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**Ph.D. Course Work Examination Jan/Feb-2018
MARATHI (Paper – I)**

**Research Methodology & Information Communication Technology (ICT)
संशोधनपध्दती व माहिती – तंत्रज्ञान**

Day & Date: Tuesday, 16-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: सर्व प्रश्न आवश्यक आहे.

- प्र. 1 अ) 'संशोधन' म्हणजे काय, ते विविध अभ्यासकांच्या मतांच्या आधारे स्पष्ट करा. 10
ब) खालील तीन प्रश्नांपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 10
1) संशोधनामागील उद्दिष्टे विशद करा.
2) साहित्यसंशोधन आणि साहित्यसमीक्षा हयांच्यामधील फरक स्पष्ट करा.
3) अन्य क्षेत्रांपेक्षा साहित्यसंशोधनाचे क्षेत्र वेगळे कसे, ते सांगा.
- प्र.2 अ) संशोधन पध्दती म्हणजे काय, ते स्पष्ट करुन त्यांचे संशोधनाच्या क्षेत्रातील महत्त्व 10
विशद करा.
ब) खालील तीन प्रश्नांपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 10
1) ऐतिहासिक संशोधनपध्दतीचे स्वरुप स्पष्ट करा.
2) वर्णनात्मक संशोधनपध्दतीचे वेगळेपण सांगा.
3) क्षेत्रीय सर्वेक्षणपध्दतीचा परिचय करुन द्या.
- प्र.3 अ) साहित्यसंशोधनाच्या विविध क्षेत्रांची ओळख करुन द्या. 10
ब) खालील तीन प्रश्नांपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 10
1) विशिष्ट साहित्यकृतीचे संशोधन कसे केले जाते?
2) विशिष्ट वाङ्मयप्रकाराच्या संशोधनाची आवश्यकता स्पष्ट करा.
3) बोली अभ्यासाचे महत्त्व विशद करा.
- प्र.4 अ) संशोधनकार्यातील टप्पे क्रमवार सोदाहरण स्पष्ट करा. 10
ब) खालील तीन प्रश्नांपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 10
1) संशोधनातील 'गृहितक' ही संकल्पना स्पष्ट करा.
2) प्रबंधामध्ये संदर्भसूची का आवश्यक आहे?
3) दर्शिका (निर्देशसूची) म्हणजे काय?
- प्र.5 अ) संशोधनासाठी संगणकीय ज्ञान किती आणि कसे महत्त्वाचे आहे, ते स्पष्ट करा. 10
ब) खालील तीन प्रश्नांपैकी कोणत्याही दोन प्रश्नांची थोडक्यात उत्तरे लिहा. 10
1) संगणक क्षेत्रातील अपलोड आणि डाऊनलोड हया संकल्पना संशोधनाच्या संदर्भात किती महत्त्वाच्या आहेत?
2) वेब ब्राउझरच्या संशोधनासाठी कसा वापर करता येतो?
3) सर्च इंजिनचे संशोधनाच्या क्षेत्रातील महत्त्व सांगा.

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**Ph.D. Course Work Examination Jan/Feb-2018
HINDI (Paper – I)**

**Research Methodology & Information Communication Technology (ICT)
अनुसंधान प्रक्रिया, जानकारी और तकनीक**

Day & Date: Tuesday, 16-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

- सूचना: 1) सभी प्रश्न अनिवार्य हैं।
2) दाईं ओर प्रश्न के पूर्णांक हैं।
- प्र. 1 अ) अनुसंधान के उद्देश्य पर प्रकाश डालिए। 10
ब) किन्हीं दो के संक्षिप्त उत्तर लिखिए। 10
1) ऐतिहासिक अनुसंधान पद्धति।
2) अनुसंधान का स्वरूप।
3) अनुसंधान की संकल्पना।
- प्र.2 अ) भाषिक अनुसंधान का विवेचन कीजिए। 10
ब) किन्हीं दो के संक्षिप्त उत्तर लिखिए। 10
1) प्रायोगिक अनुसंधान।
2) तुलनात्मक अनुसंधान का स्वरूप।
3) विशेष लेखक का अध्ययन।
- प्र.3 अ) साहित्यिक अनुसंधान का परिचय दीजिए। 10
ब) किन्हीं दो के संक्षिप्त उत्तर लिखिए। 10
1) बोलियों का अनुसंधान।
2) ऐतिहासिक अनुसंधान पद्धति।
3) रूपरेखा-निर्माण
- प्र.4 अ) सूचना प्रौद्योगिकी का ज्ञान अनुसंधान क्षेत्र में किस प्रकार उपयोगी सिद्ध हो रहा है? विशद कीजिए। 10
ब) किन्हीं दो के संक्षिप्त उत्तर लिखिए। 10
1) शोध की सामग्री का संकलन।
2) सामग्री का वर्गीकरण।
3) विधा विशेष का अध्ययन
- प्र.5 अ) अनुवाद और तुलनात्मक साहित्यिक अनुसंधान पर प्रकाश डालिए। 10
ब) किन्हीं दो के संक्षिप्त उत्तर लिखिए। 10
1) साहित्यिक और शास्त्रीय अनुसंधान में अंतर।
2) अनुसंधान कार्य में संगणक : एक महत्त्वपूर्ण साधन।
3) निष्कर्ष की स्थापना।

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Ph.D. Course Work Examination Jan / Feb – 2018
SCIENCE (PAPER – I)

Research Methodology & Information Communication Technology (ICT)

Day & Date: Tuesday, 16-01-2018

Max. Marks: 100

Time: 11.00 AM to 02.00 PM

Instructions: All questions are compulsory.

- Q.1** a) Discuss in detail scientific explanation. Add a note on limits of scientific explanation. **10**
- b) **Answer Any Two:** **10**
- 1) Write a note on block schematic approach.
 - 2) Discuss about imperial basis of laws.
 - 3) Write a note on requirements of theory.
- Q.2** a) Take a detail account on preparation of thesis. **10**
- b) **Answer Any Two:** **10**
- 1) Write a note on literature review.
 - 2) Discuss about objectives of research.
 - 3) Write a note on search engines.
- Q.3** a) Discuss in brief about writing results & discussions of a research paper. **10**
- b) **Answer Any Two:** **10**
- 1) Write a note on data collection.
 - 2) Discuss in brief about planning of experiments.
 - 3) Discuss about presentation of research paper.
- Q.4** a) What do you mean by impact factor? Discuss in detail about methods of calculating impact factor & immediacy index. **10**
- b) **Answer Any Two:** **10**
- 1) Write a note on h-index.
 - 2) Discuss about ISBN.
 - 3) Write a note on e-database.
- Q.5** a) Discuss in detail different applications of computers in research. **10**
- b) **Answer Any Two:** **10**
- 1) Discuss about formulation of search statement.
 - 2) Write a note on measures of central tendency.
 - 3) Discuss in brief about framing a questionnaires.

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**Ph.D. Course Work Examination Jan/Feb-2018
SOCIAL SCIENCE (PAPER – I)**

Research Methodology & Information Communication Technology (ICT)

Day & Date: Tuesday, 16-01-2018

Max. Marks: 100

Time: 11.00 AM to 02.00 PM

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

- Q.1** a) Discuss the meaning and types of research. **10**
b) **Answer Any Two:** **10**
1) Types of Hypothesis
2) Inductive Research
3) Limitation of Scientific Explanation
- Q.2** a) Explain the Experimental Research Design. **10**
b) **Answer Any Two:** **10**
1) Purpose of Review of Literature
2) Research Problem
3) Objectives of Research
- Q.3** a) Discuss the Report Writing on Thesis. **10**
b) **Answer Any Two:** **10**
1) Interview
2) Field Work
3) Questionnaire
- Q.4** a) Discuss the Use and Limitation of Chi Square Test. **10**
b) **Answer Any Two:** **10**
1) Qualitative Data
2) Central Tendency
3) Correlation
- Q.5** a) Discuss the Importance of SPSS in Research. **10**
b) **Answer Any Two:** **10**
1) Advantages of Internet in Research
2) E-Submission
3) H-Index

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**Ph.D. Course Work Examination Jan/Feb-2018
EDUCATION (Paper – I)**

Research Methodology & Information Communication Technology (ICT)

Day & Date: Tuesday, 16-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Enlist the common errors in conducting research and explain any two common errors in brief. **15**
- b) **Write short notes on any Two:** **10**
- 1) Two sources of acquiring knowledge
 - 2) 5 steps of scientific thinking
 - 3) Research of scientific thinking
- Q.2** a) What are the differences between Qualitative and Quantitative Research? **15**
- b) **Write short notes on any Two:** **10**
- 1) Importance of Review of Related Research
 - 2) Types of Validity
 - 3) Reliability
- Q.3** a) Find the t-test value for the following two sets of data. **15**
- | | | | | |
|----|----|----|----|----|
| X1 | 09 | 10 | 11 | 12 |
| X2 | 02 | 04 | 06 | 08 |
- b) **Write short notes on any Two:** **10**
- 1) ANOVA
 - 2) Partial correlation
 - 3) Factor analysis
- Q.4** a) Explain various applications of ICT which are useful in conducting educational research. **15**
- b) **Write short notes on any Two:** **10**
- 1) Information project
 - 2) Meaning of e-submission
 - 3) Format of e-book

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Ph.D. Course Work Examination Jan/Feb-2018
LAW (Paper – I)

Research Methodology & Information Communication Technology (ICT)

Day & Date: Tuesday, 16-01-2018

Max. Marks: 100

Time: 11.00 AM to 02.00 PM

Instructions: 1) All questions are compulsory.
2) Answer all five questions.

