuss following challenges in higher education   **10**
       1) Imbalance in the educational system.
       2) Education for sustainable future.

    B) Answer **any two** of the following :   **10**
       a) Importance of multigrade teaching.
       b) Need of quality improvement in self financing courses.
       c) Strategies of critical striking skills.

4. A) Describe following trends in education.   **10**
       a) Equity and excellence.
       b) Media literacy.

B) Answer **any two** of the following : **10**

   a) Role of education in 21st century. Explain.

   b) Explain the merits and demerits of short term teacher training programme.

   c) Explain the concept of leadership.

5. A) Explain the essentiality of quality and quality assurance in higher education. **10**

   B) Answer **any two** of the following : **10**

     a) Need of active and enjoyable education.

     b) Importance of internationalization of education.

     c) Core values of assessment and accreditation in higher education.

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Seat
No.

M.Phil./Ph.D. Course Work Examination, 2016
EDUCATION (Paper – II)
Trends in Education (New)

Day and Date : Saturday, 30-1-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
　　　　　　　　　2) Figures to the **right** indicate **full** marks.

1. What is meant by continuous and comprehensive Evaluation System ? Explain
   tools of Continuous and Comprehensive Evaluation.   **20**

   ### OR

   What is the history of constructivism and how has it changed over time ? How
   does this theory differ from traditional ideas about teaching and learning ?

2. What is Project Based Learning ? Explain the process of project based learning.   **20**

   ### OR

   Why NAAC is essential in higher education ? Explain any four activities for best
   practices in Teacher Education for NAAC.

3. A) Explain the concept Inclusive Education.   **10**

   B) What is role of DIET in Primary Education ?   **10**

   ### OR

3. A) What are the challenges and opportunities in Digital Age ?   **10**

   B) Why e-learning strategies are important in today's education ?   **10**

4. Answer the following questions (**any five**) :   **40**

   a) Explain the need of RTE Act – 2009 in Primary Education.

   b) What is the role of Open University in scaling up quality education for all ?

   c) What is mobile learning ? How to use mobile for better teaching ?

   d) Why Financial Assistance Schemes of UGC is important in Higher Education ?

   e) What is Role of NCTE in Teacher Education ?

   f) What are the principals of brain based learning strategy ?

   g) What is meant by Open Book Examination System ? What are merits and
      demerits of Open Book Examination ?

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Seat No.

Ph.D. Course Work Examination, 2016
COMMERCE
Paper – II : Recent Trends in Commerce

Day and Date : Saturday, 30-1-2016   Max. Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

N.B. :   i) Attempt **all** questions.

      ii) **All** questions carry **equal** marks.

1. a) What are the global issues and prospects of E-Commerce ?   **10**

   b) Write note on **any two** of the following :   **10**

     i) E-Commerce in developing countries.

     ii) E-Banking.

     iii) Concept of B2C.

2. a) Explain in detail the CRM in global corporations and its utility.   **10**

   b) Explain **any two** of the following :   **10**

     i) E-CRM.

     ii) Commerce services.

     iii) Social commerce.

3. a) Explain emerging trends in sociatal commerce and shopping carts.   **10**

   b) Write notes on **any two** :   **10**

     i) Shop on the facebook.

     ii) IT system in business environment.

     iii) IT and business services.

4. a) Explain new trends in International Trade and its impact on Indian Business. **10**

   b) Write notes on **any two** : **10**

      i) Managing IT system in modern business.

      ii) Outsourcing to local partners.

      iii) Emerging business model.

5 a) Marketing of service is difficult than marketing of product. Discuss. **10**

   b) Explain **any two** of the following : **10**

      i) Various sectors of economy.

      ii) Management of service quality.

      iii) Significance of service sector to the world economy.

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SLR- AN – 75A

Seat No.	

Ph.D. Course Work (Old) Examination, 2016
CIVIL ENGINEERING
Paper – II : Recent Trends in Civil Engineering

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Solve **all** questions.
              2) Assume **any** suitable data **wherever** necessary.
              3) **Use** of non-programmable calculator is **allowed**.

1. a) Explain in detail about spreadsheet with reference to applications, features and functions. **10**

   b) Explain the effective use of presentation tools available with suitable examples. **10**

2. a) Find the root of the equation upto three decimal by using Newton Raphson method. **10**
$x^3 – 3x + 1 = 0.$ **(1)**

   b) 1) Determine the Eigen value of the characteristic matrix given below : **5**

$$\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$$

      2) Explain initial and boundary value problem with an example of civil engineering. **5**

3. a) Evaluate for integral using 2-point and 3-point Gaussian Quadrature. **10**

$$\int_{0.2}^{1.5} e^{-x^2} dx$$ **(2)**

   b) For the following data, calculate the differences and obtain the forward and backward difference polynomials, interpolate at x = 9. **10**

x	5	7	11	13	17
f(x)	150	392	1452	2366	5202

4. a) Explain in detail about various types of distributions with appropriate plots. **10**

   b) Assuming that half of the population in a city is vegetarian so that the chances of an individual being vegetarian is $\frac{1}{2}$ and assuming that 100 investigators take a sample of 10 individuals to see whether they are vegetarian. How many investigators would you expect to report that three people or less were vegetarian ? **10**

5. a) Explain line of regression. Find both the lines of regression for the following examination results. Assume coefficient of co-relation is 0.95. **10**

	Marks in Applied Mechanics	**Marks in Maths**
Mean	47.5	39.5
Std. Dev.	16.8	10.8

   b) An item is produced on four machines an inspection of samples of these items show the following results :

	M₁	**M₂**	**M₃**	**M₄**	**Total**
Grade 1	30	42	32	45	149
Grade 2	20	18	18	15	71
Total	50	60	50	60	220

   Test at 0.05 level of significance weather the proportion of Grade-1 items is same in the production of all machines. **10**

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SLR-AN – 75B

Ph.D. Course Work Examination, 2016
CIVIL ENGINEERING
Paper – II : Advances in Civil Engineering (New)

Day and Date : Saturday, 30-1-2016　　　　　　　　　Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Answer **all** the questions.
　　　　　　　　2) Assume suitable data **whereve**r necessary and mention it **clearly** with underline.
　　　　　　　　3) There are **internal** OR in sub-questions of some of main questions. However, Q. **4** is **full** OR.
　　　　　　　　4) **Use** of non-programmable advanced scientific calculator is **allowed**.

1. a) Explain any two specific applications of Eigen-value analysis in civil engineering. **4**

   b) Write procedural algorithm for matrix multiplication of two matrices A and B of order m by n and n by p respectively. Use subscript notations i and j for A and j and k for B for rows and column indices respectively. **10**

   <div align="center">OR</div>

   b) A circular foundation 2 m in diameter is required. A normally consolidated clay layer 5 m thick is located below the foundation. <u>Enumerate only the steps and show in EXCEL</u> (<u>Tabular form</u>) to get consolidation settlement of clay using standard convention of symbols for density of soils. Data : From G. L. depth of footing at 1 m, GWT at 1.5 m, Sand exist for 2 m of which bottom 0.5 m is saturated. Below the sand. Normally consolidated clay exist for 5 m depth with consolidation coefficient of 0.16 and voids ratio of 0.85. Loading on footing due to column is 150 KN/m^2. **10**

   c) Explain in short, the use and importance of interpolation and extrapolation and state their application example in real world of civil engineering. **4**

2. a) Define the terms :
    i) Two Dimensional probability
    ii) Conditional probability
    iii) Marginal probability. **4**

   b) Certain firm has three RMC plants A, B, C producing 15%, 40%, 45% concrete of total output. The probability of defective product from these plants is 0.25, 0.15 and 0.05 respectively. If a sample concrete picked up from output of these plants is found to be defective, what is the probability that it is produced by plant C. **6**

   c) Explain important terms used in factor analysis used in multivariate analysis. **8**

                    OR

   c) Explain in short, by numerical example or otherwise, significance of multiple regression and correlation and the procedure to determine coefficient of multiple correlation used in multivariate analysis. **8**

3. a) Explain in short the components of GIS. State the differences between Spatial and Non-Spatial Data. **6**

   b) Explain role of G.I.S. in "Preparedness" aspect in monsoon flood situation for assessing loss in general and rehabilitation of people. **7**

   c) Explain in short "scoping" in Environmental Impact Assessment (EIA). What are the three categories of the projects that are screened by World Bank under "EIA". **7**

4. a) Discuss Concave and Convex functions and associated optimization. **5**

   b) Explain steps in linear programming method of optimization. **5**

   c) Find optimum solution in following Transportation problem in which cell figure shows transportation cost in INR. **10**

	W1	W2	W3	W4	W5	Available
F1	7	6	4	5	9	40
F2	8	5	6	7	8	30
F3	6	8	9	6	5	20
F4	5	7	7	8	6	10
Required	30	30	15	20	5	100

                    OR

a) Write a short essay on "Self Sustainable Village" by addressing issues of Energy, Environment and Housing and infrastructural needs. **10**

b) Classify various urban transportation innovations and describe any one in detail as regard to financial feasibility, technical feasibility, construction management etc. **6**

c) Discuss pros and cons of "Jal-Yukt Shivar" concept of irrigation. **4**

5. a) With suitable sketches explain the mechanics of negative skin friction in piles. **6**

b) Derive the expression for settlement of pile using standard notations. **6**

c) Write a note on : **6**
   i) Mass concrete
   ii) No fines concrete

d) Compare sulphur concrete with sulphur infiltrated concrete. **6**

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Seat
No.

Ph.D. Course Work Examination, 2016
COMPUTER SCIENCE AND ENGINEERING
Paper – II : Recent Trends in Computer Science and Engineering

Day and Date : Saturday, 30-1-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) With a diagram explain the Decision Tree representation and working. List
      and explain the issues in Decision Tree learning.   **10**

   B) Answer **any two** :   **(5× 2=10)**

      i) Explain the General-to-Specific ordering of Hypotheses.

      ii) Discuss the List-Then-Eliminate algorithm.

      iii) Discuss the mistake bound model of learning.

2. A) Explain the weighted majority algorithm.   **10**

   B) Answer **any two** :   **(5× 2=10)**

      i) Elaborate the Back propagation algorithm.

      ii) Explain Naïve Bayes classifier with an example.

      iii) What is the Data ? Why it is important ? Illustrate with examples.

3. A) Discuss the relevance of unstructured data in today's world.   **10**

   B) Answer **any two** :   **(5× 2=10)**

      i) Explain the industry applications of Big data.

      ii) Discuss the open source technology for big data analysis.

      iii) List and explain the global privacy principles.

4. A) Explain Map reduce programming model for data processing. **10**

   B) Answer **any two** : **(5× 2=10)**

   i) Explain the anatomy of file write and file read in HDFS

   ii) Write a short note on HIVE

   iii) Explain the phases of IOT.

5. A) Discuss the advantages of cloud computing paradigm. **10**

   B) Answer **any two** : **(5× 2=10)**

   i) List and explain the types of services provided by cloud. How clouds are classified based on ownership and exposure ?

   ii) Explain the various categories of web applications.

   iii) Explain the Requirements Engineering for web applications.

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Seat
No.

Ph.D. Course Work Examination, 2016
PHARMACY
Paper – II : Pharmaceutical Sciences – I (New)

Day and Date : Saturday, 30-1-2016   Total Marks :100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
                          2) Figures to the **right** indicate **full** marks.

1. a) Discuss the behavior of functional groups towards infrared radiations.   **10**

   b) Answer the following (**any two**) :   **10**

      i) What is ICH ? Explain their categories.

      ii) Explain pre-clinical studies of drug development process.

      iii) What are the roles of regulatory affairs professional ?

