

Seat No.	
----------	--

M.Phil/Ph.D. Course Work Examination October-2021
Marathi (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना: सर्व प्रश्न आवश्यक आहे.

- प्र. 1 अ) संशोधन म्हणजे काय ते सांगून भाषा व साहित्य संशोधनाचे वेगळेपण विशद करा. 10
- ब) खालीलपैकी कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
- 1) विद्यापीठ अनुदान आयोगाच्या मार्गदर्शक तत्त्वानुसार प्रकरण मांडणीचे स्वरूप सांगा.
 - 2) गृहीतक व परिकल्पना यातील फरक लिहा.
 - 3) संशोधनात कार्यात्मक व्याख्यांचे महत्त्व काय असते?
- प्र.2 अ) भाषा व साहित्य संशोधनात ऐतिहासिक संशोधन पद्धतीचा कसा उपयोग केला जातो ते सोदाहरण स्पष्ट करा. 10
- ब) खालीलपैकी कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
- 1) प्रबंधाच्या मुख्य विभागांचे स्वरूप सांगा.
 - 2) क्षत्रिय सर्वेक्षणाचे गुण लिहा.
 - 3) संशोधन आराखडा हा प्रबंधाचा आरसा असतो असे का म्हणतात?
- प्र.3 अ) विशिष्ट लेखकाचा अभ्यास करताना चरित्रात्मक-ऐतिहासिक-आस्वादक समीक्षा यांचा समन्वय कशाप्रकारे साधला जातो? ते सांगा. 10
- ब) खालीलपैकी कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
- 1) लोकसाहित्य संशोधनाचे फायदे लिहा.
 - 2) मानव्यविद्याशाखीय संशोधनात इंटरनेटचा कसा उपयोग होतो?
 - 3) साहित्य संशोधनात कोणकोणत्या माहिती संकलन साधनांचा अवलंब करता येतो?
- प्र.4 अ) 'भाषा संशोधनाचा सुयोग्य मार्ग म्हणजे शैली वैज्ञानिक पद्धती होय' या विधानाची चर्चा करा. 10
- ब) खालीलपैकी कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
- 1) मानव्यविद्या शाखेत संदर्भ देताना MS-Word चा कसा उपयोग करता येतो ते लिहा.
 - 2) संशोधन उद्दिष्टे कशाप्रकारे लिहावीत?
 - 3) साहित्य संशोधनात ग्रंथालय पद्धतीचे महत्त्व सांगा.
- प्र.5 अ) प्राचीन वा मध्ययुगीन साहित्याचे संशोधन करताना पाठचिकित्सेचा प्रश्न का व कसा निर्माण होतो? 10

ब) खालीलपैकी कोणतेही दोन लघुत्तरी प्रश्न सोडवा.

- 1) अंतीम संदर्भ सूची तयार करताना कोणकोणत्या गोष्टींची काळजी घ्यावी?
- 2) प्रबंध मांडणीमध्ये संगणकाचा कसा उपयोग होतो?
- 3) प्रबंध लेखनाची भाषा कशी असावी?

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Science (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 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 in detail criteria of good research, types of research and purpose and process of literature review. **10**
- b) **Answer any TWO** **10**
- 1) Write about Scientific explanation and limits of Scientific explanation.
 - 2) Write a note on Requirement of Theory.
 - 3) Discuss about Applications of Computer in Research.
- Q.2** a) Write in detail process of research with reference to Planning of experiment, data collection, record keeping and result and discussion. **10**
- b) **Answer any TWO** **10**
- 1) What is Impact factor and write on Calculation of Impact factor.
 - 2) Write on Presentation of research outcome as a research paper.
 - 3) Discuss in detail filing of Patent.
- Q.3** a) Write in detail block schematic scientific approach with inductive and deductive logic schemes. **10**
- b) **Answer any TWO** **10**
- 1) Discussion in detail about ISSN.
 - 2) What is h-index? Write on determination of h-index.
 - 3) Write on formulation of research problem and objectives of research.
- Q.4** a) Discuss the various search engines and formulation of search statement. **10**
- b) **Answer any TWO** **10**
- 1) Write note on preparation of Thesis.
 - 2) Discuss analysis of variance (ANOVA) and Covariance (ANCOVA).
 - 3) Write on SCOPUS and Citation Index.
- Q.5** a) Write in detail types of Data, Various methods of data collection and framing of questionnaire. **10**
- b) **Answer any TWO** **10**
- 1) Write on various sampling methods.
 - 2) Write on Chi-square test.
 - 3) Write on MS Power point.

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Social Sciences (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न आवश्यक आहेत.