- Q.1** **a)** “Knowing what data are available often serves to narrow down the problem itself as well as the technique that might be used”. Explain the underlying idea in this statement in the context of defining a Research problem. **10**
- b) Short notes (on any two):** **10**
- 1) Contents of Research Report
- 2) Estimation and testing of hypothesis
- 3) Survey Method
- Q.2** **a) Distinguish between:** **10**
- 1) Restricted and unrestricted sampling
- 2) Convenience and purposive sampling
- 3) Systematic and stratified sampling
- b) Short notes (on any two):** **10**
- 1) Doctrinal Research
- 2) Current Trends in Legal Research
- 3) Observation Method
- Q.3** **a)** Describe in brief, the layout of a research report, covering all relevant points. **10**
- b) Short notes (on any two):** **10**
- 1) Content Analysis
- 2) Applied and Fundamental Research
- 3) Research Design
- Q.4** **a)** What is impact factor? Explain its calculation, use, validity and response. **10**
- b) Short notes (on any two):** **10**
- 1) WTO - Term of Patent
- 2) World Wide Web
- 3) Advantages and Disadvantages of e-mail
- Q.5** **a)** Explain h-index. Its definition, purpose, merits and demerits. **10**
- b) Short notes (on any two):** **10**
- 1) Concepts and Meaning of Internet
- 2) Java Applets
- 3) Data Analysis and interpretation

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Ph.D. Course Work Examination Jan/Feb-2018
MARATHI (Paper – II)
Marathi Sahityatil Nave Pravah
 मराठी साहित्यातील नवे प्रवाह

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: सर्व प्रश्न आवश्यक आहे.

- प्र. 1 अ) अलघुनियतकालिकांच्या चळवळीचे स्वरूप स्पष्ट करा. 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) अण्णाभाऊ साठे यांच्या कादंबऱ्या
 2) व्यंकटेश माडगुळकर यांची कथा
 3) ना. धो. महानोर यांच्या कवितेतील निसर्ग
- प्र. 2 अ) नवकथेचे स्वरूप विशेष सांगा. 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) कमल देसाई यांच्या लघुकादंबऱ्या
 2) जयवंत दळवी यांच्या कादंबऱ्यांमधील मानवी संबंधांचे चित्रण
 3) जी. ए. कुलकर्णी यांची कथा
- प्र. 3 अ) फुले-आंबेडकरी विचारधारा आणि ग्रामीण साहित्य यांचा अनुबंध स्पष्ट करा. 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) प्रज्ञा दया पवार यांच्या कवितेवरील आंबेडकरवादाचा प्रभाव
 2) नामदेव ढसाळ्यांच्या कवितेतील महानगरीय जाणीव
 3) यशवंत मनोहर यांच्या चरित्रात्मक कादंबऱ्या
- प्र. 4 अ) स्त्रीवादी चळवळीत अग्रभागी असलेल्या स्त्री प्रश्नांची चर्चा करा. 10
 ब) दिर्घोत्तरी प्रश्न (कोणतेही दोन) 10
 1) रजनी परुळेकरांची कविता
 2) सानियांच्या कथेतील स्त्री प्रश्नांचे स्वरूप
 3) मेघना पेढे यांची कथा
- प्र. 5 अ) 1975 नंतर निर्माण झालेल्या आदिवासी कवितेचा आढावा घ्या. 10
 ब) दिर्घोत्तरी प्रश्न (कोणतेही दोन) 10
 1) नजुबाई गावीत यांच्या कादंबऱ्या
 2) विनायक तुमराम यांची कविता
 3) आदिवासी कवितेतील निसर्ग

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Ph.D. Course Work Examination Jan/Feb-2018
HINDI (Paper – II)

Hindi Sahitya : Alochana Aur Vimarsh (New)
हिंदी साहित्य: आलोचना और विमर्श (New)

Day & Date: Wednesday, 17-01-2018

Max. Marks: 100

Time: 11.00 AM to 02.00 PM

सूचना: 1) सभी प्रश्न अनिवार्य हैं।

2) दाईं ओर लिखें अंक प्रश्नों के गुण दर्शाते हैं।

- प्र. 1 अ) आलोचना की विभिन्न परिभाषा बताकर स्वरूप विशद कीजिए। 10
अथवा
सांस्कृतिक अध्ययन का महत्व स्पष्ट कीजिए।
- ब) निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 10
1) आंचलिकता।
2) मार्क्सवादी आलोचना।
3) अस्तित्ववाद एक विशिष्ट मजवाद।
- प्र. 2 अ) भारतीय स्वतंत्रता आंदोलन में हिन्दी का योगदान स्पष्ट कीजिए। 10
अथवा
'दलित विमर्श' की संकल्पना एवं स्वरूप विशद कीजिए।
- ब) निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 10
1) मनोविश्लेषणवादी आलोचना।
2) ग्रामबोध।
3) मंडल आयोग और जनजागरण।
- प्र. 3 अ) गांधीवाद का स्वरूप बताकर विशेषताएं स्पष्ट कीजिए। 10
अथवा
'साहित्य का समाजशास्त्र'— विवेचन कीजिए।
- ब) निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 10
1) तुलनात्मक अध्ययन का स्वरूप।
2) धूमंतू जातियों का जागरण।
3) समाजशास्त्रीय आलोचना।
- प्र. 4 अ) मार्क्सवाद के विचारों का प्रभाव स्पष्ट कीजिए। 10
अथवा
उत्तर आधुनिकता का स्वरूप और विशेषताएं विशद कीजिए।
- ब) निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 10
1) महानगरीय बोध।
2) स्त्री विमर्श का स्वरूप।
3) अंबेडकरवाद।

- प्र. 5 अ) 'इतिहास दर्शन' का स्वरूप कीजिए। 10
- अथवा
- आधुनिकता बोध की संकल्पना विशद कीजिए।
- ब) निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर लिखिए। 10
- 1) भाषा वैज्ञानिक अध्ययन का महत्व।
 - 2) तुलनात्मक अध्ययन के आयाम।
 - 3) भूमंडलीकरण।

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Ph.D. Course Work Examination Jan/Feb-2018
ECONOMICS (Paper – II)
Recent Trends in International Economics (Old)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Explain the effects of growth on terms of trade with reference to developing countries. **10**
 b) **Write answers on any two of the following:** **10**
 1) Discuss objectives of WTO
 2) What is meant by export promotion?
 3) Discuss the merits of FDI in India.
- Q.2** a) Explain the Impact of SEZs in India. **10**
 b) **Write answers on any two of the following:** **10**
 1) Describe gains from international trade.
 2) Explain the impact of liberalization on trade.
 3) Distinguish between GATT and WTO.
- Q.3** a) Discuss the impact of WTO on Indian economy. **10**
 b) **Write answers on any two of the following:** **10**
 1) What is meant by dumping?
 2) What is meant by human capital?
 3) Explain the relationship between free trade and domestic prices.
- Q.4** a) Explain the recent trends in India's foreign trade. **10**
 b) **Write answers on any two of the following:** **10**
 1) Explain merits of the Kravis Theory of Availability.
 2) What is meant by technological up gradation?
 3) Explain Intra-Industry trade.
- Q.5** a) Discuss the role of MNCs in Indian Economy. **10**
 b) **Write answers on any two of the following:** **10**
 1) Explain merits and demerits of Linder's Theory of Volume of Trade and demand Pattern.
 2) Explain features India's Trade Policy since 1991.
 3) Explain export infrastructure development in India.

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Ph.D. Course Work Examination Jan/Feb–2018
A.I.H.C. & A. (Paper – II)
Recent Trends in Indian Culture & Archaeology (New)

Day & Date: Wednesday, 17-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Explain in brief about the importance of archaeology in reconstructing the past. **10**
- b) **Write short answer any two of the following:** **10**
- 1) C-14 Dating
 - 2) Dendrochronology Dating
 - 3) Relative Dating
- Q.2** a) Explain the various phases of development in the Stone Ages. **10**
- b) **Write short answer any two of the following:** **10**
- 1) Megaliths
 - 2) Stone Age tools
 - 3) Stone Age Dwellings
- Q.3** a) Discuss in brief through archaeological sources of Social Life of Indus Valley people. **10**
- b) **Write short answer any two of the following:** **10**
- 1) Harappan Religion
 - 2) Harappan Town Planning
 - 3) Harappan weights and measures
- Q.4** a) Elucidate in brief the various features of Buddhism. **10**
- b) **Write short answers any two of the following:** **10**
- 1) Vaishnavism
 - 2) Jainism
 - 3) Kapalikas
- Q.5** a) Explain in brief the various techniques of Exploration. **10**
- b) **Write short answers any two of the following:** **10**
- 1) Horizontal Excavation
 - 2) Site Survey
 - 3) Vertical Excavation

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Ph.D. Course Work Examination Jan/Feb-2018
PSYCHOLOGY (Paper – II)
Recent Trends in Psychology