2. a) Why are cGMPs so important ? Give guideline for building and
      facilities, equipment.   **10**

   b) Answer the following (**any two**) :   **10**

      i) What is clinical trial ? Who can participate in a clinical trial ?

      ii) Name different immunochemical techniques. Explain ELISA technique.

      iii) Explain IND, NDA and ANDA.

3. a) Discuss various phases of clinical trial and their objectives.   **10**

   b) Answer the following (**any two**) :   **10**

      i) Explain the procedures used for calculating the concentrations of the
         UV-vis absorbing substance from the measured absorbance.

      ii) Write short note on ethics committee, its constitution and role of each
          member.

      iii) Give basics and methodology of BA/BE studies.

4. a) What ate the basic principles of GMP ?   **10**

   b) Answer the following (**any two**) :   **10**

      i) Can manufacturers afford to implement GMP ?

      ii) Give significance of safety test during drug development.

      iii) What is chromatography ? Give its applications.

5. a) Explain methods for assuring that quality is designed into pharmaceuticals.   **10**

   b) Answer the following (**any two**) :   **10**

      i) Give the procedure for filling ANDA application.

      ii) Write note on animal models for drug testing.

      iii) Give applications of uv-vis spectroscopy.

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Ph.D. Course Work Examination, 2016
MARATHI (Paper – III) (Old)
मराठी साहित्यातील नव्या संकल्पना

Day and Date : Monday, 1-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचना :   *१) सर्व प्रश्न आवश्यक.*
          २) सर्व प्रश्नांना समान गुण आहेत .

१. अ) मराठी साहित्यातील वाङ्मयीन वाद कोणते त्यांचे स्वरूप सांगा.   १०

   ब) पुढीलपैकी **दोन** प्रश्नांची थोडक्यात उत्तरे द्या.   १०

      १) वास्तववादाचे वैचारिक अधिष्ठान सांगा.

      २) वास्तववादांची मतमतांतरे लिहा.

      ३) वास्तववादाच्या मर्यादा स्पष्ट करा.

      ४) मराठीतील वास्तववादी कादंबऱ्यांचा परिचय करून द्या.

२. अ) अस्तित्ववादांचे विशेष साधार सांगा.   १०

   ब) पुढीलपैकी **दोन** प्रश्नांची थोडक्यात उत्तरे द्या.   १०

      १) अस्तित्ववादाचे स्वरूप सांगा.

      २) वास्तववाद आणि अस्तित्ववाद या मधील भेद स्पष्ट करा.

      ३) अस्तित्ववादी कादंबरीचे वैशिष्ट्ये लिहा.

      ४) अस्तित्ववादामागील पाश्चात्यांची भूमिका.

३. अ) आधुनिकतावाद आणि उत्तर आधुनिकतावाद यांच्यातील भेद विवेचनासह स्पष्ट करा.   १०

   ब) पुढीलपैकी **दोन** प्रश्नांची थोडक्यात उत्तरे द्या.   १०

      १) आधुनिकतेची संकल्पना स्पष्ट करा.

      २) मराठी काव्यातील आधुनिकतावादाचे स्वरूप सांगा.

      ३) मराठी साहित्यामध्ये आधुनिकतावाद कसा आला चर्चा करा.

      ४) उत्तर आधुनिकतावादाचे विशेष नोंदवा.

४. अ) देशीवादाच्या मूलतत्त्वांची चर्चा करा. १०

ब) पुढीलपैकी **दोन** प्रश्नांची थोडक्यात उत्तरे द्या. १०

१) पाश्चात्य साहित्यविचारामधील देशीवाद सांगा.

२) भालचंद्र नेमाडे यांची देशीवादाची मांडणी स्पष्ट करा.

३) मराठी साहित्य आणि देशीवाद विचार उलगडून दाखवा.

४) देशीवादा विषयीची विविध मते नोंदवा.

५. अ) संरचना वादाचे स्वरूप सांगा. १०

ब) पुढीलपैकी **दोन** प्रश्नांची थोडक्यात उत्तरे लिहा. १०

१) भाषाविज्ञानामधील महत्त्वाचे विचार सांगा.

२) भाषा आणि संरचनावाद यामधील परस्पर पूरक नावे सांगा.

३) रूपवादाचे स्वरूप सांगा.

४) रूपवादाची पाश्चात्यांची परंपरा सांगा.

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Ph.D. Course Work Examination, 2016
ENGLISH (Paper – III)
(Modern Trends in Drama, Novel and Poetry)

Day and Date : Monday, 1-2-2016   Total Marks :100
Time : 11.00 a.m. to 2.00 p.m.

Instructions :   1) **All** questions are **compulsory**.
              2) **All** questions carry **equal** marks.

1. A) What are the conventions of Theatre of the Absurd ?   **10**

   B) Write a note on **any two** of the followings :   **10**

      i) Imagism

      ii) The Symbolic Movement

      iii) Modernism.

2. A) What are the differences between Dada and Surrealism ?   **10**

   B) Write a note on **any two** of the followings :   **10**

      i) Modern Realistic Drama

      ii) Stylistic Conventions of Epic Theatre

      iii) Post-Modernism.

3. A) Discuss the moral in *Waiting for Godot*.   **10**

   B) Write a note on **any two** of the followings.   **10**

      i) Mother Courage's tragedy

      ii) Yvette Pottier

      iii) Swiss Cheese.

4. A) Discuss the racial relationships in *The Grass is Singing*.   **10**

   B) Write a note on **any two** of the followings :   **10**
      i) Stephen J. Dedalus
      ii) Depiction of Irish society in *A portrait of the Artist as a Young Man*
      iii) Emma Clery.

5. A) "Eliot's *The Waste Land* is a critique against material World".-Discuss.   **10**

   B) Write a note on **any two** of the followings :   **10**
      i) Title of "Hawk Roosting"
      ii) Use of myth in the poetry of Ted Hughes
      iii) Symbolism in "The Thought Fox".

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Seat No.

Ph.D. Course Work Examination, 2016
HINDI (Paper – III) (Old)
हिंदी साहित्य : आलोचना के नये आयाम

Day and Date : Monday, 1-2-2016   Max Marks : 100
Time :   11.00 a.m. to 2.00 p.m.

सूचनाएँ : 1) *किन्हीं* **चार** *प्रश्नों के उत्तर लिखने हैं ।*
2) *सभी प्रश्नों के* **समान** *अंक हैं ।*
3) *दाईं ओर लिखे हुए अंक प्रश्न के* **पूर्णांक** *दर्शाते हैं ।*

1. आलोचना की परिभाषा देकर उसकी व्याप्ति स्पष्ट कीजिए ।   **25**

2. आलोचना की दृष्टियों का संक्षेप में विवेचन कीजिए ।   **25**

3. साहित्य के अंतर्विधाघटक अध्ययन का महत्व स्पष्ट करते हुए साहित्य के समाजशास्त्रीय अध्ययन की जानकारी लिखिए ।   **25**

4. 'हिंदी साहित्य और महानगरीय बोध' इस विषय का विवेचन कीजिए ।   **25**

5. तुलनात्मक अध्ययन की परिभाषा देकर उसका स्वरूप स्पष्ट कीजिए ।   **25**

6. लिम्नलिखित में से किन्हीं **दो** पर टिप्पणियाँ लिखिए ।   **25**

   1) हिंदी आलोचना की परंपरा में आ. रामचंद्र शुक्ल का योगदान

   2) मार्क्सवादी आलोचना

   3) अर्थनीति का साहित्य पर प्रभाव

   4) भूमंडलीकरण.

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Seat
No.

Ph.D. Course Work Examination, 2016
Paper – III : Optional
PRAKRIT
Prakrit Sahitya Ki Vidhaye
प्राकृत साहित्य की विधाएँ

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचना :   १) *सर्व प्रश्न आवश्यक.*
          २) उजवीकडील आकडे गुण दर्शवितात.

१. अ) प्राकृत चरित्र साहित्याच्या विकासाची परंपरा स्पष्ट करा.   १०

   ब) कोणत्याही **दोहोंचे** संक्षिप्त उत्तर लिहा.   १०

      १) नम्मयासुंदरी कहा

      २) महावीरचरियची कथा विशेषता

      ३) अंत्य व्यंजनलोप

२. अ) आगम साहित्याची विशेषता स्पष्ट करा.   १०

   ब) कोणत्याही **दोहोंचे** संक्षिप्त उत्तर लिहा.   १०

      १) जंबूस्वामींचे पराक्रम

      २) 'श्रेष्ठ सट्टक कर्पूरमंजिरी

      ३) सेतुबंधची अलंकार योजना लिहा.

३. अ) धवलाकार वीरसेनाचार्यांच्या मते कथांचे भेद स्पष्ट करा.   १०

   ब) कोणत्याही **दोहोंचे** संक्षिप्त उत्तर लिहा.   १०

      १) वसुदेवहिंडीचे रचनाकार

      २) शिलालेखांची भाषा निबंध लिहा

      ३) महावीरचरीयंची भाषा व रचनाकार

४. अ) अर्धमागधी कथा साहित्याचे विश्लेषण करा. १०

ब) कोणत्याही **दोहोंचे** संक्षिप्त उत्तर लिहा. १०

१) वसुदेवहिंडीमधील सुभाषिते

२) धुर्ताख्यानचा विषय

३) जंबूसामिचरियं

५. अ) सेतुबंधच्या मुख्य दोन घटनांचे विश्लेषण करा. १०

ब) कोणत्याही **दोहोंचे** संक्षिप्त उत्तर लिहा. १०

१) कुम्मापुत्तचरीयं शैली

२) वसुदेवहिंडीचे खंड

३) कथा गउडवहोची.

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Seat No.	

Ph.D. Course Work Examination, 2016
PHYSICS
Paper No. – III : Modern Topics in Physics (Old)

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Intructions : 1) **All** questions are **compulsory**.
            2) **All** questions carry **equal** marks.

1. A) Explain working of battery and super capacitor and difference between them.   **10**

   B) Write a short note on **any two** :   **10**

      i) Thick film and processed pellet sensors.

      ii) Rare earth manganites.

      iii) Bismuth based compounds-lone pair effect.

2. A) Write basic concept and working and materials of dye sensitized solar cells.   **10**

   B) Write a short note on **any two** :   **10**

      i) FET devices for gas and ion sensing.

      ii) RuO_2 and polyaniline based super capacitor.

      iii) Heterojunction solar cells.

3. A) Discuss different fabrication processes for sensors.   **10**

   B) Write a short note on **any two** :   **10**

      i) Magneto electric coupling effect.

      ii) Solid oxide fuel cells.

      iii) Applications of super capacitors.

4. A) Discuss ferroelectrics and ferromagnetic materials and magneto electric coupling effect. **10**

   B) Write a short note on **any two** : **10**

   i) Photovoltaic effect

   ii) Spintronics

   iii) Proton exchange membrane in fuel cell.

5. A) Discuss dilute magnetic semiconductors, their preparation and applications. **10**

   B) Write a short note on **any two** : **10**

   i) Hybrid super capacitor

   ii) Interaction of gases at semiconductor surfaces.

   iii) Ultra thin absorber solar cells.

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SLR-AN – 89 B

M.Phil./Ph.D. Course Work Examination, 2016
INORGANIC CHEMISTRY (Paper – III)
Modern Topics in Inorganic Chemistry

Day and Date : Monday, 1-2-2016　　　　　　　　　　Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) Write an account of metal complexes as sensitizers and taking examples of metal complex and organic compound, explain the possible photoexcitations. **(10×1=10)**

   B) Answer **any two** questions : **(5×2=10)**

      i) Explain the photosubstitution reactions with example.

      ii) With suitable examples, explain photo reduction reactions.

      iii) Write a note on energy levels in cubic symmetry LFT.