2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र. 1 अ) समाजशास्त्रातील संशोधनाचे स्वरूप आणि व्याप्ती स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) संशोधनाचे प्रकार
 2) ई-जर्नल
 3) सर्वेक्षण पद्धत
- प्र.2 अ) सांख्यिकी पॅकेज फॉर सोशल सायन्सेस (एसपीएसएस) वापरण्याची पद्धत स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) तळटीप
 2) एम एस वर्ड
 3) पुरातत्व संशोधनाचे स्वरूप
- प्र.3 अ) समाजशास्त्रातील संशोधनात डेटा संकलनाच्या प्राथमिक पद्धती लिहा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) डेटाचे सादरीकरण
 2) एम एस पावर पॉईंट
 3) एच-इंडेक्स
- प्र.4 अ) समाजशास्त्रातील संशोधनात इंटरनेटचा वापर लिहा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) पुरातत्व संशोधनाची व्याप्ती
 2) सायटेशन
 3) डेटाचे स्पष्टीकरण
- प्र.5 अ) प्रबंध लिहिण्याच्या पद्धती स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) संदर्भ साहित्याचा वापर
 2) ई-पुनरावलोकन
 3) क्रिटिकल एक्सामिनेशन

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Social Sciences (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 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 nature & scope of Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Types of Research
 2) e-journal
 3) Survey Method
- Q.2** a) Explain the method of using Statistical Package for Social Sciences (SPSS). **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Footnotes
 2) MS Word
 3) Nature of Archaeological Research
- Q.3** a) Write the Primary Methods of Data Collection of Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Presentation of Data
 2) MS Power Point
 3) H – index
- Q.4** a) Write the use of Internet in the Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Scope of Archaeological Research
 2) Citation
 3) Interpretation of Data
- Q.5** a) Explain the methods of Thesis Writing. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Use of Literature
 2) e- reviews
 3) Critical Examination

Seat No.	
----------	--

Set	P
-----	---

Ph.D. Course Work Examination October-2021
Social Sciences (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न आवश्यक आहेत.

2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र. 1 अ) समाजशास्त्रातील संशोधनाचे स्वरूप आणि व्याप्ती स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) संशोधनाचे प्रकार
 2) ई-जर्नल
 3) सर्वेक्षण पद्धत
- प्र.2 अ) सांख्यिकी पॅकेज फॉर सोशल सायन्सेस (एसपीएसएस) वापरण्याची पद्धत स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) तळटीप
 2) एम एस वर्ड
 3) पुरातत्व संशोधनाचे स्वरूप
- प्र.3 अ) समाजशास्त्रातील संशोधनात डेटा संकलनाच्या प्राथमिक पद्धती लिहा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) डेटाचे सादरीकरण
 2) एम एस पावर पॉईंट
 3) एच-इंडेक्स
- प्र.4 अ) समाजशास्त्रातील संशोधनात इंटरनेटचा वापर लिहा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) पुरातत्व संशोधनाची व्याप्ती
 2) सायटेशन
 3) डेटाचे स्पष्टीकरण
- प्र.5 अ) प्रबंध लिहिण्याच्या पद्धती स्पष्ट करा. 10
 ब) कोणतेही दोन लघुत्तरी प्रश्न सोडवा. 10
 1) संदर्भ साहित्याचा वापर
 2) ई-पुनरावलोकन
 3) क्रिटिकल एक्सामिनेशन

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Social Sciences (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 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 nature & scope of Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Types of Research
 2) e-journal
 3) Survey Method
- Q.2** a) Explain the method of using Statistical Package for Social Sciences (SPSS). **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Footnotes
 2) MS Word
 3) Nature of Archaeological Research
- Q.3** a) Write the Primary Methods of Data Collection of Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Presentation of Data
 2) MS Power Point
 3) H – index
- Q.4** a) Write the use of Internet in the Research in Social Science. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Scope of Archaeological Research
 2) Citation
 3) Interpretation of Data
- Q.5** a) Explain the methods of Thesis Writing. **10**
 b) **Answer in shorts (Any Two)** **10**
 1) Use of Literature
 2) e- reviews
 3) Critical Examination

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Commerce & Management (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 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) What is scientific method? Explain the characteristics and assumptions of scientific method. **10**
- b) **Answer in shorts (Any Two)** **10**
- 1) Explain the meaning of scientific research.
 - 2) Describe the steps of scientific research.
 - 3) Explain the limitations of scientific method.
- Q.2** a) Define hypothesis. Explain the types and testing of hypothesis in detail. **10**
- b) **Answer in shorts (Any Two)** **10**
- 1) Explain the sources of research problem.
 - 2) Describe the factors in formulation of research.
 - 3) Elucidate the process of problem formulation.
- Q.3** a) Explain the methods of sampling in detail. **10**
- b) **Answer in shorts (Any Two)** **10**
- 1) Explain the errors in sampling.
 - 2) Describe the law of inertia of large numbers.
 - 3) Explain the essentials of sampling.
- Q.4** a) Explain the quantitative methods of research in commerce. **10**
- b) **Answer in shorts (Any Two)** **10**
- 1) Explain the types and sources of data.
 - 2) Describe the use of chi square test.
 - 3) Explain the testing of hypothesis for non-parametric data.
- Q.5** a) Explain uses of excel and SPSS for research in commerce. **10**
- b) **Answer in shorts (Any Two)** **10**
- 1) What is data processing in research?
 - 2) Describe the use of web-2 tools for research.
 - 3) Explain the use of graphical software for research.