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Describe the nature of selective attention. **10**
 b) **Answer any two short notes of the following:** **10**
 1) Sensation of smell
 2) Verbal learning
 3) Autobiographical memory
- Q.2** a) Discuss in detail the types of reasoning. **10**
 b) **Answer any two short notes of the following:** **10**
 1) Sensation of hearing
 2) Iconic memory
 3) Human intelligence
- Q.3** a) Explain the models of emotional intelligence. **10**
 b) **Answer any two short notes of the following:** **10**
 1) Observational learning
 2) Indicators of motivation
 3) Critical thinking
- Q.4** a) State the theories of motivation. **10**
 b) **Answer any two short notes of the following:** **10**
 1) Perception
 2) Generalization
 3) Physiological basis of emotion
- Q.5** a) Bring out the nature of short term memory. **10**
 b) **Answer any two short notes of the following:** **10**
 1) Measuring intelligence
 2) Non verbal communication and emotions
 3) Verbal learning

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Ph.D. Course Work Examination Jan/Feb-2018
SOCIAL WORK (Paper – II)
Recent Trends in Social Work (New)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Discuss the development of social work in USA. **10**
 b) **Give answers in short (Any Two) :** **10**
 1) Child welfare
 2) Code of ethics for social work
 3) Status of social work in India
- Q.2** a) Comment on HRM practice in India. **10**
 b) **Give answers in short (Any Two) :** **10**
 1) Industrial relation
 2) HRD concept
 3) Social security legislation
- Q.3** a) Elaborate the role of panchayat raj in rural administration. **10**
 b) **Give answers in short (Any Two) :** **10**
 1) Concept of urban community
 2) Problems of tribal community
 3) Welfare programmes for urban community
- Q.4** a) Highlight the emerging issues of women. **10**
 b) **Give answers in short (Any Two) :** **10**
 1) Family structure
 2) Welfare programmes for women
 3) Laws related child
- Q.5** a) Trace the historical development of medical social work. **10**
 b) **Give answers in short (Any Two) :** **10**
 1) Programmes for mental health
 2) Community mental health
 3) Mental hygiene movement

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Ph.D. Course Work Examination Jan/Feb-2018
EDUCATION (Paper – II)
Recent Trends in Education (Old)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures on right hand side indicate marks.
 3) Draw labeled diagram wherever necessary.

- Q.1** a) What is meant by quality in higher education? Which are factors affecting on quality in higher education? **10**
- b) **Answer any two of the following:** **10**
- 1) Write a note on quality assurance in higher education.
 - 2) Explain the concept of total quality management in higher education.
 - 3) Write importance of media literacy in education.
- Q.2** a) What is meant by leadership? Explain behavior theory of leadership. **10**
- b) **Answer any two of the following:** **10**
- 1) What are the demerits of alternative assessment?
 - 2) Why character education is important in secondary school programme?
 - 3) Write a note on rich and varied innovations in education.
- Q.3** a) What are major components of leadership according to trait theories? **10**
- b) **Answer any two of the following:** **10**
- 1) Write a note delimitation of Internationalization of education.
 - 2) What are the merits of enjoyable education?
 - 3) Explain the concept of teleconferencing.
- Q.4** a) What are the opportunities of teacher in the twenty first century? **10**
- b) **Answer any two of the following:** **10**
- 1) Write a note on accreditation in higher education.
 - 2) What are the demerits of Imbalance in the Educational System?
 - 3) Write the merits of multi grade teaching.
- Q.5** a) What is meant by critical thinking? What is importance of critical thinking in secondary education? **10**
- b) **Answer any two of the following:** **10**
- 1) Write a note on importance of leadership
 - 2) What are merits of short term teacher training programme?
 - 3) State the significance of quality audit in higher education.

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Ph.D. Course Work Examination Jan/Feb-2018
EDUCATION (Paper – II)
Trends in Education (New)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

Q.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?

Q.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.

Q.3 a) Explain the concept Inclusive Education. **10**
 b) What is role of DIET in Primary Education? **10**

OR

a) What are the challenges and opportunities in Digital Age? **10**
 b) Why e-learning strategies are important in today's education? **10**

Q.4 **Answer the following questions (Any Five)** **40**

- 1) Explain the need of RTE act – 2009 in Primary Education.
- 2) What is the role of Open University in scaling up quality education for all?
- 3) What is mobile learning? How to use mobile for better teaching?
- 4) Why Financial Assistance Schemes of UGC is important in Higher Education?
- 5) What is role of NCTE in Teacher Education?
- 6) What are the principles of brain based learning strategy?
- 7) What are the objectives of Open Book Examination System? What are merits and demerits of Open Book Examination?

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Ph.D. Course Work Examination Jan/Feb–2018
LAW (Paper – II)
Law Justice And Society (New)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Explain how Equivalence theory differs from Dependency Theory in relation to Law and Justice. **10**
- b) **Short notes on any two:** **10**
- 1) Allocation of resources – Role of Law
 - 2) Need of Judicial Accountability
 - 3) Ideal Governance
- Q.2** a) What are the major hurdles for faster growth of Alternative Dispute Resolutions (ADR) In India? Why court is hesitate to give free sanction to decide without any intervention? **10**
- b) **Short notes on any two** **10**
- 1) Objectivity of Justice
 - 2) Independency of Judiciary v. restoration of Law and Order in society.
 - 3) Limits of legal sanction.
- Q.3** a) Moral is a strong platform to restore the values of law. How Law and moral is co-related one another. Explain with the help of decided cases. **10**
- b) **Short notes on any two:** **10**
- 1) Role of citizen in democratic set up
 - 2) Few Land mark judgment in justice delivery system.
 - 3) Concept of Justice.
- Q.4** a) What is the main object to have the Law in society? How the media play a major role to restore the voice of justice. **10**
- b) **Short notes on any two:** **10**
- 1) Utilitarian Tradition in Justice
 - 2) Objectivity of Justice
 - 3) Impact of Public Opinion
- Q.5** a) Cyber crimes are going rapidly in recent years than growth of computer technology. Suggest measures how to eradicate this problem and to overcome present crisis. **10**
- b) **Short notes on any two:** **10**
- 1) Relevancy of Law on society
 - 2) Legal administration
 - 3) Control over rivalry ideologies

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Ph.D. Course Work Examination Jan/Feb-2018
PHYSICS (Paper – II)
Recent Trends in Physics

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) What is crystal system? Explain the method of determination of lattice parameters for cubic and tetragonal crystal systems? **10**
- b) **Write a short note on any two:** **10**
- 1) Principle of image formation
 - 2) Powder diffraction method
 - 3) Data processing and refinement
- Q.2** a) Discuss the principle of FE-SEM microscopy and give advantages over SEM and TEM microscopy? **10**
- b) **Write a short note on any two:** **10**
- 1) Principle of TEM microscopy
 - 2) Concept of electron diffraction
 - 3) Secondary electrons and images
- Q.3** a) Write in detail the determination of optical band gap using absorption spectroscopy. **10**
- b) **Write a short note on any two:** **10**
- 1) UV absorption spectra for organic molecules
 - 2) IR Sensitive modes of vibration
 - 3) Advantages of FTIR instrumentation
- Q.4** a) Explain in detail atomic force microscope (AFM). **10**
- b) **Write a short note on any two:** **10**
- 1) Magnetic force microscope
 - 2) Effect of conjugation
 - 3) Electrostatic force microscope
- Q.5** a) Explain the contact mode and tapping mode using atomic force microscopy. **10**
- b) **Write a short note on any two:** **10**
- 1) Chemical shift
 - 2) Data interpretation and analysis
 - 3) Band analysis and work function measurement

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Ph.D. Course Work Examination Jan/Feb-2018
ZOOLOGY (Paper – II)
Recent Trends in Zoology (New)

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) Figures on right hand side indicate marks.
 3) Draw labeled diagrams wherever necessary.

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|------------|-----------|----------------------------------------------------------------------------------------------------------------------|-----------|
| Q.1 | a) | Give an account of the malarial parasites life cycle in man. | 10 |
| | b) | Write short notes on. (Any two) | 10 |
| | | 1) Control of the Swine flu
2) The unique biological features of Schistosomia
3) Prevention of Trichinelliasis | |
| Q.2 | a) | Describe any two methods of biomolecule purification. | 10 |
| | b) | Write short notes on. (Any two) | 10 |
| | | 1) Green house effect
2) Immunocytochemistry
3) GMO applications in soil bioremediation | |
| Q.3 | a) | Describe applications of animal cell culture in therapeutics. | 10 |
| | b) | Write explanatory notes. (Any two) | 10 |
| | | 1) <i>Mycobacterium tuberculosis</i>
2) Rabies virus
3) <i>Giardia</i> | |
| Q.4 | a) | Describe the role of molecular data in biosystematics. | 10 |
| | b) | Write short notes on. (Any two) | 10 |
| | | 1) Allosteric enzyme
2) Beer and Lamberts Law
3) Cytochemical techniques | |
| Q.5 | a) | Discuss technique of Density Gradient Centrifugation. | 10 |
| | b) | Write short notes on. (Any two) | 10 |
| | | 1) Scope and importance of biodiversity
2) Field gene banks and seed banks
3) Taxonomic keys | |

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Ph.D. Course Work Examination Jan/Feb-2018
GEOGRAPHY (Paper – II)
Recent Trends in Geography

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Describe the contribution of geographers in modern period. **10**
 b) **Short Answer types (Any two):** **10**
 1) Vidal De la Blache
 2) Concept of Determinism
 3) Geography as a science discipline
- Q.2** a) Describe the behavioral approach in geography and explain its limitations. **10**
 b) **Short Answer types (Any two):** **10**
 1) Human resource development in India
 2) The concept of regionalization
 3) Idiographic approach in geography
- Q.3** a) Define region? Describe the various regions of resources in India. **10**
 b) **Short Answer types (Any two):** **10**
 1) Carl Ritter
 2) Concept of regionalization
 3) Rivers and regional development
- Q.4** a) Define the types of model in geography. **10**
 b) **Short Answer types (Any two):** **10**
 1) Geography and tourism development
 2) Significance of theories in geography
 3) Models and geography
- Q.5** a) Explain in brief the industrial development in India. **10**
 b) **Short Answer types (Any two):** **10**
 1) National population policy of 2011 in India
 2) Human resource development and geography
 3) Health care and development