2. A) Discuss the polynuclear iron chelates and polynuclear iron in biological systems. **(10×1=10)**

   B) Answer **any two** questions : **(5×2=10)**

      i) Discuss the role of hemoglobin in oxygen transport.

      ii) Write a note on the electronic spectra and magnetic properties of dipositive lanthanide compounds.

      iii) Comment on chelation therapy involving penicillamine and polyaminopolycarboxylic acids.

3. A) Citing suitable examples, define the terms lability and inertness of complexes. Point out the factors influencing them. Explain the ligand substitution reactions. **(10×1=10)**

   B) Answer **any two** questions : **(5×2=10)**

      i) Describe the substitution reactions in square planar complexes.

      ii) Describe the inner sphere electron transfer reactions citing suitable examples.

      iii) Write in brief the different types of active substances used for liquid membranes and discuss their applications.

P.T.O.

4. A) What is the source of :

   a) the asymmetry potential in a membrane electrode ?

   b) the boundary potential in a membrane electrode ?

   c) a junction potential in a glass-reference electrode system ?

   d) the potential of a crystalline membrane electrode used to determine the concentration of F^- ? **(1×10=10)**

   B) Answer **any two** questions : **(2×5=10)**

   i) What are the advantages of micro fabricated ion selective electrodes ? Describe a typical analysis of NO_3 of this type of sensor.

   ii) In what way are the observed oxidation states of the lanthanides related to their electronic structures ?

   iii) Distinguish between Fischer and Schrock carbenes. Describe the nature of M-C bond in them.

5. A) Contrast the electronic spectra of a lanthanide and transition metal ions. Why do the lanthanide ions give rise to very sharp bands in their electronic spectra, and why are the magnetic properties of their complexes little affected by the nature of the ligands ? **(1×10=10)**

   B) Answer **any two** questions : **(2×5=10)**

   i) Discuss the preparation and bonding in ferrocene.

   ii) What is Zeise's salt ? How is it prepared ? Explain the structure of the anion of Zeise's salt.

   iii) M-C bond in carbonyls are considered to be synergic. Why ?
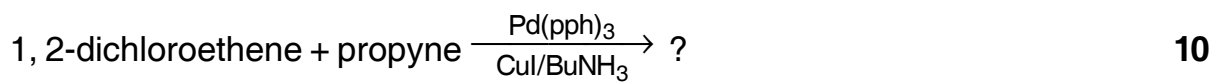
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Seat No.

M. Phil./Ph.D. Course Work Examination, 2016
ORGANIC CHEMISTRY
Paper – III (C) : Modern Topics in Organic Chemistry

Day and Date : Monday, 1-2-2016   Total Marks :100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) ***All*** *questions are* ***compulsory***.
2) ***All*** *questions carry* ***equal*** *marks.*

1. A) Predict the product of the following reaction. Give its mechanism and discuss the applications of the reaction in organic synthesis.
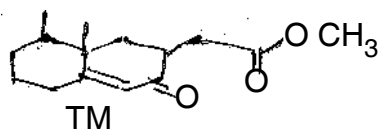
   1, 2-dichloroethene + propyne $\xrightarrow[\text{CuI/BuNH}_3]{\text{Pd(pph)}_3}$?   **10**

   B) Answer **any two** of the followings :   **(2×5=10)**

      i) Give synthesis and uses of the Atenolol.

      ii) Discuss applications of organocobalt compounds in organic synthesis.

      iii) Give an account of kinetic and thermodynamic factors affecting ring formation with respect to size of the ring.

2. A) Illustrate the mechanism involved in suzuki coupling. Discuss its applications in C-C bond formation.   **10**

   B) Answer **any two** of the followings :   **(2×5=10)**

      i) Discuss applications oxidation of olefins in the synthesis of C-heteroatom bond formation.

      ii) Using retrosynthetic approach suggest the synthetic route for the following TM

TM

      iii) Write note on applications of ionic liquids in organic synthesis.
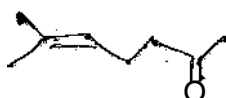
3. A) Give the method of preparation of dialkyllithium cuprate. Give its structure and application in synthetical useful transformations. **10**

   B) Answer **any two** of the followings : **(2×5=10)**

   i) Give the synthesis and uses of ampicillin.

   ii) By using retrosynthetic approach how will you prepare the following compound.

   iii) Discuss use of complex metal hydrides in organic synthesis.

4. A) Give the retrosynthetic approach for the synthesis of natural products. Explain by giving two examples. **10**

   B) Answer **any two** of the followings : **(2×5=10)**

   i) Give an account of hydroamination reaction in C-heteroatom bond formation.

   ii) Discuss mechanism and applications of stille reaction in C-C bond formation.

   iii) How are organoboranes prepared ? Give their synthetic importance.

5. A) What are antidiabetics ? Discuss the synthesis and mode of action of any two commonly used antidiabetic drugs. **10**

   B) Answer **any two** of the followings : **(2×5=10)**

   i) In brief give an account of use of microwave and ultrasonic methods in organic synthesis.

   ii) Write note on phase transfer catalyst.

   iii) Give the structure and functions of any two commonly used anti-cancer agents.

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Seat No.

Ph.D. Course Work Examination, 2016
ZOOLOGY
Paper – III : Modern Topics in Zoology (Old)

Day and Date : Monday, 1-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) Discuss signal transduction with suitable example. **10**

   B) Write short notes on **any two** : **10**
     i) Mitochondria.
     ii) Differentiate – Carcinoma and Sarcoma.
     iii) Extracellular receptor.

2. A) What is Mutation ? Discuss induced mutations with suitable example. **10**

   B) Write short notes on **any two** : **10**
     i) Heritability.
     ii) Quantitative trait.
     iii) Gene frequencies.

3. A) What is ozone ? Give the importance of ozone shield. **10**

   B) Write short notes on **any two** : **10**
     i) Green house effect
     ii) Pollution control of soil.
     iii) Acid rain.

4. A) What is filariasis ? Give the morphology, pathogenicity and control of causative organism. **10**

   B) Write short notes on **any two** : **10**
     i) Kala azar
     ii) *Trichomonas vaginalis*
     iii) Housefly.

5. A) Write an essay – "Importance of wild life." **10**

   B) Write short notes on **any two** : **10**
     i) Indian Elephant
     ii) International code of Zoological Nomenclature.
     iii) Typification and type.

Seat
No.

Ph.D. Course Work Examination, 2016
MICROBIOLOGY (Old)
Paper – III : Modern Topics in Microbiology

Day and Date : Monday, 1-2-2016

Total Marks : 100

Time : 11.00 p.m. to 2.00 p.m.

Instructions : 1) **All** questions are **Compulsory.**
2) **All** questions carry **equal** marks.

1. A) Explain in detail physical mapping of genome. **10**

   B) Answer in brief (**any two**) : **10**

      1) Give an account of cytotoxicity of nanoparticles

      2) Discuss FISH assay

      3) Give the applications of proteomics.

2. A) Discuss the principle and applications of 2-D gel electrophoresis. **10**

   B) Explain in brief (**any two**) : **10**

      1) Significance of genomics in gene prediction

      2) Principle and applications of SDS-PAGE

      3) Functional metagenomics.

3. A) What is meant by nanobiotechnology ? Discuss in detail advantages and disadvantages of nanobiotechnology. **10**

   B) Write short notes on (**any two**) : **10**

      1) Identification of active clones

      2) Data search and sequence alignment

      3) Importance of chromatography methods in metabolomics.

P.T.O.

4. A) Discuss in detail Genbank sequence database. **10**

   B) Explain in brief (**any two**) : **10**
      1) Microbial growth response to nanoparticles.
      2) Applications of microbial genomics.
      3) Significance of HPLC in metabolic profiling.

5. A) What is metabolic identification and pathway integration ? Explain in detail. **10**

   B) Answer briefly (**any two**) : **10**
      1) Give in detail applications of DNA microarray.
      2) Give an account of microbial diversity.
      3) What is the role of proteomics in biomarkers and drug target identification ?

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Seat
No.

Ph.D. Course Work Examination, 2016
Paper No. – III
ECONOMICS (Old)
Modern Theories in Economics

Day and Date : Monday, 1-2-2016　　　　　　　　Total. Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Attempt **all** questions.

2) Figures to the **right** indicate **full** marks.

1. A) Define Golden rule of Accumulation. How does an economy reach the golden rule of accumulation ? **10**

   B) Write short notes on **any two** of the following : **10**
      i) Price leadership
      ii) Flexible exchange rates
      iii) Capital account.

2. A) Critically examine chamberlin's oligopoly model. **10**

   B) Write short notes on **any two** of the following : **10**
      i) Embodied technical progress
      ii) Objectives of monetary policy
      iii) Bains empirical findings.

3. A) State the Boumol's theory of sales revenue maximisation. **10**

   B) Write short notes on **any two** of the following : **10**
      i) Fiscal policy
      ii) Balance of payments disequilibrium
      iii) Determinants of economic growth.

4. A) Explain the working and limitations of foreign trade multiplier. **10**

   B) Write short notes on **any two** of the following : **10**

      i) Product differentiation

      ii) Market sharing cartels

      iii) Harrod economic growth model.

5. A) Critically examine the purchasing power parity theory of exchange rates. **10**

   B) Write short notes on **any two** of the following : **10**

      i) Supply of foreign exchange

      ii) Equilibrium of the firm

      iii) Full cost pricing.

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Seat
No.

Ph.D. Course Work Examination, 2016
ECONOMICS
Paper – III : (New) (A) Economics of Agriculture and Co-Operation

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) *Attempt **all** questions.*
                         2) *Figures to the **right** indicate **full** marks.*

1. A) Critically examine Boserup Model.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Production function
      ii) Growth with social justice in agriculture
      iii) Food security.

2. A) Discuss on recent technological changes in Indian agriculture.   **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Optimum use of inputs
      ii) Post-harvest technology
      iii) Problems of dairy co-operatives in Maharashtra.

3. A) Critically discuss the role, progress and problems of Agro-industries in India. **10**

   B) Write short notes on **any two** of the following :   **10**
      i) Sustainable development of agriculture.
      ii) Professionalization of co-operative Management.
      iii) Problems of animal husbandry.

4. A) Discuss the role, progress and problems of Sugar Co-operatives in Maharashtra. **10**

   B) Write short notes on **any two** of the following : **10**
      i) Horticulture and floriculture.
      ii) HRD in co-operative.
      iii) Problems of Urban co-operative banks in Maharashtra.

5. A) Discuss on recent principles of Co-operation. **10**

   B) Write short notes on **any two** of the following : **10**
      i) Problems of agro-processing industries.
      ii) Globalization and co-operatives.
      iii) Co-operative movement in Maharashtra.

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SLR-AN – 102

Ph.D. Course Work Examination, 2016
LIBRARY AND INFORMATION SCIENCE
Paper – III : Modern Topics in Library & Information Science

Day and Date : Monday, 1-2-2016　　　　　　　　　　　Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions: 　1) **All** questions are **compulsory**.
　　　　　　　　　2) **All** questions carry **equal** marks.

I. A) Explain the principles of scientific management. **10**

　B) Answer **any two** of the following questions. **10**

　　i) Philosophy of Library Management.

　　ii) Difference between Manager and Leader.

　　iii) Historical development of library management.

II. A) How significant is Human Resource in any Academic or Research institute for better performance ? **10**

　B) Answer **any two** of the following questions. **10**
　　i) Job description of college library.
　　ii) Theories of motivation.
　　iii) Suggestion box.

III. A) Discuss the re-engineering library services in the changing Internet era. **10**

　B) Answer **any two** of the following questions. **10**

　　i) Zero Based Budgeting Method.

　　ii) Library Consultancy.

　　iii) PERT.

P.T.O.

IV. A) Describe the components of Total Quality Management. **10**

B) Answer **any two** of the following questions. **10**

   i) Brain Storming for Libraries.

   ii) Mind Mapping.

   iii) Outsourcing.

V. A) Discuss the importance of Six Sigma in libraries. **10**

B) Answer **any two** of the following questions. **10**

   i) ICT skills.

   ii) Knowledge Management.

   iii) Collection Development Policy.

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Seat No.

Ph.D. Course Work Examination, 2016
PSYCHOLOGY
Paper – III : Modern Topics in Psychology (Old)
(Cognitive Process and Personality)

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

N.B. :   1) Attempt **all** questions.
                    2) Figures to **right** indicate **full** marks.

1. A) Explain the role of psychological and social well being in happiness.   **10**
   B) Write short answers **(any two) :**   **10**
      1) Spinal Cord   2) Types of Norms
      3) Concept of health.

2. A) Explain Neuropsychological assessment.   **10**
   B) Write short answers **(any two) :**   **10**
      1) Characteristics of effective teacher   2) Types of reliability
      3) Psychosocial causes of crime.

3. A) Illustrate the mental disorder in crime.   **10**
   B) Write short answers **(any two) :**   **10**
      1) Positive emotion   2) Validity
      3) Role of motivation in sport.

4. A) Explain the nature and scope of health psychology.   **10**
   B) Write short answers **(any two) :**   **10**
      1) Cerebral hemisphere   2) Uses of psychological test
      3) Strategies of crime prevention.

5. A) Explain how to educate the exceptional children.   **10**
   B) Write short answers **(any two) :**   **10**
      1) Rogers model of health   2) Recent perspectives of sport
      3) Electrical investigation of Brain

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Seat
No.

Ph.D. Course Work Examination, 2016
RURAL DEVELOPMENT
Paper – III : Emerging Issues and Concepts in Rural Development

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Attempt **all** the questions.
                          2) Figures to the **right** indicate **full** marks.

1. A) Explain the methods of computing Human Development Index (HDI).   **10**

    B) Write short answers of **any two** of the following questions :   **10**
        i) Write note on Values and Development.
        ii) Explain the concept of Poverty.
        iii) Elaborate the Critiques of Human Development Index.

2. A) Write Human Development Measures and its Indicators.   **10**

    B) Write short answers of **any two** of the following questions :   **10**
        i) Write note on Commodities and Capabilities.
        ii) Explain the Meaning Humane Development.
        iii) Write short note on Human Poverty Index (HPI).

3. A) Write note on Welfare Economics of Amarthya Sen.   **10**

    B) Write short answers of **any two** of the following questions :   **10**
        i) Write short note on MIS.
        ii) Explain the concept of GIS.
        iii) Explain the concept of GPS and PRAs.

4. A) What is Corporate Social Responsibility (CSR) ? Discuss the Dimensions
        of CSR.   **10**

    B) Write short answers of **any two** of the following questions :   **10**
        i) Write short note on Social Audit.
        ii) Explain the concept of bilateral and multilateral aid for Rural Development.
        iii) Write role of Foreign Aid in Rural Development in India.

5. A) Write contribution of Mahamed Yunis in Micro Finance and Empowering
        Locals.   **10**

    B) Write short answers of **any two** of the following questions :   **10**
        i) Write note on Aid for Sectorial Development.
        ii) Explain the concept of Micro-planning.
        iii) Discuss the significance of CSR for Rural Development.

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SLR-AN – 110

Ph.D. Course Work Examination, 2016
MASS COMMUNICATION & JOURNALISM
Mass Communication in New Millennium (Paper – III)

Day and Date : Monday, 1-2-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions: 1) **All** questions are **compulsory.**
              2) **All** questions carry **equal** marks.

1. A) What is Development Communication ? Discuss its dominant paradigms.   **10**

   B) Write short answers **any two** of the following :

      1) What is 'Green Journalism' ?   **5**

      2) Importance of 'participatory communication'.   **5**

      3) What are the models of 'Development Communication' ? Give examples.   **5**

2. A) What is the significance of 'Citizen Journalism' and 'Community Media' with reference to development communication ?   **10**

   B) Write short answers **any two** of the following :

      1) Write a note on public opinion.   **5**

      2) What is 'market driven media' ?   **5**

      3) What is 'media content' ?   **5**

3. A) Write a note on the significance of folk media and traditional media in development communication.   **10**

   B) Write short answers **any two** of the following :

      1) Role of Indian Media in cultural integration.   **5**

      2) What are the effects of globalization on media system ? Discuss in brief.   **5**

      3) Write a short note on 'Glocalisation' and 'Localisation'.   **5**

Seat
No.

M.Phil. / Ph.D. Course Work Examination, 2016
EDUCATION
Paper – III : Modern Topics in Education (Old)

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) Explain the term 'Learning Style'. What are its functions in learning process ? **10**

   B) Attempt in brief **any two** of the following : **10**

      i) Explain the assessment procedure of behavioral assessment with examples.

      ii) Write short note on 'The Age of Litigation'.

      iii) What challenges does globalization stands for education ?

2. A) What is meant by unit cost in higher education ? **10**

   B) Attempt in brief **any two** of the following : **10**

      i) What is the meaning of investment in education ?

      ii) Explain the functions of economics in education.

      iii) Explain the concept of 'Human Capital'.

3. A) Which are the social values in higher education ? **10**

   B) Attempt in brief **any two** of the following : **10**

      i) Explain the concept of 'Total Quality Management'.

      ii) Write the relationship between work culture and quality of work.

      iii) UGC – explain its functions.

4. A) Write the educational programs for community development. **10**

   B) Attempt in brief **any two** of the following : **10**

      i) Synetics teaching method : Explain.

      ii) How will you create pleasant environment in large class ?

      iii) School is small image of society : Explain.

5. A) What are the emerging threats of human rights ? How will you overcome these threats of human rights ? **10**

   B) Attempt in brief **any two** of the following : **10**

      i) What is the concept of multisensory teaching ?

      ii) Explain the causes of AIDS with preventive measures.

      iii) How encyclopedia and websites are useful in research ?

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Seat
No.

M.Phil./Ph.D. Course Work Examination, 2016
EDUCATION
Paper – III (B) : Inclusive Education (New)

Day and Date : Monday, 1-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

> **Instructions** : 1) **All** questions are **compulsory**.
> 2) Figures to the **right** indicate **full** marks.

1. What is inclusive education ? Distinguish between traditional approach and inclusive approach. **20**

    OR

    What is peer tutoring ? Write teacher role in peer tutoring as an observer.

2. Explain useful ideas top support ICT in teaching. Explain the benefits of accessible ICTs in inclusive schools. **20**

    OR

    Explain identification of children with learning disorders in the classroom and write identification of special needs of children.

3. A) Explain benefits of inclusive education with suitable example. **10**
    B) Write effective teaching practices for students in inclusive classroom. **10**

    OR

    A) Explain the concept of impairment with suitable example.
    B) Explain physical rehabilitation strategies.

4. Write a short note on **any five** out of seven : **40**
    1) Collaborative practices in inclusive education.
    2) Defining impairment and disability.
    3) Co-operative learning.
    4) Improvement of classroom behaviour of diverse learners.
    5) Management of inclusive classroom.
    6) Steps of preparation of evaluation report.
    7) Behavioural characteristics of learning disabled children.

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Seat
No.

M.Phil/Ph.D. Course Work Examinations, 2016
EDUCATION
Paper – III (C) Teacher Education (New)

Day and Date : Monday, 1-2-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) ***All*** questions are ***compulsory***.
                2) *Figures to the* ***right*** *indicate* ***full*** *marks.*

1. A) What is the nature of Teacher Education in Maharashtra State ? Explain the
concept and aims of Teacher Education. **10**

    B) Answer the following (**any two**) :

      i) What are the functions of NCTE ? **5**

      ii) What is 'Integrated Approach' of Training ? **5**

      iii) Differentiate between, 'Face to Face' and 'Distance Mode Approach'. **5**

2. A) What is 'Grievance redressal cell' ? What is the importance of Grievance
Committee at institutional level ? **10**

    B) Answer the following (**any two**) :

      i) What is the function of Human Resource Development in teaching
profession ? **5**

      ii) Explain the recommendations of NCF of 2009. **5**

      iii) What is the need of professional development for teachers ? **5**

3. A) What are the various transaction modes of training ? How does it help to bring
innovations in education field ? **10**

    B) Answer the following (**any two**) :

      i) What is the concept of 'Cascade Model' ? Explain. **5**

      ii) Explain the importance of media in bringing innovations in researches in
education. **5**

      iii) What is radio counselling ? Explain with examples. **5**

4. A) What are the various types of research in Teacher Education ? What are the steps of research report writing ? **10**

   B) Answer the following (**any two**) :

   i) What is 'Survey Research Method' ? Explain. **5**

   ii) What is the concept of 'Decision Making' ? **5**

   iii) What are essential characteristics of effective teacher ? **5**

5. A) 'Teachers are born and not made'. Do you agree with the statement ? What is the accountability of a teacher for maintaining culture of teaching ? Explain. **10**

   B) Answer the following (**any two**) :

   i) Give the importance of, 'port folio'. **5**

   ii) What are the challenges in the field of education to bring quality assurance ? **5**

   iii) What are the aims and objectives of NAAC ? **5**

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Seat
No.

Ph.D. Course Work Examination, 2016
LAW
Paper – III : Law Justice and Society (Old)

Day and Date : Monday, 1-2-2016
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 100

Instructions : *1)* *Answer* **all five** *questions.*
2) **All** *questions carry* **equal** *marks.*

1. A) Discuss in detail Nozick's Theory of Justice as entitlement and establish it's relevance in present Indian context.

   B) Short notes on (**any two**) :

      i) Feminism as Justice.

      ii) Objectivity of Justice.

      iii) Contractual tradition as a base of Justice.

2. A) Explain in detail the objects of law in a civilized society like India.

   B) Short notes on (**any two**) :

      i) Right to speech and expression : A critique.

      ii) Indian Judiciary Versus Media Trials : Pros and Cons.

      iii) Relationship of Law and Justice in Indian Constitutional Ordering.

3. A) Discuss in detail whether law influences change in human behaviour or the ever changing society compels the law to change so as to effectively regulate human behaviour in a civilized society.

   B) Short notes on (**any two**) :

      i) Effect of public opinion in doing and undoing laws in India.

      ii) Right to religion and law in India.

      iii) Compelling obligations vis-a-vis impelling obedience to law : Pros and Cons.

P.T.O.

4. A) "Justice delayed is justice denied". In the light of this proverbial statement curve cut a case for galvanizing alternative dispute resolution mechanisms in India for promoting <u>inter alia</u>, speedy and cost effective justice delivery regime.

   B) Short notes on **(any two) :**

   i) Role of Government in Democracy : Some Reasonable Expectations.

   ii) Doctrine of Stare Decisis in Indian Judicial System.

   iii) Indian Judiciary and it's Activism.

5. A) 'Mis use of computer technology resulting in cyber crimes is the greatest challenge, <u>inter-alia</u>, for the legal fraternity of the 21st century'. Comment.

   B) Short notes on (**any two**) :

   i) Technological progration and environmental challenges in India : A Legal Discourse.

   ii) Relationship between Law and Justice and the Equivalence Theory.

   iii) Legalizing Euthanasia whether a set back to medical technological inventions.

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Seat No.

Ph.D. Course Work Examination, 2016
PHARMACY
Paper – III : Pharmaceutical Sciences – II (New)

Day and Date : Monday, 1-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
             2) Figures to the **right** indicate **full** marks.