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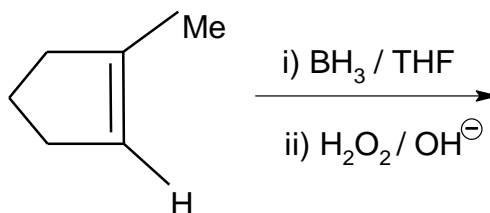
Ph.D. Course Work Examination Jan/Feb-2018
CHEMISTRY (Paper – II)
Recent Trends in Organic Chemistry

Day & Date: Wednesday, 17-01-2018
 Time: 11.00 AM to 02.00 PM

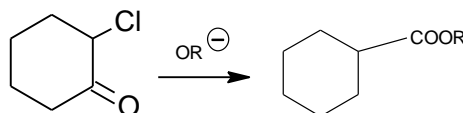
Max. Marks: 100

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

- Q.1** a) Discuss the stereochemistry of yohimbine. **10**
 b) **Answer the following (any two)** **10**
 1) Explain stereospecific and stereoselective reactions with respect to alkene and cholestan-3-one.
 2) Draw the conformational structure of olenane and discuss the stereochemistry of ring fusions in it.
 3) Explain the stereochemistry of the following reaction with respect to Asymmetric synthesis.



- Q.2** a) Explain the synthetic utility of phosphorus (P) silicon (Si) organometallic reagents. **10**
 b) **Answer the following (any two)** **10**
 1) Explain with mechanism the ozonolysis of carbon-carbon double bond.
 2) What is meant by IPSO substitution? Explain with respect to 1-chloro-2,4-dinitrobenzene.
 3) Explain the mechanism of the following reaction and write the type of Rearrangement.



- Q.3** a) Explain in detail with example the factors that influence the C = O stretching vibration. **10**
 b) **Answer the following (any two)** **10**
 1) Benzene is colourless but its isomer, fulvene is yellow, Justify
 2) Molecular formula $\text{C}_{11}\text{H}_{14}\text{O}_3$
 UV : 225nm (ϵ 9000)
 IR : 3200 – 2800 (broad), 2720, 1710, 1610, 1510, 850 cm^{-1}
 PMR : 1.95 (quintet, $J = 6$ Hz, 12 mm), 2.25(t, $J = 6$ Hz, 12 mm),
 2.63 (t, $J = 6$ Hz, 12 mm), 3.78 (s, 18 mm), 6.75 (d, $J = 8$ Hz, 12 mm),
 7.05 (d, $J = 8$ Hz, 12 mm), 12.1(s, 6 mm)

3) Molecular formula $C_{11}H_{11}NO_2$

IR : 1707 cm^{-1}

PMR : 7.3(d, 8H_Z, 2H), 7.1(d, 8H_Z, 2H), 2.8(s, 4H) 2.4(s, 3H)

^{13}C : 176(s), 139(s), 130(d), 129(s), 126(d), 30(t), 28(q)

mass : 189, 137, 91, 55

Q.4 a) What are COSY, NOESY Experiments? Explain with examples. **10**

b) Answer the following (Any two) **10**

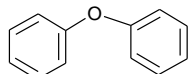
1) Explain Nuclear overhauser effect with an example.

2) Explain off – Resonance Decoupling Experiment with an example.

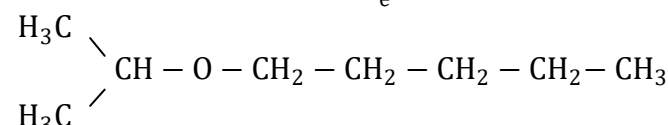
3) What is DEPT spectrum? Explain different type of DEPT spectra with suitable Example.

Q.5 a) Describe important feature of the mass spectrum of Aldehyde and Ketones. Write fragmentation modes of various types of Aldehydes and Ketones with examples. **10**

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

1)  $\frac{m}{e}$: 142, 141, 77, 51

2) $CH_3CH_2CH_2CH_2CH_2 - SH$ $\frac{m}{e}$: 61, 47, 42

3)  $\frac{m}{e}$: 115, 73, 71, 45, 43

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Ph.D. Course Work Examination Jan/Feb-2018
BOTANY (Paper – III)
Advanced Development in Botany: Plant Physiology (New)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Write about physiological mechanism developed by plant to protect against radiation stress. **10**
- b) **Answer any two of the following:** **10**
- 1) Explain the terms suspension and colloidal system.
 - 2) Write note on 'Lock Key Model' of mode of enzyme action.
 - 3) 'nif' gene organization.
- Q.2** a) Give an account of effect of SO₂ and SO₃ on plant metabolism. **10**
- b) **Answer any two of the following:** **10**
- 1) Biological role of terpenoids
 - 2) Leghaemoglobin
 - 3) Phytochrome
- Q.3** a) Explain in detail about the solution and its type occurs in cell. **10**
- b) **Answer any two of the following:** **10**
- 1) What is importance of dark period on flowering?
 - 2) Metabolism of phenylpropanoids
 - 3) Effect of light quality on fruiting
- Q.4** a) Explain in detail about factors influencing on enzymatic activities. **10**
- b) **Answer any two of the following:** **10**
- 1) Write note on vernalization
 - 2) Hormonal regulation of enzyme
 - 3) Molar solution and true solution
- Q.5** a) Give an account of the reduction of nitrate to ammonia. **10**
- b) **Answer any two of the following:** **10**
- 1) Effect of ROS on plant metabolism
 - 2) Write classification of alkaloids
 - 3) Give account of flowering hormones and inhibitors

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Ph.D. Course Work Examination Jan/Feb-2018
ECONOMICS (Paper – III)
Modern Theories in Economics (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

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|------------|----|-------------------------------------------------------|-----------|
| Q.1 | a) | Discuss Ramsay's rule. | 10 |
| | b) | Write short notes on any two of the following: | 10 |
| | | 1) Disembodied technical progress | |
| | | 2) Group equilibrium | |
| | | 3) Satisfying behavior of the firm | |
| Q.2 | a) | Examine Full cost pricing policy. | 10 |
| | b) | Write short notes on any two of the following: | 10 |
| | | 1) Limit pricing | |
| | | 2) Product differentiation | |
| | | 3) Golden rule of accumulation | |
| Q.3 | a) | Discuss in detail managerial discretion model. | 10 |
| | b) | Write short notes on any two of the following: | 10 |
| | | 1) Foreign trade multiplier | |
| | | 2) Fixed exchange rate | |
| | | 3) Price leadership | |
| Q.4 | a) | Discuss price rigidity with kinky demand curve. | 10 |
| | b) | Write short notes on any two of the following: | 10 |
| | | 1) Workable competition | |
| | | 2) IS LM model | |
| | | 3) Cartels | |
| Q.5 | a) | Discuss the monetary approach to balance of payments. | 10 |
| | b) | Write short notes on any two of the following: | 10 |
| | | 1) Goals of the firm | |
| | | 2) Capital mobility | |
| | | 3) Market structure | |

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Ph.D. Course Work Examination Jan/Feb-2018
A.I.H.C.& A. (Paper – III)
Research in Indian Art Architecture (New)

Day & Date: Thursday, 18-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Discuss in brief about Harappan Architecture. **10**
b) **Write short notes on any two:** **10**
1) Subject matter in brief at Bhimbetka paintings
2) Mauryan lion pillar capital, Sarnath
3) Granary, Mohen-jo-daro
- Q.2** a) Write a critical note on Asokan pillars. **10**
b) **Write short notes on any two:** **10**
1) Rock-cut caves at Barabar hill
2) Mauryan palace, Pataliputra
3) Didarganj Yakshi
- Q.3** a) Describe in brief about art and architecture of “Rathas” at Mahabalipuram. **10**
b) **Write short notes on any two:** **10**
1) Bull capital, Rampurva
2) Ajanta, Cave No.10
3) Ravana shaking Kailasa panel, Ellora
- Q.4** a) Write a note in brief on Dravidian style of temple architecture. **10**
b) **Write short notes on any two:** **10**
1) Lingaraja temple, Bhubaneswar
2) Krishna mandapa, Mahabalipuram
3) Varaha awatar rock-cut panel, Udaigiri
- Q.5** a) Write a brief note on Ajanta paintings. **10**
b) **Write short notes on any two:** **10**
1) Airavateswar temple, Kumbhakonam
2) Lad Khan temple, Aihole
3) Chaturbhuja temple, Khajuraho

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Ph.D. Course Work Examination Jan/Feb-2018
HINDI (Paper – III)
Hindi Sahitya Vidha – Hindi Katha Sahitya (New)
हिंदी साहित्य विधा – हिंदी कथा साहित्य (New)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: 1) किन्हीं चार प्रश्नों के उत्तर लिखिए।
 2) सभी प्रश्नों को समान अंक हैं।