1. a) Explain the influence of routes of drug administration on the design of sustained release systems. **10**

   b) Answer the followings **(any two)** : **10**

      i) Explain evaluation parameters of the microspheres.

      ii) Explain applications of nanoparticles in oral formulations.

      iii) Explain formulation of implantable devices.

2. a) Explain significance of compatibility studies in the development of novel drug delivery system. **10**

   b) Answer the followings **(any two)** : **10**

      i) Explain methods of preparation of liposomes.

      ii) Explain the process of optimization of formulation parameters in nasal product.

      iii) Explain the mechanism of Active Transport.

3. a) Describe guidelines for rational of prescribing drugs. **10**

   b) Answer the followings **(any two)** : **10**

      i) Explain GI barriers for drug absorption.

      ii) Explain in detail about Monoclonal Antibodies.

      iii) Explain formulation parameters to be considered in design of Tablet in capsule.

P.T.O.

4. a) Explain biopharmaceutical considerations in Novel Drug Delivery System. **10**

   b) Answer the followings **(any two)** : **10**

     i) Give difference between sustained release and controlled release.

     ii) Explain Pharmacokinetic factors affecting on drug absorption.

     iii) Elaborate types of multi-compartment models.

5. a) Explain properties of drugs to be considered in design of Transdermal Drug Delivery System. **10**

   b) Answer the followings **(any two)** : **10**

     i) Explain in brief about non-compartmental models.

     ii) Explain methods of preparation of microspheres.

     iii) Explain design and development of sustained release tablets.

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SLR-AN – 121A

Ph.D. Course Work Examination, 2016
MARATHI : Paper – III (New) and Paper – IV (Old)
A) मध्ययुगीन मराठी साहित्य आणि संशोधन

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. अ) मध्ययुगीन साहित्यनिर्मितीची राजकीय पार्श्वभूमी कथन करा.   **10**

   ब) लघुत्तरी प्रश्न सोडवा (तीन पैकी **दोन**) :   **10**

      i) मध्ययुगीन साहित्याच्या सामाजिक अंगावर भाष्य करा.

      ii) मध्ययुगीन कालखंडातील संप्रदायांचा थोडक्यात परिचय करून द्या.

      iii) धर्म आणि साहित्य यांचा संबंध अधोरेखित करा.

2. अ) वारकरी संप्रदायाचा उगम आणि विकासक्रमाची माहिती लिहा.   **10**

   ब) लघुत्तरी प्रश्न सोडवा (तीन पैकी **दोन**) :   **10**

      i) वारकरी संप्रदायाचा आचारधर्म सांगा.

      ii) संत हे समाजाचे जागले होते– स्पष्ट करा.

      iii) कोणत्याही एका दलित संताच्या वाङ्मयीन कामगिरीचा संक्षिप्त आढावा घ्या.

3. अ) पंडिती वाङ्मयाच्या गुणदोषांची चर्चा करा.   **10**

   ब) लघुत्तरी प्रश्न सोडवा (तीन पैकी **दोन**) :   **10**

      i) पंडिती वाङ्मयाचे भाषाविशेष सांगा.

      ii) पोवाडयाचा 'वाङ्मयप्रकार' म्हणून परिचय करून द्या.

      iii) लावणीचा विकासक्रम शब्दबद्ध करा.

4. अ) शाहिरी वाङ्मय लोकाभिमुख आहे – सोदाहरण चर्चा करा. **10**

ब) लघुत्तरी प्रश्न सोडवा (तीन पैकी **दोन**) : **10**

i) प्रबोधवपर शाहिरीचा थोडक्यात आशय कथन करा.

ii) भारूडांचा सोदाहरण परिचय करून द्या.

iii) 'कीर्तन' या प्रसारमाध्यमाचे महत्व स्पष्ट करा.

5. अ) मराठी बखरींचे भाषाविशेष सांगा. **10**

ब) लघुत्तरी प्रश्न सोडवा (तीन पैकी **दोन**) : **10**

i) मध्ययुगीन मराठी–ख्रिस्ती वाङ्मयाचा संक्षिप्त पीरचय करून द्या.

ii) मध्ययुगीन जैन–मराठी साहित्याचा धावता आढावा घ्या.

iii) मध्ययुगीन मराठीतील वीरशैव साहित्याची ओळख करून द्या.

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Seat No.

Ph.D. Course Work Examination, 2016
ENGLISH
Elective – II : Paper – IV : Subaltern Literature

Day and Date : Wednesday, 3-2-2016
Time : 11.00 a.m. to 2.00 p.m.

Total Marks : 100

Instructions : i) **All** questions are **compulsory**.
ii) Figures to the **right** indicate **full** marks.

1. A) What are the key ideas and concepts in post colonialism ? How do writers make use of them in their literature ? **10**

   B) Answer the following questions in brief (**any two**) : **10**

   i) How are Ethnicity and Gender used as the grounds for discrimination ? Give examples to substantiate your answer.

   ii) Comment on the shape of orientalism and the stereotypes of the orient.

   iii) How are marginality and identity formation treated in subaltern literature ?

2. A) How does Frantz Fanon discuss colonial violence, national culture and the pitfalls of national consciousness in The Wretched of the Earth ? **10**

   B) Answer the following questions in brief (**any two**) : **10**

   i) Consider Coetzee's Waiting for the Barbarians as a story of a struggle between the colonizers and the colonized.

   ii) Examine Waiting for the Barbarians as a stark political fable of South Africa.

   iii) Discuss Waiting for the Barbarians as a post colonial novel.

3. A) Discuss Mahesh Dattani as an avant-garde feminist with reference to his play – Tara. **10**

   B) Answer the following questions in brief (**any two**) : **10**

   i) How does The Bluest Eye by Toni Morrison lay bare the victimization of black people within the context of racist social order ?

P.T.O.

ii) The artistic excellence of Toni Morrison's fiction lies in achieving a balance between writing a truly black literature and writing what is truly universal literature. Discuss the above statement with reference to The Bluest Eye.

iii) What are the causes of oppression of women in Toni Morrison's The Bluest Eye ? Explain them with examples.

4. A) How do Sojourner Truth and Langston Hughes treat the issues of gender, ethnicity, race, class, power and colour consciousness in their poems ? **10**

B) Answer the following questions in brief (**any two**) : **10**

   i) Describe The Road by Wole Soyinka as a "Play of social conscience".

   ii) Examine The Road by Wole Soyinka as an experimental and a non-conventional play.

   iii) How does Wole Soyinka perceive the corruption in post-colonial Nigeria in The Road ?

5. A) Write a detailed note on Resistance in Subaltern Literature. **10**

B) Answer the following questions in brief (**any two**) : **10**

   i) Explain the phenomenon of marginality and identity formation in Subaltern literature in the context of colonialism and post colonialism.

   ii) Write a note on the aspects of colonialism.

   iii) Why do subalterns experience problems of expression in colonial and post-colonial situations ?

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Seat No.

Ph.D. Course Work Examination, 2016
हिन्दी
हिंदी साहित्य विधा
ब) हिंदी कथा साहित्य
Paper – III (New) and Paper – IV (Old)

Day and Date : Wednesday, 3-2-2016 Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

सूचनाएँ : 1) *सभी प्रश्न अनिवार्य हैं।*
    2) *सभी प्रश्नों को समान अंक हैं।*

1. अ) उपन्यास साहित्य के आंदोलन की चर्चा कीजिए।   **10**

अथवा

कहानी के तत्वों पर प्रकाश डालिए।

ब) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए :   **10**

1) उपन्यास की परिभाषाएँ।

2) आंचलिक उपन्यास।

3) कहानी में देशकाल वातावरण।

2. अ) 'रागदरबारी' के रंगनाथ का चरित्र चित्रण कीजिए।   **10**

अथवा

'कलि-कथा : वाया बायपास' के प्रमुख पात्रों की समीक्षा कीजिए।

ब) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए :   **10**

1) 'सोनामाटी' उपन्यास का शिल्प।

2) 'रागदरबारी' में बदलता ग्रामीण जीवन।

3) 'कलि-कथा : वाया बायपास' में आधुनिक समस्याएँ।

3. अ) 'रागदरबारी' में चित्रित प्रमुख समस्याओं को स्पष्ट कीजिए। **10**

अथवा

'सोनामाटी' में चित्रित ग्रामीण जीवन की समस्याएँ।

ब) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए : **10**

1) 'रागदरबारी' में मूल्यहीनता।

2) 'सोनामाटी' का उद्देश्य।

3) 'कलि–कथा : वाया बायपास' के किशोर बाबू।

4. अ) यशपाल की कहानियों में वर्गगत पात्रों का चित्रण कीजिए। **10**

अथवा

राजेंद्र यादव की कहानियों के विविध आयामों को स्पष्ट कीजिए।

ब) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए : **10**

1) यशपाल की कहानियों के क्रांतिकारी पात्र।

2) राजेंद्र यादव की कहानियों में नारी।

3) मुद्राराक्षस की कहानियों में दलित चेतना।

5. अ) 'यशपाल की कहानियों में सामाजिकता है' इस कथन को स्पष्ट कीजिए। **10**

अथवा

राजेंद्र यादव की कहानियों में चित्रित सामाजिक समस्याओं को स्पष्ट कीजिए।

ब) निम्नलिखित में से किन्हीं **दो** के उत्तर लिखिए : **10**

1) यशपाल की कहानियों के पात्र।

2) राजेंद्र यादव की कहानियों में मूल्य।

3) मुद्राराक्षस की कहानियों की भाषा।

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SLR-AN – 126 A

Ph.D. Course Work Examination, 2016
PHYSICS
Paper – III (New) and Paper – IV (Old)
Advanced Development in Physics
Solar Cells and Super Capacitors

Day and Date : Wednesday, 3-2-2016 Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : *1) Answer **all** questions.*
*2) Figures to the **right** indicate marks.*

1. A) How N and P type silicons are prepared ? **10**

   B) Answer **any two** :

      i) Discuss current-voltage characteristic of solar cell. **5**

      ii) Explain significance of internal photon conversion efficiency. **5**

      iii) Explain difference between hetero and homojunction solar cells. **5**

2. A) Discuss in detail formation of $CdS – Cu_2S$ solar cells, with the help of energy band diagram. **10**

   B) Answer **any two** :

      i) Explain the difference between photoelectrochemical and photo electrolysis cells. **5**

      ii) What are advantages of photoelectrochemical cells over solid state solar cells ? **5**

      iii) Explain different generations of solar cells. **5**

3. A) How energy is stored in carbon based super capacitors ? **10**

   B) Answer **any two** :

      i) Explain formation and merits of hybrid super capacitors. **5**

      ii) Discuss symmetric type super capacitors. **5**

      iii) Explain energy density and power density of super capacitors. **5**

P.T.O.

4. A) Discuss physical evaporation method of thin film deposition. What are
   the demerits of physical methods ?   **10**

   B) Answer **any two** :

   i) Explain working of multijunction solar cells.   **5**

   ii) Discuss stability of photoelectrochemical solar cells.   **5**

   iii) Explain applications of supercapacitors.   **5**

5. A) Discuss working principle of TiO_2 based dye sensitised solar cells with the
   help of energy band diagrams.   **10**

   B) Answer **any two** :

   i) Explain problems associated with $CuInSe_2$ based solid state and
   photoelectrochemical solar cells.   **5**

   ii) How efficiency of solar cell can be improved ?   **5**

   iii) What are the recent advances in the field of metal oxide based
   super capacitors ?   **5**

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Seat No.	

Ph.D. Course Work Examination, 2016
PHYSICS
Paper – III (New) and Paper – IV (Old)
Advanced Development in Physics
Ferroelectric and Ferrimagnetic Materials

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) ***All*** questions are ***compulsory***.
              2) ***All*** questions carry ***equal*** marks.
              3) Draw necessary diagrams ***wherever*** required.

1. a) With the help of suitable diagram explain the working principle of vibrating sample magnetometer. Discuss typical M-H curves obtained for ferrimagnetic and paramagnetic materials. **10**

   b) Attempt **any two**. **10**

   i) What are the limitations for use of metal as a sensing element in Hall probe ? Why semiconductors are preferred as a sensing element in Hall probe ?

   ii) Explain what is Alternating (Field) Gradient Magnetometer (AGM).

   iii) Explain magnetic measurements in closed circuit.

2. a) What is complex permittivity ? Explain in detail Debye theory and Cole-Cole plot. **10**

   b) Attempt **any two**. **10**

   i) Discuss magnetism in hexagonal ferrite.

   ii) Explain what are different types of ferroelectrics with suitable example.

   iii) Explain electromechanical effect.

3. a) What is pyroelectric effect ? Discuss at least two applications of pyroelectric effect. **10**

   b) Attempt **any two**. **10**

   i) Discuss two applications of piezoelectrics.

   ii) What are PTC and NTC behavior in material ? Explain it with suitable example.

   iii) Explain thermodynamics of ferroelectric transition.

P.T.O.

4. a) What are the prerequisite for the pervoskite structure to be ferroelectrics ? Explain ferroelectric nature of lead base oxide system and discuss temperature dependence of dielectric constant near ferroelectric transition temperature. **10**

   b) Write short note on **any two**. **10**

     i) Magnetic anisotropy and measurements

     ii) Applications of magnetostriction

     iii) Garnet structure

5. a) What is crystal anisotropy ? What is physics origin of anisotropy ? Explain anisotropy in cubic and hexagonal crystals. **10**

   b) Write short note on **any two**. **10**

     i) Exchange force and magnetic property

     ii) Magnetic properties of spinel ferrites

     iii) Domain wall structure and Domain wall motion in ferromagnetic.

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SLR-AN – 126 C

Ph.D. Course Work Examination, 2016
PHYSICS
Paper – III (New) and Paper – IV (Old)
Advanced Development in Physics
Solid State Gas Sensor Devices

Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) Answer **all** questions.
　　　　　　　　 2) Figures to the **right** indicate marks.
　　　　　　　　 3) **All** questions carry **equal** marks.

1. a) Explain solution combustion method for synthesis of metal oxide materials. **10**

   b) Answer **any two** :

      i) Explain the difference between thick film and thin films. **5**

      ii) Discuss commercial use of solid state gas sensor. **5**

      iii) Explain formation of quantum dot structures. **5**

2. a) With a suitable example, explain gas sensing mechanism. **10**

   b) Answer **any two** :

      i) Discuss role of grain boundaries in electrical conduction. **5**

      ii) Give differences between oxidizing and reducing gases. **5**

      iii) Discuss role of Pd adsorption in enhancing sensitivity. **5**

3. a) Discuss various performance parameters and requirements for an ideal gas sensor. **10**

   b) Answer **any two** :

      i) Explain working of FET based gas sensor. **5**

      ii) Discuss spin coating of SnO_2 films. **5**

      iii) Explain materials used for semi conductor gas sensor. **5**

P.T.O.

4. a) Explain physical methods for thin film formation.   **10**

   b) Answer **any two** :

      i) Direct and indirect methods of heating in thermal evaporation method.   **5**

      ii) Discuss advantages of chemical methods over physical methods of thin
          film deposition.   **5**

      iii) Explain adsorption process in detail.   **5**

5. a) How three dimensional and two dimensional structures are formed ?   **10**

   b) Answer **any two** :

      i) Explain pyrolytic decomposition method for thin film formation.   **5**

      ii) What is role of fuels in solution combustion method ?   **5**

      iii) Discuss problems with semiconductor sensor.   **5**

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Seat
No.

M.Phil. / Ph.D. Course Work Examination, 2016
ORGANIC CHEMISTRY
Paper-IV (C) : Advanced Development in Organic Chemistry

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m.to 2.00 p.m.

Instructions : 1) *All* questions are **compulsory**.
                  2) **All** questions carry **equal** marks.

1. A) Give an account of following reactions in organic synthesis :   **10**

   i) Use of metal acetylides

   ii) ELBS persulpate oxidation

   B) Give the mechanism and applications of **any two** of the following reactions :   **10**

   i) Leucord reaction

   ii) Darzen condensation

   iii) Dakin's reaction

2. A) Describe principle and applications of the Enzymes in Organic Synthesis.   **10**

   B) Give the applications of the following in synthesis :   **10**

   i) Zeolites in organic synthesis

   ii) Supercritical fluid

3. A) Describe with mechanism the role of periodic acid and N-Bromosuccinimide in Organic synthesis.   **10**

   B) Discuss the mechanism and applications of the following reagents (**any two**) :   **10**

   i) Cr compounds

   ii) Mn compounds

   iii) Thallium nitrate.

P.T.O.

4. A) What are fluorescent brightening agents ? Give an account of Coumarins and Benzimidazoles as fluorescent brightening agents. **10**

B) Discuss the photochemistry of the following compounds (**any two**) : **10**

   i) Dienes

   ii) Carbonyl compounds

   iii) Photorearrangements in dienones.

5. A) What are plant growth regulators ? Give brief account of Cytokinins as plant growth regulators. **10**

B) Give synthesis of the following (**any two**) : **10**

   i) Juvabione

   ii) Vitamin-K

   iii) Nargesterol.

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Seat No.

Ph.D. Course Work Examination, 2016
ZOOLOGY Paper – III (New) and Paper – IV (Old)
: Advanced Development in Zoology

Day and Date : Wednesday, 3-2-2016　　　　　　　　　Total Marks : 100
Time : 11.00 a. m to 2.00 p. m.

Note : 1) **All** questions are **compulsory**.
　　　　2) **All** questions carry **equal** marks.
　　　　3) Draw **neat** labeled diagrams **wherever** necessary.

1. A) Describe the structure and functions of adenohypophysis.　　**10**

   B) Write short notes on (**any two**).　　**10**

       i) Condition of impulses in medulla.

       ii) Structure and functions of Pancreas.

       iii) Concept of feedback mechanism.

2. A) Explain the induced breeding technique in Indian major carps.　　**10**

   B) Write short notes on (**any two**).　　**10**

       i) Exotic fishes.

       ii) Cage culture.

       iii) Nursery ponds.

3. A) Explain in detail the artificial ribozymes and its applications.　　**10**

   B) Write short notes on (**any two**).　　**10**

       i) Biological functions of enzymes.

       ii) Lactic acid fermentation.

       iii) Bioreceptors.

P.T.O.

4. A) Discuss the Lamarck's theory of evolution. **10**

   B) Write short notes on (**any two**). **10**

      i) Sex and Evolution.

      ii) Artificial speciation.

      iii) Useful bacteria.

5. A) What is *HOX* gene ? Explain its genomic organization in *Drosophila*. **10**

   B) Write short notes on (**any two**). **10**

      i) Role of signaling in epigenetic control.

      ii) Importance of stem cells.

      iii) Homeotic genes in *Drosophila*.

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Seat
No.

Ph.D. Course Work Examination, 2016
GEOGRAPHY
Paper – III (New) and Paper – IV (Old)
Recent Trends in Economic Geography

Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **Each** question is **compulsory**.
2) Solve questions **serially**.
3) Figures to the **right** indicate **full** marks.

1. A) Define an economic activity. Explain the primary activities with characteristics. **10**
   B) Write short answer on **any two** of the following : **10**
      i) Describe the tertiary activities.
      ii) Approaches to Economic Geography.
      iii) Explain the modern context of Economic Geography.

2. A) Critically examine the industrial location theory of Alfred Weber. **10**
   B) Write short answer on **any two** of the following : **10**
      i) Explain the Raily's Gravitational Model.
      ii) State the Central Place Theory.
      iii) State the resource utilization and environmental degradation.

3. A) Describe the different approaches to promote economic development. **10**
   B) Write short answer on **any two** of the following : **10**
      i) Explain the concept of sustainable development.
      ii) State the methods of measurement of economic development.
      iii) Describe the concept of resource.

4. A) Critically examine the multinuclear theory. **10**
   B) Write short answer on **any two** of the following : **10**
      i) Discuss the bases of agricultural regionalization.
      ii) Explain the importance of e-mail shopping.
      iii) Describe the whole and retail trades.

5. A) Discuss the determinants of agriculture. **10**
   B) Write short answer on **any two** of the following : **10**
      i) State the location of suburban business center.
      ii) Explain the concept of agricultural region.
      iii) Describe the types of agricultural region.

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SLR-AN – 130B

Ph.D. Course Work Examination, 2016
GEOGRAPHY
Paper – III (New) and Paper – IV (Old)
Recent Trends in Population Geography

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions :   1) *All* question are *compulsory.*

               2) *All* questions carry *equal* marks.

1. A) Explain the approaches to the study of Population Geography.   **10**

   B) Write short answer on **any two** of the following.   **10**

      i) Crude Birth Rate

      ii) Age and Sex Specific Mortality Rate

      iii) Sex Ratio.

2. A) Describe the factors affecting on mortality rate.   **10**

   B) Write short answer on **any two** of the following.   **10**

      i) Longevity of life

      ii) Write the types of sex ratio

      iii) Maternal mortality rate.

3. A) Explain the techniques of analysis in the study of Population Geography.   **10**

   B) Write short answer on **any two** of the following.   **10**

      i) Population density

      ii) Crude Death Rate

      iii) Economic Composition.

P.T.O.

4. A) Explain the Malthus theory of population growth. **10**

   B) Write short answer on **any two** of the following. **10**

   i) Migration of India

   ii) Pre transition stage of demographic theory

   iii) Age-sex of India.

5. A) Why did you describe to write about population growth in India. **10**

   B) Write short answer on **any two** of the following. **10**

   i) Urbanization of India

   ii) Explain the optimum population theory

   iii) India's economic composition.

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Ph.D. Course Work Examination, 2016
COMPUTER SCIENCE (Old)
Advanced Development in Computer Science
Paper – IV : Elective – II : Data Mining

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
                         2) **All** questions carry **equal** marks.

1. a) Explain syntax for concept hierarchy specification. Describe the interestingness measure.   **10**

   b) Answer **any two** of the following :   **(2×5 =10)**

      i) Gives the difference between rolling up and drilling down.

      ii) Explain four major types of concept hierarchies.

      iii) Describe the set-grouping hierarchies.

2. a) Explain the mining frequent patterns using FP-tree. Explain benefits of the FP-tree structure.   **10**

   b) Answer **any two** of the following :   **(2×5=10)**

      i) How to generate candidates ?

      ii) Explain the sampling with suitable example.

      iii) What is uniform support and reduced support ?

3. a) Describe how to evaluating the classification methods. Explain the working of classification by decision tree induction.   **10**

   b) Answer **any two** of the following :   **(2×5=10)**

      i) What is supervised learning ?

      ii) Explain the use of decision tree for classifying an unknown sample.

      iii) What is boosting and bagging ?

P.T.O.

4. a) Give the difference between statistical approach verses neural network approach. **10**

   b) Answer **any two** of the following : **(2×5=10)**

      i) Give the examples of clustering applications.

      ii) Explain in detail about the partitioning algorithms.

      iii) Explain the hierarchical clustering.

5. a) Describe the trends in data mining and intelligent query answering with example. **10**

   b) Answer **any two** of the following : **(2×5=10)**

      i) Explain the statistical data mining.

      ii) Describe the factor analysis of statistical data.

      iii) Explain the interactive visual data mining with example.