- प्र.1** उपन्यास की परिभाषा और उसके स्वरूप को स्पष्ट करते हुए उपन्यास के प्रकारों का परिचय दीजिए। **25**
- प्र.2** 'स्वातंत्र्योत्तर भारतीय जनजीवन की विसंगतियों का यथार्थपरक चित्रण और व्यंग्य के कुशल निर्वाह की दृष्टि से रागदरबारी उपन्यास एक महान औपन्यासिक कृति है' – इस कथन को स्पष्ट कीजिए। **25**
- प्र.3** समसामयिक सामाजिक परिस्थितियों के परिप्रेक्ष्य में 'कलिकथा : वाया बाइपास' उपन्यास में अंकित भारतीय समाजतिहास का चित्रण कीजिए। **25**
- प्र.4** मुद्राराक्षस द्वारा संपादित 'श्रेष्ठ दलित कहानियों में अंकित दलित जीवन की विविध व्यथाओं को स्पष्ट कीजिए। **25**
- प्र.5** चरित्र-चित्रण की कसौटीयों के आधार पर राजेंद्र यादव की प्रतिनिधी कहानियों में अंकित प्रमुख पात्रों की समीक्षा कीजिए। **25**
- प्र.6** निम्नलिखित में से किन्हीं दो पर टिप्पणियाँ लिखिए। **25**
- अ) कहानी की परिभाषा एवं उसके तत्व।
 ब) प्रेमचंदोत्तर कहानी की विकास – यात्रा।
 क) 'सोना माटी' उपन्यास का प्रतिपाद्य।
 ड) यशपाल की प्रतिनिधी कहानियों के नारी पात्र।

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Ph.D. Course Work Examination Jan/Feb-2018
SOCIAL WORK (Paper – III)
Social Work and Social Development (New)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- | | | |
|------------|----------------------------------------------------------------------------|-----------|
| Q.1 | a) Discuss the evolution of social development. | 10 |
| | b) Write short note on any two: | 10 |
| | 1) Dynamics of poverty | |
| | 2) Major areas of development | |
| | 3) Globalization and its impact on society. | |
| Q.2 | a) Describe the concepts of social justice and social legislation. | 10 |
| | b) Write short note on any two: | 10 |
| | 1) Mahatma Gandhi and social justice | |
| | 2) Indian legal system | |
| | 3) Issues of social justice | |
| Q.3 | a) Examine the concept of women empowerment. | 10 |
| | b) Write short note on any two: | 10 |
| | 1) Patriarchal structure in India | |
| | 2) Affirmative action's of state | |
| | 3) Gender equality | |
| Q.4 | a) Explain the problem solving intervention model of social work practice. | 10 |
| | b) Write short note on any two: | 10 |
| | 1) Developmental social work | |
| | 2) Social action model | |
| | 3) Types of counseling | |
| Q.5 | a) Bring out the functions of social work research. | 10 |
| | b) Write short note on any two: | 10 |
| | 1) Descriptive research | |
| | 2) Types of measurement | |
| | 3) Steps in social work research | |

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
MASS COMMUNICATION AND JOURNALISM (Paper – III)
Mass Communication in New Millennium

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Discuss the impact of Globalization on Indian Society. **10**
 b) **Write answers of any two of the following:** **10**
 1) Describe various aspects of reach and access of internet media.
 2) Define media culture and describe the process of its production.
 3) Write in details on MacBride commission reports.
- Q.2** a) Write the contribution of New Media Technique in agricultural development in Maharashtra. **10**
 b) **Write answers of any two of the following:** **10**
 1) What are the main issues in international communication?
 2) Write about sadharikaran concept of India communication Model.
 3) Explain the main characteristics of television in details.
- Q.3** a) Sustainable development communication is a continual process - discuss. **10**
 b) **Write answers of any two of the following:** **10**
 1) Explain the need and importance of development Journalism.
 2) State the major advantages of folk media in rural communication.
 3) Write in detail on Cyber Journalism.
- Q.4** a) What is the different promotion strategies used in mass communication? **10**
 b) **Write answers of any two of the following:** **10**
 1) Write in detail about importance of television media in modern era.
 2) How media support society for development? Discuss.
 3) Write in detail about women empowerment and the role of media.
- Q.5** a) World has become Global village due to communication Revolution. Explain. **10**
 b) **Write answers of any two of the following:** **10**
 1) How two step models is important in development communication with example.
 2) Explain the importance of research in communication study.
 3) Communication is the act of imparting a common Idea or understanding to another person. Discuss.

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Ph.D. Course Work Examination Jan/Feb-2018
EDUCATION (Paper – III)
Modern Topics in Education (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) What is meant by Global Education? Explain impact of globalization on Education. **10**
- b) **Attempt in brief any two of the following:** **10**
- 1) Explain Anthony Gregorc's model of learning style.
 - 2) What is Brain research?
 - 3) Describe the steps of functional behavioural Assessment.
- Q.2** a) What is Unit cost? What are the economic functions in education? **10**
- b) **Attempt in brief any two of the following:** **10**
- 1) What is Human Capital?
 - 2) Explain the role of unit cost in higher education development.
 - 3) Explain the Economic of production and cost.
- Q.3** a) What is quality management? Explain the various criteria of improvement of quality in higher education. **10**
- b) **Attempt in brief any two of the following:** **10**
- 1) Write criteria of administrative system reforms?
 - 2) What are the demerits of value based higher education?
 - 3) Write demerits of today's administrative system?
- Q.4** a) What is teaching? Write various innovative methods of teaching. **10**
- b) **Attempt in brief any two of the following:** **10**
- 4) What is digital class?
 - 5) Explain role of education for community development.
 - 6) What is child education?
- Q.5** a) What are various educational resources in Wikipedia? **10**
- b) **Attempt in brief any two of the following:** **10**
- 1) Write implementation of an effective HIV services programme in the state.
 - 2) Write various reasons why India should become corruption free.
 - 3) Explain impact of terrorism on human life.

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
EDUCATION (Paper – III)
Teacher Education (New)

Day & Date: Thursday, 18-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** Explain the concept of teaching and teacher thought process. **20**
OR
Explain any four transaction modes used in teacher education for teaching.
- Q.2** Explain the legal aspect of teacher education with its importance. **20**
OR
Explain the role of UGC and NCTE in teacher education.
- Q.3** a) Explain the nature of teacher education. **10**
b) Explain the term teacher's accountability. **10**
OR
- Q.3** a) Explain the relation between teacher education and quality assurance. **10**
b) Explain the new trends at researches in teacher education. **10**
- Q.4** **Write notes on any Five of the following:** **40**
a) Teacher Educator's portfolio
b) Culture of teaching
c) Teacher effectiveness
d) Social and emotional classroom processes
e) Professional development at a teacher
f) Role of NCERT in teacher education

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
LAW (Paper – III)
Law Justice and Society (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) In England, justice goes to the people, In India the people had come to justice - Elucidate. **10**
- b) **Short notes on. (Any Two)** **10**
- 1) Right to Information
 - 2) The Liberal Utilitarian Tradition.
 - 3) Alternative dispute Resolution
- Q.2** a) An independent and impartial Judiciary is essential to check the violation of Laws - Elucidate. **10**
- b) **Short notes on. (Any Two)** **10**
- 1) Successful working of Democracy
 - 2) Social Justice and Law
 - 3) Role of Government in Democracy
- Q.3** a) Bring out the relationship between Law and morality and Law and Justice. **10**
- b) **Short notes on. (Any Two)** **10**
- 1) Dharma in Indian thought
 - 2) The Liberal contractual tradition is basis of justice.
 - 3) Law and Religion as instrumentalities of social control.
- Q.4** a) Explain the impact of public opinion on making law, unmaking and implementation of law in the society. **10**
- b) **Short notes on. (Any Two)** **10**
- 1) Law and Temple of Justice
 - 2) Law and Democratization
 - 3) Legal Administration – social control
- Q.5** a) The developments of modern technology leads to more cyber crimes – critically examine this statement. **10**
- b) **Short notes on. (Any Two)** **10**
- 1) Need to monitor technology for human benefit
 - 2) Speedy Trial for speedy justice
 - 3) Equivalence Theories

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Ph.D. Course Work Examination Jan/Feb-2018
MARATHI (Paper – III)
Marathi Sahityatil Navya Sankalpna (Old)
मराठी साहित्यातील नव्या संकल्पना (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: सर्व प्रश्न आवश्यक आहे.