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Seat No.

Ph.D. Course Work Examination, 2016
MICROBIOLOGY
Paper – III (New) and Paper – IV (Old)
Advanced Developments in Microbiology
(Environmental and Agricultural Microbiology)

Day and Date :Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
              2) *Figures to the* **right** *indicates* **full** *marks.*

1. A) Explain in detail the principles and techniques for the isolation, enumeration and identification of the methanogens. **10**

   B) Write short notes on **any two** of the following : **10**
     i) Biological control of soil borne plant pathogens.
     ii) Bioherbicides and their applications in agriculture.
     iii) In situ and Ex situ bioremediation.

2. A) Explain in detail waste treatment by activated sludge process. **10**

   B) Explain in short **any two** of the following : **10**
     i) Characteristics and treatment of antibiotic waste.
     ii) Anoxygenic phototrophic bacteria.
     iii) Epidemiology of plant diseases.

3. A) Describe in detail bioremediation of heavy metal and xenobiotic compounds. **10**

   B) Write short notes on **any two** of the following : **10**
     i) Acid springs   ii) Cyanobacteria as biofertilizers
     iii) Economics of waste treatment.

4. A) Describe the characteristics and treatment of textile waste. **10**

   B) Write short notes on **any two** of the following : **10**
     i) Types of waste   ii) Aerobic biofilms.
     iii) Phosphate solubilizers.

5. A) Explain various types and designs of bioreactors used in waste water treatment. **10**

   B) Write short notes on **any two** of the following : **10**
     i) Root zone technology
     ii) Biotechniques in bioremediation.
     iii) EIA.

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Seat No.

Ph.D. Course Work Examination, 2016
MICROBIOLOGY
Paper – III (New) and Paper – IV (Old)
Advanced Developments in Microbiology
A) Medical Microbiology and Immunology

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions :   i) **All** questions are **compulsory**.

ii) Figures to the **right** indicate **full** marks.

1. A) Discuss in brief morphology, cultural characteristics, pathogenesis and
   laboratory diagnosis of <u>Corynebacterium diphtheriae</u> infection.   **10**

   B) Write short notes on (**any two**)   **10**

      i) Leptospirosis

      ii) Laboratory diagnosis of bacillary dysentery

      iii) Tetanolysin and Tetanospasmin.

2. A) How are viruses cultivated ? Give a detailed description of each method.   **10**

   B) Write short notes on (**any two**)   **10**

      i) Hepatitis C virus

      ii) Opportunistic infections in HIV/AIDS

      iii) Laboratory diagnosis of rabies.

3. A) Discuss in detail pathogenicity and laboratory diagnosis of cryptococcosis. **10**

   B) Write short notes on (**any two**)   **10**

      i) Slide culture method in mycology

      ii) Madura foot

      iii) Stokes disc diffusion method.

4. A) Discuss in detail pathogenicity and laboratory diagnosis of <u>Wuchereria bancrofti</u>. **10**

   B) Write short notes on (**any two**) **10**
      i) Taeniasis
      ii) Pathogenicity of vivax malaria
      iii) Laboratory diagnosis of extra-intestinal amoebiasis.

5. A) Discuss in detail interleukins and their biological activities. **10**

   B) Write short notes on (**any two**) **10**
      i) Immunotherapy (Passive immunization)
      ii) Killed vaccines
      iii) Immunoblotting.

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Seat
No.

Ph.D. Course Work Examination, 2016
MICROBIOLOGY
Advanced Developments in Microbiology
Paper – III (New) and Paper – IV (Old)
(Microbial Technology and Fermentations)

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

N.B. : i) **All** questions are **compulsory**.

     ii) **All** questions carry **equal** marks.

     iii) Draw neat and well labeled diagrams **wherever** necessary.

1. A) Draw a well labeled diagram and write on various parts of Basic Fermentor.   **10**

   B) Write short notes on **any two** :   **10**

     i) Sterilization of media and air

     ii) Biomass separation by filtration

     iii) Types of dryers.

2. A) Elaborate on various methods for extraction and purification of product.   **10**

   B) Write short notes on **any two** :   **10**

     i) Lyophilization

     ii) Mass transfer in bioreactors

     iii) Therapeutic applications of Immobilized enzymes.

3. A) Give an account of commercial production of Lipases.   **10**

   B) Write short notes on **any two** :   **10**

     i) SCP

     ii) Restriction endonucleases

     iii) Biotransformation.

P.T.O.

4. A) Describe various steps in production of Cephalosporins. **10**

   B) Write short notes on **any two** : **10**
      i) Production of vinegar
      ii) Production of wine
      iii) Sources of biocatalysts.

5. A) Write in detail Biosynthesis of Insect Pheromones and Ergot alkaloids. **10**

   B) Write short notes on **any two** : **10**
      i) Biosensors- Types and Applications
      ii) Lactic Starter Culture
      iii) Types of wines.

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Seat No.

Ph.D. Course Work Examination, 2016
ECONOMICS (Paper – IV)
Economics of Agriculture

Day and Date : Wednesday, 3-2-2016　　　　　　　　Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
　　　　　　　 2) **All** questions carry **equal** marks.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　20

1. A) Explain the conditions of optimum use of inputs.　　　　**10**

   B) Answer in short (**any two**) :　　　　　　　　　　　　**10**

      i) Fai-Ranis Model

      ii) Capital Formation in Agriculture

      iii) Genetic modifications in Agriculture.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　20

2. A) Review the Irrigation policy adopted in India.　　　　　**10**

   B) Answer in short (**any two**) :　　　　　　　　　　　　**10**

      i) Regional imbalances in agriculture

      ii) Contract Farming

      iii) Centre State relationship in agricultural development.

　　　　　　　　　　　　　　　　　　　　　　　　　　　　20

3. A) Explain the causes of land degradation. Suggest the measures to minimize
   the degradation of land.　　　　　　　　　　　　　　　　**10**

   B) Answer in short (**any two**) :　　　　　　　　　　　　**10**

      i) Agricultural Exports

      ii) Role of Cooperatives in Agriculture

      iii) Agricultural Diversification.

20

4. A) What steps have been undertaken by Government of India for food security ? Review the Agricultural Pricing Policy. **10**

   B) Answer in short (**any two**) : **10**

      i) Agriculture and Economic Development

      ii) WTO and Agriculture

      iii) Need for the Agricultural Finance.

20

5. A) State types of Agricultural farming. Which type of farming is suitable to India ? **10**

   B) Answer in short (**any two**) : **10**

      i) Farmers rights

      ii) Mellor Theory

      iii) Growth with Social Justice.

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Seat
No.

Ph.D. Course Work Examination, 2016
LIBRARY AND INFORMATION SCIENCE
Paper – IV : Advanced Development in Library and Information Science

Day and Date :Wednesday, 3-2-2016   Max. Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

1. A) What do you mean by National Policy ? For what aim the National Policy on
      library and information system in India has been enunciated. Discuss.   **10**

   B) Answer **any two** of the following :   **10**
      i) Define the chi square test.
      ii) INFLIBNET.
      iii) Write a short note on search strategy.

2. A) What role statistics method play in social research and explain in detail.   **10**

   B) Write short notes on **any two** :   **10**
      i) Webometric.
      ii) Discuss the services provided by AGRIS.
      iii) Explain the activities of RRRLF.

3. A) Write an essay in about 300 words on MEDLARS.   **10**

   B) Answer **any two** of the following :   **10**
      i) E-resources.
      ii) UNISIST.
      iii) LIS education.

4. A) Explain various commissions setup by UGC for the development of academic
      libraries in India.   **10**

   B) Answer **any two** of the following :   **10**
      i) How would you conduct a typical Delphi study ?
      ii) User behavioural study.
      iii) ERNET network.

5. A) Define extension services. Describe the importance of extension services in
      public libraries.   **10**

   B) Answer **any two** of the following :   **10**
      i) Define NICNET.
      ii) Discuss the role of librarian in modern electronic era.
      iii) Bibliometric.

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Seat No.

Ph.D. Course Work Examination, 2016
HISTORY
(Paper – III) (New) and Paper – IV (Old)
Advanced Development in History

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) Write the salient features of Indian Constitution.   **10**

   B) Write short answers of **any two** :   **10**

      1) Objectives of sixth five year plan.

      2) Development of technology.

      3) Importance of irrigation.

2. A) State the reforms about land in India.   **10**

   B) Write short answers of **any two** :   **10**

      1) Development of science.

      2) Bhudan movement.

      3) Industrial Policy of 1980.

3. A) Explain the Industrial Policy of 1970.   **10**

   B) Write short answers of **any two** :   **10**

      1) Green revolution.

      2) Objectives of Maharashtra Tourism Development Corporation.

      3) Television.

4. A) Explain the types of tourism.   **10**

   B) Write short answers of **any two** :   **10**

      1) Environment.

      2) Problems about agriculture.

      3) Lake irrigation.

5. A) State the defence position of post independence India.   **10**

   B) Write short answers of **any two** :   **10**

      1) Development of post.

      2) Cotton industry.

      3) New Economic Policy, 1991.

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Seat
No.

M.Phil./Ph.D. Course Work Examination, 2016
Paper – III (New) and Paper – IV (Old)
EDUCATION
Advanced Development in Education

Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. Explain the meaning, Nature, Scope and Importance of Philosophy of Education.**20**

                    OR

    Discuss any two Theories of Learning.

2. Give the details of National Policy on Education 1986.   **20**

                    OR

    Discuss the Report of Verma Commission 2013.

3. a) Explain the Objectives of Higher Education.   **10**

    b) Explain the Life Skills given by WHO.   **10**

                    OR

    a) Discuss the Universalization of Institutes and their Functions.   **10**

    b) Explain the concept of Brain Based Research.   **10**

4. Short answer (**any five**) :   **40**

    1) Explain the concept of Value Education.

    2) Explain the need of Education for Peace.

    3) How Economics of Production affects on Education ?

    4) What are the Functions of UGC regarding Financial Assistance ?

    5) Discuss Awareness Model of Human Right Education.

    6) Explain the Curriculum of Western Schools of Philosophy of Education.

    7) Explain need of Global Education.

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Seat No.

Ph.D. Course Work Examination, 2016
COMMERCE (Paper – III) (New) and (Paper – IV) (Old)
Advanced Development in Marketing Management

Day and Date : Wednesday, 3-2-2016 Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. A) What is the relevance of Marketing Research under the Globalization ? Explain the nature of marketing research. **10**

   B) Solve **any two** of the following : **10**

   I) Explain the uses of Test Marketing.

   II) What is Trading Area Analysis ?

   III) Explain the importance of Consumer Attitude.

2. A) What is Marketing Information System ? Explain Components and Benefits of Marketing Information System. **10**

   B) Solve **any two** of the following : **10**

   I) What is Market Potential Analysis ?

   II) Explain Distribution Research.

   III) Explain in short concept of Copy Testing.

3. A) What do you mean by Customer Satisfaction ? Discuss the various ways in which we can measure the Customer Satisfaction **10**

   B) Solve **any two** of the following : **10**

   I) Explain the Value Marketing.

   II) What is Conjoint Analysis ?

   III) Explain in short concept of Pricing Research.

P.T.O.

4. A) Explain the measurement of Service Quality. **10**

   B) Solve **any two** of the following : **10**

      I) Discuss the Media Research.

      II) Explain the need for New Product Development.

      III) What are the Challenges for Today's Global Marketing Managers ?

5. A) Discuss Marketing Ethics. What are the tools for Social Marketing ? **10**

   B) Solve **any two** of the following : **10**

      I) What are the steps in analyzing Survey Results ?

      II) What is Skimming Pricing ? Explain its need.