- प्र. 1 अ) कला आणि साहित्य क्षेत्रात संप्रदाय कसे निर्माण होतात? 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) वास्तववादाची वैशिष्ट्ये
 2) सौंदर्यवाद आणि वास्तववाद यांची तुलना करा.
 3) वास्तववाद आणि मराठी कादंबरी
- प्र. 2 अ) अस्तित्ववादी विचार व्यूह आणि तत्वज्ञान 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) अस्तित्ववादाच्या मागे कोणते सूत्र आहे?
 2) आस्तिक आणि नास्तिक अस्तित्ववाद
 3) अस्तित्ववाद आणि मराठी साहित्य
- प्र. 3 अ) देशीवाद ही संकल्पना समजावून द्या. 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) देशीवाद आणि मराठी साहित्य
 2) भालचंद्र नेमाडे आणि देशीवाद
 3) देशीवादाविषयीच्या अनुकूल/प्रतिकूल मतांची चर्चा करा.
- प्र. 4 अ) संरचनावादी समीक्षेची मुळे रशीयन रूपवादात कशी ओळखतात? 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) सोस्युर आणि संरचनावाद
 2) युरोपियन संरचनावाद
 3) संरचनावादी समीक्षेची मुलतत्वे कोणती?
- प्र. 5 अ) 'आविष्कारवाद आणि रूपवाद ही कलेची अंगे आहेत' स्पष्ट करा. 10
 ब) लघुत्तरी प्रश्न (कोणतेही दोन) 10
 1) रूपवादाचे स्वरूप विशेष
 2) इंग्रजी व अमेरिकन रूपवादाचे स्वरूप सांगा.
 3) आशय, अभिव्यक्ती आणि रूपवाद

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Ph.D. Course Work Examination Jan/Feb-2018
PHYSICS (Paper – III)
Modern Topics in Physics (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) What are ferroelectrics? Distinguish between spontaneous and induced polarization? Explain ferroelectric phase transition in Barium Titanate. **10**
- b) **Write a short note on any two:** **10**
- 1) Types of fuel cells
 - 2) Bismuth based compounds
 - 3) Dye sensitized solar cells
- Q.2** a) What is photovoltaic effect? Discuss solar cell characteristics. **10**
- b) **Write a short note on any two:** **10**
- 1) Etching process
 - 2) Polyaniline based supercapacitors
 - 3) Magneto electro coupling effect
- Q.3** a) Discuss solid oxide fuel cells. **10**
- b) **Write a short note on any two:** **10**
- 1) Rare earth magnites
 - 2) FET devices for gas sensing
 - 3) RuO₂ based supercapacitors
- Q.4** a) Compare battery and supercapacitors. **10**
- b) **Write a short note on any two:** **10**
- 1) Thin film deposition methods
 - 2) Preparation of DMS
 - 3) Proton exchange membranes
- Q.5** a) Discuss paramagnetic and ferromagnetic DMS. **10**
- b) **Write a short note on any two:** **10**
- 1) Nanostructural solar cells
 - 2) Silicon solar cells
 - 3) Applications of supercapacitors

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
GEOGRAPHY (Paper – III)
Modern Topics in Geography (Old)

Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) Each question is compulsory.
 2) Solve questions serially.
 3) Figures to the right indicate full marks.

- Q.1** a) Describe the role of paradigms in development of geography as a discipline. **10**
 b) **Write short answer: (Any two)** **10**
 1) What is the significance of mitigation of natural disasters?
 2) Describe briefly the nature of behavioral geography.
 3) What is the need of waste disposal in urban areas?
- Q.2** a) Write an essay on causes, effects and remedies of deforestation. **10**
 b) **Write short answer: (Any two)** **10**
 1) Define and categorize landslide.
 2) Define cyclone and give its types.
 3) Briefly explain the need of post disaster management.
- Q.3** a) Describe the merits and demerits of quantitative revolution in geography. **10**
 b) **Write short answer: (Any two)** **10**
 1) What is spatial analysis?
 2) Define passive remote sensing
 3) What is the data structure?
- Q.4** a) Describe the significance of GIS in geographical research. **10**
 b) **Write short answer: (Any two)** **10**
 1) What is the importance of GPS in location analysis?
 2) List the indicators of aerial photo interpretation.
 3) What is electro-magnetic radiation?
- Q.5** a) 'GIS is an effective tool of modern cartography' describe in detail. **10**
 b) **Write short answer: (Any two)** **10**
 1) What are the general causes of anomaly in climate?
 2) What are the remedies on increasing salinity of soil?
 3) What are the bases of pro-environment agriculture practice?

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Ph.D. Course Work Examination Jan/Feb-2018
CHEMISTRY (Paper – III)
Modern Topics In Organic Chemistry

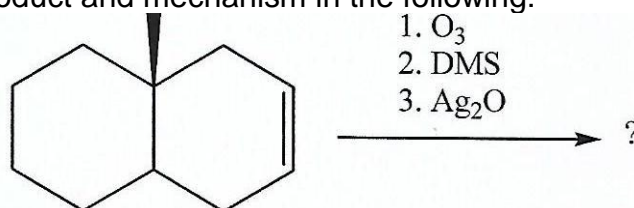
Day & Date: Thursday, 18-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

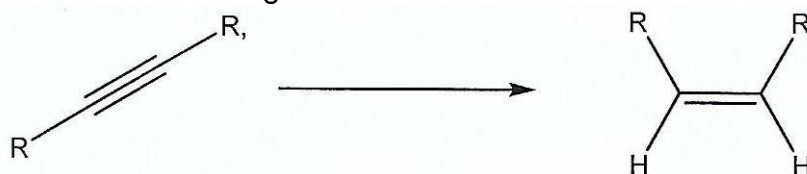
Instructions: All questions are compulsory.

- Q.1** a) Discuss Schmidt reaction with its mechanism. Give its application. **10**
 b) **Answer Any Two:** **10**
 1) Give the mechanism of Hoben-Hoesch reaction in the synthesis of;
 a) 2,4,6- trihydroxy acetophenone; b) 2,4- dimethyl-5- acetyl pyrrole.
 2) Write an account of Wittig reaction.
 3) Formulate the mechanism of Jones oxidation.

- Q.2** a) Describe application of Suzuki reaction in C-C bond formation. **10**
 b) **Answer Any Two:** **10**
 1) Write the product and mechanism in the following:

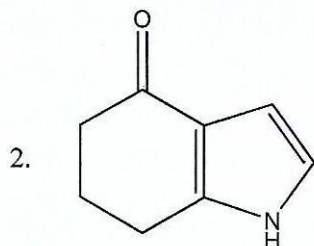
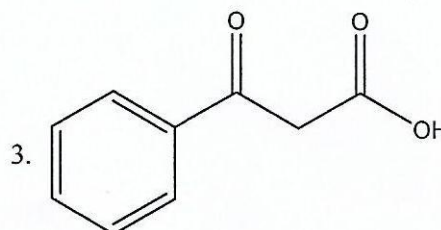
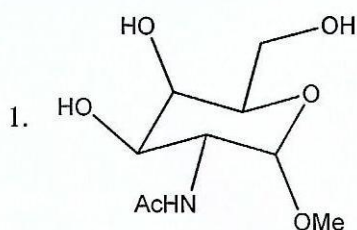


- 2) Describe how the following transformation could be achieved?



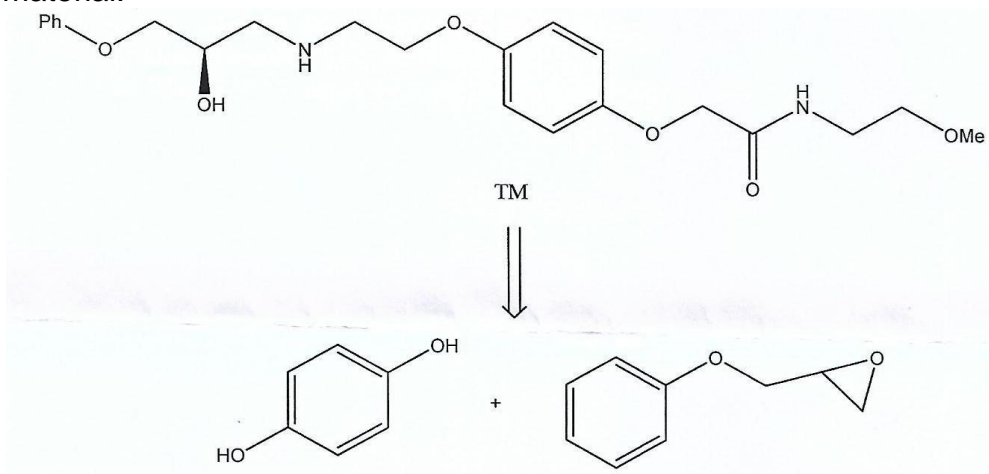
- 3) Describe oxidation of alkenes with suitable example.

- Q.3** a) How are the following protected? Give their mechanism. **10**

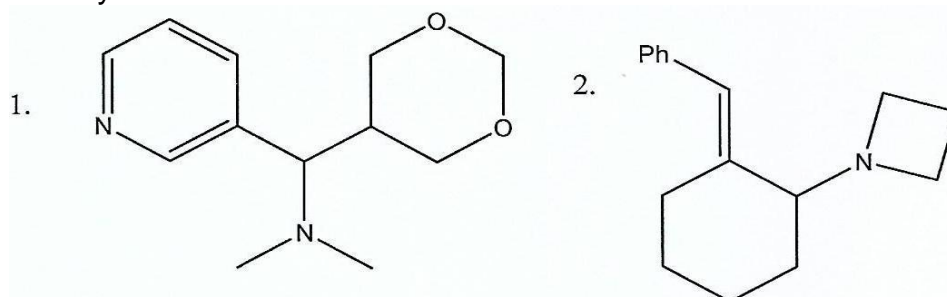


b) Answer Any Two:

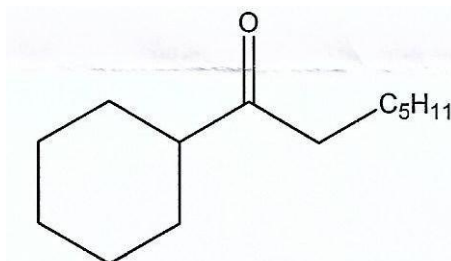
- 1) Plan the synthesis of the following TM from the given starting material:



- 2) Carryout the retrosynthetic analysis of the following and suggest useful synthetic route:



- 3) Using retrosynthetic analysis suggests the synthetic route for the following molecule:



Q.4 a) Give the synthesis of Grignard's reagent. Describe its applications in organic synthesis. 10

b) Answer Any Two: 10

- 1) What are role of Anti-metabolites in treatment of cancer.
- 2) Explain Azidothymidine derivatives as Anti-AIDS agents.
- 3) What are hypoglycaemic agents? Give SAR of sulphonamyl urea and biguanides.

Q.5 a) How Organo-Silicon compounds are prepared? Describe their utility in organic synthesis. 10

b) Answer Any Two: 10

- 1) What are Merrified resins? Discuss its uses in organic synthesis.
- 2) Explain synthetic uses of Baker's yeast.
- 3) What is PTC? Describes its applications in organic synthesis.

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
Economics (Paper – IV)
ECONOMICS OF AGRICULTURE

Day & Date: Friday, 19-01-2018
Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Explain the significance of Agriculture in Indian Economy. **10**
b) **Write short notes on any two:** **10**
1) Mellor Theory
2) Production Function
3) Corporate farming
- Q.2** a) Comment on the nature of returns in agriculture. **10**
b) **Write short notes on any two:** **10**
1) Capital Formation
2) NABARD
3) Precision Farming
- Q.3** a) Critically examine the State of Agriculture Infrastructure in India. **10**
b) **Write short notes on any two:** **10**
1) Substitutable resources
2) Social Justice
3) Irrigation Policy
- Q.4** a) Describe the trends in Agriculture Exports in India. **10**
b) **Write short notes on any two:** **10**
1) Agricultural Co-operatives
2) Food Security
3) Technology in Agriculture
- Q.5** a) Comment on the nature of Agricultural Pricing in India. **10**
b) **Write short notes on any two:** **10**
1) Agriculture Marketing
2) Role of state in agriculture development
3) Producer Rights

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
Psychology Paper – III (New) and Paper – IV (Old)
ADVANCED DEVELOPMENT IN CLINICAL & COUNSELLING
PSYCHOLOGY

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) What is clinical psychology? Describe Rorschach inkblot and TAT methods in clinical psychology. **10**
- b) **Write short answers. (Any two)** **10**
- 1) The interview
 - 2) Development of humanism
 - 3) Case study
- Q.2** a) Explain interpersonal model in clinical psychology. **10**
- b) **Write short answers. (Any two)** **10**
- 1) Development of biological model
 - 2) Brain structure and function
 - 3) Key assumptions of behavioural model
- Q.3** a) Discuss the background and basic principles of psychoanalysis. **10**
- b) **Write short answers. (Any two)** **10**
- 1) Carl Jung's analytical psychotherapy
 - 2) The Neo-Freudians
 - 3) Interpersonal Psychotherapy
- Q.4** a) Describe dissociative disorders. **10**
- b) **Write short answers. (Any two)** **10**
- 1) Borderline personality disorder
 - 2) Delirium
 - 3) Biological effects of stress
- Q.5** a) What is counseling? Discuss the variables affecting the counseling process. **10**
- b) **Write short answers. (Any two)** **10**
- 1) Goals of counseling
 - 2) Role of counselor
 - 3) Career guidance

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
Education (Paper – IV)
ADVANCED DEVELOPMENT IN EDUCATION

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) Answer all five questions.
 2) Figures to the right indicate full marks.

- | | | | |
|------------|-----------|---------------------------------------------------------------------------------------|-----------|
| Q.1 | a) | What are the strategies of e-learning? | 10 |
| | b) | Answer the following (any two): | 10 |
| | | 1) Contribution of M.K. Gandhi in Education | |
| | | 2) Use of SPSS in Educational Research | |
| | | 3) Explain inter and intra personal learning style. | |
| Q.2 | a) | What in impact of 1948 university education commission on higher Education system? | 10 |
| | b) | Answer the following (any two): | 10 |
| | | 1) How will you use ICT in teaching and learning? | |
| | | 2) Explain Honey and Mumford's Model of learning styles. | |
| | | 3) Explain the version of SPSS. | |
| Q.3 | a) | Explain use of various types of statistics in Educational Research? | 10 |
| | b) | Answer the following (any two): | 10 |
| | | 1) What is important recommendation of Secondary Education Commission? | |
| | | 2) What is the contribution of Friedrich Froebel to Education field? | |
| | | 3) Explain Democratization Model for learning styles? | |
| Q.4 | a) | Explain the contribution Rabindranath Tagore Philosophy for present Education system. | 10 |
| | b) | Answer the following (any two): | 10 |
| | | 1) Explain Uses of virtual classroom. | |
| | | 2) Discuss Major Programmes recommended by National Policy for Education 1986. | |
| | | 3) What are uses of learning styles in teaching learning process? | |
| Q.5 | a) | Which are the learning styles Model? Explain importance of each Model. | 10 |
| | b) | Answer the following (any two): | 10 |
| | | 1) Explain the Merits and demerits of SPSS? | |
| | | 2) Discuss John Dewey's theory "Learning by doing". | |
| | | 3) Explain method for e-content development. | |

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
Law Paper – III (New) and Paper – IV (Old)
INDIAN CONSTITUTIONAL LAW : THE NEW CHALLENGES

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

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

- Q.1** a) Discuss the Centre and State relation in sharing the distribution of resources and direction of Centre to the States on various issues. **10**
- b) **Answer any two of the following:** **10**
- 1) Federalism – A Comparative study
 - 2) Inter-State Dispute and Centre intervention
 - 3) Emergency Provisions
- Q.2** a) Discuss the various rights sanctioned by the State to Protect and Promote the Gender Justice. **10**
- b) **Answer any two of the following:** **10**
- 1) Social Justice
 - 2) Freedom of Press
 - 3) New trend in liberalization Policy
- Q.3** a) How do you justify that Right to Education is fundamental basic right as defined under Article 21 of the Indian Constitution? **10**
- b) **Answer any two of the following:** **10**
- 1) Foreign Education in India and its impact
 - 2) Fundamental Duties vs. Fundamental Rights
 - 3) Recent trends of State of Higher Education
- Q.4** a) What is Judicial review and it's Notion. What is the role of Judges in the notion of judicial review? **10**
- b) **Answer any two of the following:** **10**
- 1) Judicial process in pursuit of Constitutional goals and values
 - 2) Public Interest Litigation – some leading Supreme Court Judgments
 - 3) Accountability of Executive and Judiciary
- Q.5** a) What special facilities are given to minorities to establish and administer Educational institutions? Do you find in recent years any draw back and how State is efficient in controlling those institutions? Suggest few case laws. **10**
- b) **Answer any two of the following:** **10**
- 1) Good Governance
 - 2) Position of Coalition in State and Centre
 - 3) Election Commission and Election Reforms

Seat No.	
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Ph.D. Course Work Examination Jan/Feb-2018
MARATHI Paper – III (New) and Paper – IV (Old)
Madhyaugin Marathi Sahitya Ani Sanshodhan
मध्ययुगीन मराठी साहित्य आणि संशोधन

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: सर्व प्रश्न आवश्यक आहे.

- प्र.1 अ)** मध्ययुगीन साहित्य निर्मितीमागे असणारी सामाजिक व सांस्कृतिक पार्श्वभूमि उलगडून दाखवा. 10
- ब) कोणत्याही दोन प्रश्नांची उत्तरे लिहा.** 10
1. 'मध्ययुगीन कालखंड' या विषयावर टीप लिहा.
 2. साहित्याभ्यासात पंथीय संदर्भाची प्रस्तुतता कशी महत्वाची ठरते, ते लिहा.
 3. 'धर्मसंप्रदायांची वाङ्मय निर्मिती' या विषयावर टिपण लिहा.
- प्र.2 अ)** संस्कारशीलता यादृष्टीने मध्ययुगीन साहित्याने कोणती कामगिरी बजावली ते साधार मांडा. 10
- ब) कोणत्याही दोन प्रश्नांची उत्तरे लिहा.** 10
1. संत साहित्याच्या लोकतत्वीय अभ्यासाचे स्वरूप स्पष्ट करा
 2. तुकारामांच्या अभंगवाणीचे सौंदर्य उलगडून दाखवा.
 3. 'लीलाचरित्र' या ग्रंथाचे महत्त्व स्पष्ट करा.
- प्र.3 अ)** पंडितांच्या वाङ्मयनिर्मितीमागील प्रेरणा सांगून त्याच्या गुणदोषांची चर्चा करा. 10
- ब) कोणत्याही दोन प्रश्नांची उत्तरे लिहा.** 10
1. 'मोरोपंतांची कविता विशाल समुद्रासारखी आहे', हे विधान स्पष्ट करा.
 2. शाहिरी वाङ्मयाची वाटचाल तुमच्या शब्दांत नोंदवा.
 3. 'बखर' वाङ्मयाच्या आधारे मराठी गद्याचे विशेष विशद करा.
- प्र.4 अ)** मध्ययुगीन वाङ्मय वितरणाची प्रसार माध्यमे यादृष्टीने भजन कीर्तन, प्रवचन यांचे महत्त्व स्पष्ट करा. 10
- ब) कोणत्याही दोन प्रश्नांची उत्तरे लिहा.** 10
1. मध्ययुगीन चरित्रपर लेखनाचा आढावा घ्या.
 2. 'ऐतिहासिक पत्रव्यवहार' या विषयावर टिपण तयार करा.
 3. शाहिरी वाङ्मयाने प्रबोधनाच्या दृष्टीने केलेले कार्य स्पष्ट करा.
- प्र.5 अ)** वाङ्मयेतिहास लेखनाच्या दृष्टीने अन्य धर्मीय सांप्रदायिक वाङ्मयाचा अभ्यास कसा उपयुक्त ठरेल, ते लिहा. 10
- ब) कोणत्याही दोन प्रश्नांची उत्तरे लिहा.** 10
1. 'मध्ययुगीन काळातील वीरशैवांचे वाङ्मय' यावर टीप लिहा.
 2. मध्ययुगीन जैन वाङ्मयाचे स्वरूप स्पष्ट करा.
 3. मध्ययुगीन मराठी मुस्लिम वाङ्मयाचा परिचय करून द्या.