      III) How to measure the Brand Equity ?

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SLR-AN – 152C

Seat No.

Ph.D. Course Work Examination, 2016
COMMERCE
Paper – III (New) and Paper – IV (Old)
(C) : Advanced Development in Human Resource Management

Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

N. B. :   i)   Attempt **all** questions.
         ii)   **All** questions carry **equal** marks.

1. a) What do you understand by the term Human Resource Management ? Discuss its nature and scope. **10**

   b) Write short notes on (**any two**) : **10**

      i) Human resource planning

      ii) Components of manpower planning

      iii) Human Resource Development.

2. a) State the stages of recruitment and selection. **10**

   b) Write notes on **any two** : **10**

      i) Rating system

      ii) Job evaluation

      iii) Job classification and grading method.

3. a) State the methods of training. **10**

   b) Write notes on (**any two**) : **10**

      i) Process of training

      ii) Components of management development programme

      iii) Work life balance.

4. a) What is job analysis ? State the purpose and uses of job analysis. **10**

   b) Write short notes on (**any two**) : **10**

      i) Application blank

      ii) Reference checks

      iii) Techniques of recruitment.

5. a) State the nature and scope of internationalization of Human Resource Management. **10**

   b) Write notes on (**any two**) : **10**

      i) Socio-cultural issues in IHRM

      ii) Host country culture

      iii) Female work force in multinational companies.

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Seat No.

Ph.D. Course Work Examination, 2016
CIVIL ENGINEERING
Paper – III (New) and Paper – IV (Old)
Elective – Advanced Developments in Civil Engineering
Structural Engineering and Concrete Technolgy

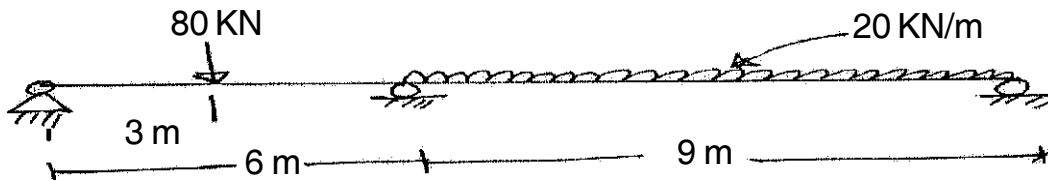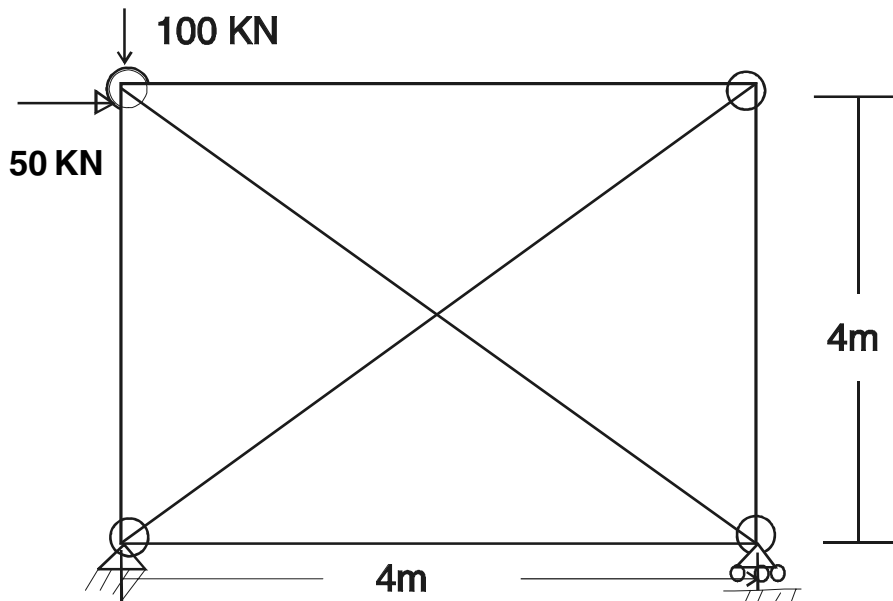Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
                     2) Make suitable assumptions, if **required**.

1. a) Explain the concept of transformation of matrices on structure axis.   **5**

   b) Analyze the beam shown below using stiffness method and draw BMD.   **15**

   80 KN   20 KN/m

   3 m
   6 m   9 m

2. Analyze the pin joined plane frame shown in figure using member oriented matrix approach. Consider axial stiffness for each member is 40 KN/mm.   **20**

   100 KN

   50 KN

   4m

   4m

3. Write note on :

   a) Derive strain compatibility conditions for 2-D problems.   **8**

   b) Derive shape functions for four noded rectangular element with nodes
      1(−a, −b); 2(0, −b); 3(0, 0); 4(−a, 0).   **12**

4. a) Write detailed note on various non-distractive methods.   **15**

   b) Explain procedure to make concrete along with fly ash.   **5**

5. a) Write detailed note on Fiber Reinforced Concrete.   **15**

   b) Explain Light Weight Concrete.   **5**

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Seat No.

Ph.D. Course Work Examination, 2016
CIVIL ENGINEERING
Elective – Advanced Development in Civil Engineering
(Environmental Engineering and Water Resources Engineering)
Paper – III (New) and Paper – IV (Old)

Day and Date : Wednesday, 3-2-2016   Total Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

1. Explain any five of following terms and their application in design and operation of treatment units.
    i) Velocity gradient
    ii) Effective size and uniformity coefficient
    iii) Zeta Potential
    iv) Stokes Law
    v) Self cleansing velocity
    vi) Chlorine demand.   **20**

2. a) What is air quality index ? Explain the procedure for determining ambient air quality in urban area.   **10**

   b) Compare the various air pollution control equipments for particulate removal from stack gases.   **10**

3. a) Describe the procedure of Environmental Impact Assessment for installation of new sugar industry.   **10**

   b) What are the characteristics of municipal solid wastes ? Discuss the design parameters for treating such waste by aerobic composting method.   **10**

4. a) Compare the advantages and disadvantages of small dams versus big dams as regards impact on environment.   **10**

   b) What is meant by Rain Water Harvesting ? Explain the techniques of storing rain water for drinking and for recharging ground water.   **10**

5. a) Explain the seasonal changes in wind patterns over India peninsula.   **10**

   b) Write short notes on **any two** of following :   **10**
      i) Cyclones in Indian Sea
      ii) Inter basin river linking prospects
      iii) Major categories of world climates.

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SLR-AN – 154B

Seat No.	

Ph.D. Course Work Examination, 2016
COMPUTER SCIENCE AND ENGINEERING
Advanced Development in Computer Science & Engg.
Paper – III (New) and Paper – IV (Old) : Advanced Development in Distributed Systems

Day and Date : Wednesday, 3-2-2016   Total Marks : 100

Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) **All** questions are **compulsory**.
               2) **All** questions carry **equal** marks.

1. a) Why scalability is an important feature in the design of a distributed system ? Discuss some of the guiding principles for designing a scalable distributed system. **10**

    b) Write short note on **any two** of the following : **10**

      i) Distributed transactions.

      ii) Maekawa's voting algorithm.

      iii) Events and notifications.

2. a) What is Piggybacking of a message ? How does it helps in reduces network traffic ? Give some example, where the piggybacking scheme may be used to improve performance in distributed systems. **10**

    b) Describe with example **any two** of the following : **10**

      i) Commit Protocol.

      ii) Non-blocking commit protocol.

      iii) Voting protocol.

3. a) Explain Ricart and Agrawala's algorithm for mutual exclusion. Can Ricart and Agrawala's algorithm lead to deadlocks ? Justify. **10**

    b) Solve **any two** of the following : **10**

      i) Explain the solution to Byzantine Agreement problem.

      ii) Explain Threads Clock synchronization and Event ordering with example.

      iii) Explain the role of coordinator in distributed transaction.

P.T.O.

4. a) What is meant by transparency ? Give examples of different types of transparency in distributed systems. **10**

   b) Solve **any two** of the following : **10**

      i) Write a short note on issues in IPC by message passing.

      ii) Write a short note on file replication.

      iii) Explain deadlock prevention techniques in distributed environment.

5. a) Which features of AFS design makes it more scalable than NFS ? What are the limitations on its scalability, assuming that servers can be added if required ? Which recent developments offer greater scalability ? **10**

   b) Solve **any two** of the following : **10**

      i) What is Process Migration ? Explain the features of good process migration mechanism.

      ii) Differentiate between handoff scheduling and affinity scheduling of threads.

      iii) Write short note on Automounter in NFS.

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Seat No.

Ph.D. Course Work Examination, 2016
MECHANICAL ENGINEERING
Paper – III (New) and Paper – IV (Old)
Elective : Advanced Development in Industrial and Production Engineering

Day and Date : Wednesday, 3-2-2016   Max. Marks : 100
Time : 11.00 a.m. to 2.00 p.m.

Instructions : 1) *Neat diagrams must be drawn **wherever** necessary.*
               2) *Figures to the **right** indicate **full** marks.*
               3) *Use of electronic pocket **calculator** is allowed.*
               4) ***Assume** suitable data, if **necessary**.*
               5) ***All** sub questions must be written together.*

1. a) An auto parts supplier sells Hardy-brand batteries to car dealers and auto mechanics. The annual demand is approximately 1200 batteries. The supplier pays $28 for each battery and estimates that the annual holding cost is 30 percent of the battery's value. It costs approximately $20 to place an order (managerial and clerical costs). The supplier currently orders 100 batteries per month.

     a) Determine the ordering, holding and total inventory costs for the current order quantity.

     b) Determine the economic order quantity (EOQ).

     c) How many orders will be placed per year using the EOQ ?

     d) Determine the ordering, holding and total inventory costs for the EOQ. How has ordering cost changed Holding cost ? Total inventory cost ? **10**

   b) Solve **any two** of following :

     i) What are objectives of operation research in industries ?

     ii) Discuss the strategic decisions in operations.

     iii) Explain strategy deployment. **10**

2. a) Explain role of forecasting in industry. **10**

   b) Write short note on **any two** :

   i) Exponential Smoothing.

   ii) Need of Forecasting.

   iii) Application of Process layout. **10**

3. a) Machines A, B, C and D have been in use for several years, while machine E is new. The following table provides data on the value of production of each job when performed on a specific machine.

   a) Determine the set of assignments that maximizes production value.

   b) What is the total production value of your assignments ?

   c) Which machine should be retired (i.e., gets no assignment) ?

   d) If they do retire one machine, will they be as profitable without it as with it ? Explain.

Machine					
Job	A	B	C	D	E
1	27	29	28	30	40
2	30	32	31	34	46
3	33	25	29	26	37
4	29	31	24	28	28

   10

   b) Solve **any two** :

   i) Write note on Flexible manufacturing.

   ii) Lean production.

   iii) Distinguish between Pure and Mixed strategies. **10**

4. a) Explain need of KANBAN technique in India. **10**

   b) Write short note on **any two** : **10**

   i) Explain the Inventory control system.

   ii) Role of MRP.

   iii) ERP role in any manufacturing industry.

5. a) Use Johnson's rule to determine the optimal sequencing for the five jobs to be processed on two machines in a fixed order (Machine 1 before Machine 2). The processing times in hours are given in the table below.

   a) What is the optimal sequence ?

   b) What is the makespan for this sequence ?

   c) Which job is the first to be scheduled ? Is it scheduled to be the first job or the last ? Explain.

Job	Machine 1	Machine 2
A	10	11
B	8	17
C	14	10
D	13	7
E	10	8
F	25	9
G	6	15

   10

   b) Write note on **any two** :

   i) Quality at source.

   ii) Significance of Johnson's rule.

   iii) Theory of constraints.

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