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Ph.D. Course Work Examination Jan/Feb-2018
Physics Paper – III (New) and Paper – IV (Old)
ADVANCED DEVELOPMENT IN PHYSICS – SOLAR CELLS AND SUPER
CAPACITOR

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Define semiconductor? Explain the basic semiconductor concepts of N and P type. **10**
- b) **Write a short note on any two:** **10**
- 1) Photovoltaic effect
 - 2) Spectral response inside solar cells
 - 3) Internal photon conversion efficiency (IPCE)
- Q.2** a) Write basic concept, working and materials of metal-semiconductor solar cells. **10**
- b) **Write a short note on any two:** **10**
- 1) Limitations of silicon solar cells
 - 2) Advantages of solid state solar cells
 - 3) Applications of Gallium arsenide (GaAs) material
- Q.3** a) Mechanisms of thin film chemical vapor deposition (CVD) method and give its applications **10**
- b) **Write a short note on any two:** **10**
- 1) Single junction solar cells
 - 2) Recent developments in solar cells
 - 3) Applications of solar cells
- Q.4** a) Explain different types of super capacitors? Differences between capacitors and super capacitors. **10**
- b) **Write a short note on any two:** **10**
- 1) Advantages electrochemical double layer
 - 2) Fabrication of super capacitors and processing
 - 3) Polymer based super capacitors
- Q.5** a) Discuss cathodic and anodic electrode materials, their preparation and applications. **10**
- b) **Write a short note on any two:** **10**
- 1) Applications of super capacitors
 - 2) Electrochemical double layer super capacitor
 - 3) Stability studies

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Ph.D. Course Work Examination Jan/Feb-2018
Physics (Paper – III (New) and Paper – IV (Old))
ADVANCED DEVELOPMENT IN PHYSICS – SOLID STATE GAS SENSOR DEVICES

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Write basic concept, working and essentials of spray pyrolysis technique. **10**
 b) **Write a short note on any two:** **10**
 1) Applications of schottky barrier diode
 2) Role of fuels in the combustion synthesis method
 3) Mechanism of FET gas sensors with one example
- Q.2** a) What is the electrochemical deposition? Explain the Kinetics and Mechanism behind electrochemical deposition. **10**
 b) **Write a short note on any two:** **10**
 1) Applications of chemical vapour deposition
 2) Catalysts and promoters
 3) Characteristics of electrochemical gas sensor
- Q.3** a) Give the mechanism of solid electrolyte gas sensor with one example. **10**
 b) **Write a short note on any two:** **10**
 1) Advantages of thick film sensors
 2) Role of small grains polycrystalline materials over large grains
 3) Ionosorption
- Q.4** a) Explain the working principle of semiconductor gas sensor and give its applications. **10**
 b) **Write a short note on any two:** **10**
 1) Advantages of thin film sensor over pallet
 2) Surface space charge region
 3) Thick film technology
- Q.5** a) Define gas sensor? What are differences between electro chemicals and FET base gas sensors? **10**
 b) **Write a short note on any two:** **10**
 1) Commercial solid state gas sensor
 2) Physical and chemical adsorption
 3) Effect of defect on electrical behaviour of materials

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Ph.D. Course Work Examination Jan/Feb-2018
Zoology Paper – III (New) and Paper – IV (Old)
ADVANCED DEVELOPMENT IN ZOOLOGY

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) All questions are compulsory.
 2) All questions carry equal marks.
 3) Draw neat labeled diagram wherever necessary.

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|------------|-----------|--------------------------------------------------------------------------------------|-----------|
| Q.1 | a) | Discuss the biosynthesis of thyroid hormones and add a note on thyroid dysfunctions. | 10 |
| | b) | Write short notes on (Any two) | 10 |
| | | 1) Role of different mineralocorticoids in animal metabolism | |
| | | 2) Mode of action of steroid hormones | |
| | | 3) Ultra-Structure of synapse and transmission of impulses through it | |
| Q.2 | a) | Give detail account on construction and maintenance of fish farm. | 10 |
| | b) | Write short notes on (Any two) | 10 |
| | | 1) Skin and gills disease in fish | |
| | | 2) Role of chemical factors during fish culture | |
| | | 3) Method of chilling, freezing and drying of fish | |
| Q.3 | a) | Give detail account on role of enzyme technology in solving the modern day problems. | 10 |
| | b) | Write short notes on (Any two) | 10 |
| | | 1) Role of biosensors for environmental monitoring | |
| | | 2) Factors affecting enzyme activity | |
| | | 3) Techniques in Food Preservation | |
| Q.4 | a) | Discuss how the genetic study supports the theory of organic evolution. | 10 |
| | b) | Write short notes on (Any two) | 10 |
| | | 1) Lamarckism | |
| | | 2) Modern synthetic theory of evolution | |
| | | 3) The role of isolation in organic evolution | |
| Q.5 | a) | Discuss the different methods of transgenesis in animals and give its applications | 10 |
| | b) | Write short notes on (Any two) | 10 |
| | | 1) Chemical basis of differentiations | |
| | | 2) Monospermic and Polyspermic fertilization | |
| | | 3) Hox genes | |

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Ph.D. Course Work Examination Jan/Feb-2018
Geography Paper – III (New) and Paper – IV (Old)
RECENT TRENDS IN ECONOMIC GEOGRAPHY

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: 1) Each question is compulsory.
 2) Solve questions serially.
 3) Figures to the right indicate full marks.

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|------------|----|-----------------------------------------------------------------------------|-----------|
| Q.1 | a) | Explain the classification of economic activities. | 10 |
| | b) | Write short answer: (Any two) | 10 |
| | | 1) Describe the approaches to the study of Economic Geography. | |
| | | 2) State the importance of Economic Geography. | |
| | | 3) Discuss the modern context of Economic Geography. | |
| Q.2 | a) | Critically examine the Von Thunen's model of agricultural land utilization. | 10 |
| | b) | Write short answer: (Any two) | 10 |
| | | 1) Explain the Behavioral location theory. | |
| | | 2) State the characteristics of location of suburban business center. | |
| | | 3) State the concept of sustainable development. | |
| Q.3 | a) | Describe the Multinuclear theory. | 10 |
| | b) | Write short answer: (Any two) | 10 |
| | | 1) Explain the concept of resource. | |
| | | 2) State the methods of measurement of economic development. | |
| | | 3) Describe the types of Resources. | |
| Q.4 | a) | Explain the Alfred Weber's industrial location theory. | 10 |
| | b) | Write short answer: (Any two) | 10 |
| | | 1) State the sky shopping. | |
| | | 2) Describe the importance of moles. | |
| | | 3) Explain the utilization of resources and environmental degradation. | |
| Q.5 | a) | Explain the physical determinants of agriculture. | 10 |
| | b) | Write short answer: (Any two) | 10 |
| | | 1) Explain the bases of agricultural of regionalization. | |
| | | 2) Describe the concept of agricultural region. | |
| | | 3) Explain the advantages and disadvantages of whole sale trades. | |

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Ph.D. Course Work Examination Jan/Feb-2018
Computer Science Paper – III (New) and Paper – IV (Old)
ADVANCED DEVELOPMENT IN COMPUTRE SCIENCE – DIGITAL IMAGE
PROCESSING

Day & Date: Friday, 19-01-2018
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

Instructions: All questions are compulsory.

- Q.1** a) Explain the fundamental steps of the Digital Image Processing (DIP) with neat block diagram. **10**
 b) Discuss basic relationships between pixels with suitable example. **10**
- Q.2** a) **Explain the terms:** **10**
 1) Histogram equalization
 2) Image enhancement by neighborhood processing
 b) A 4×4 , 4 bits/pixel original image is given by **10**
- $$\begin{bmatrix} 10 & 12 & 8 & 9 \\ 10 & 12 & 12 & 14 \\ 12 & 13 & 10 & 9 \\ 14 & 12 & 10 & 12 \end{bmatrix}$$
- 1) Apply histogram equalization to the image by rounding the image pixel into integers.
 2) Sketch the histograms of the original image and the histogram equalized image.
- Q.3** a) What is image restoration? Explain the classification of image restoration technique? **10**
 b) A 4×4 image is given by **10**
- $$\begin{bmatrix} 3 & 2 & 1 & 4 \\ 5 & 2 & 6 & 3 \\ 7 & 9 & 1 & 4 \\ 2 & 4 & 6 & 8 \end{bmatrix}$$
- Filter this image by using median filter with four neighbor filter mask. Assume the replicate padding
- Q.4** a) Discuss Haar Wavelet and Daubechies Wavelet. Compute the Haar transform of the following image: **10**
- $$\begin{bmatrix} 0 & 1 & 1 & 0 \\ 1 & 0 & 0 & 1 \\ 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 0 \end{bmatrix}$$
- b) What are lossy and lossless compressions? Explain the fundamentals of information theory. **10**
- Q.5** **Write short notes on any two of the following:** **20**
 a) Thresholding and Region-Based Segmentation
 b) Recognition based on Decision -Theory Methods
 c) Basics of Full-color image processing

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

- 1) Cytokinins
- 2) Organotin Compounds
- 3) SeO_2 in organic synthesis