Seat No.	
----------	--

Set **P**

Ph.D. Course Work Examination October-2021
Engineering (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (Old)

Day & Date: Monday, 11-10-2021
 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 appropriate figures diagrams whenever necessary.
 - 4) Use of scientific calculator is allowed. (Programmable Calculator is not allowed)
 - 5) Assume suitable data if required.

- Q.1**
- a) Explain purpose of literature review in research, types of literature review. **10**
 What are the sources of literature?
- b) **Solve any two questions from the following.** **10**
- 1) List objectives of research and what are the motivations in research.
 - 2) Explain the criteria of good research.
 - 3) With suitable example explain applied Vs fundamental research.
- Q.2**
- a) Explain broad classification of mathematical model. **10**
- b) **Solve any two questions from the following.** **10**
- 1) What are the points that need to be remembered for selecting a research problem?
 - 2) Explain modeling with ordinary differential equations and graph.
 - 3) What do you mean by simulation? Explain various types of simulation.
- Q.3**
- a) A pharmaceutical manufacturer wants to investigate the bioactivity of a new drug. A completely randomized single-factor experiment was conducted with three dosage levels, and the following results were obtained. **10**

Dosage	Observations			
20 g	24	28	37	30
30 g	37	44	31	35
40 g	42	47	52	38

- 1) Is there evidence to indicate that dosage level affects bioactivity? Use $\alpha = 0.05$. (Use $F_{0.05, 2, 11} = 3.95$)
 - 2) If it is appropriate to do so, make comparisons between the pairs of means. What conclusions can you draw?
 - 3) Analyze the residuals from this experiment and comment on model adequacy.
- b) **Solve any two questions from the following.** **10**
- 1) Explain types of errors in design of experiments.
 - 2) Discuss any five applications of experimental design.
 - 3) What are the choices of the tools available for collecting primary data? Give examples.

SLR-EM-25-A

- Q.4 a)** An insurance company provides auto insurance and is analysing the data obtained from fatal crashes. A sample of the motor vehicle death is randomly selected for a two years period. The number of fatalities is listed below for the different days of the week. At the 0.05 significance level, test the claim that accidents occur on different days with equal frequency. **10**

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of fatalities	31	20	20	22	22	29	36

Use critical values of Chi-square χ^2 for specified degrees of freedom, if required.

Degree of Freedom	Level of Significance		
	10%	5%	1%
6	10.645	12.592	16.812
7	12.017	14.067	18.475

- b) Solve any two questions from the following.** **10**
- 1) A computer ANOVA output is shown below. Fill in the blanks.

One-way ANOVA				
Source	DF	SS	MS	F
Factor	3	36.15	?	?
Error	?	?	?	
Total	19	196.04		

Figure. 01

- 2) Explain the difference between Journal Paper and Conference Paper.
 3) What are the Common reasons for manuscript rejection?

- Q.5 a)** Discuss importance of good report writing skills. Comment on various elements of structure of report. **10**
- b) Solve any two questions from the following.** **10**
- 1) Write short note on 'Guidelines for avoiding plagiarism'.
 2) Write short note on Intellectual property rights.
 3) Discuss role of ICT at different stages of research.

Seat No.	
----------	--

Set **P**

Ph.D. Course Work Examination October-2021
Engineering (Paper – I)
RESEARCH METHODOLOGY (New)

Day & Date: Monday, 11-10-2021
 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 appropriate figures diagrams whenever necessary.
 4) Use of scientific calculator is allowed. (Programmable Calculator is not allowed)
 5) Assume suitable data if required.

- Q.1 a)** Explain purpose of literature review in research, types of literature review. **10**
 What are the sources of literature?
- b) Solve any two questions from the following. 10**
 1) List objectives of research and what are the motivations in research.
 2) Explain the criteria of good research.
 3) With suitable example explain applied Vs fundamental research.
- Q.2 a)** Explain broad classification of mathematical model. **10**
b) Solve any two questions from the following. 10
 1) What are the points that need to be remembered for selecting a research problem?
 2) Explain modeling with ordinary differential equations and graph.
 3) What do you mean by simulation? Explain various types of simulation.
- Q.3 a)** A pharmaceutical manufacturer wants to investigate the bioactivity of a new drug. A completely randomized single-factor experiment was conducted with three dosage levels, and the following results were obtained. **10**

Dosage	Observations			
20 g	24	28	37	30
30 g	37	44	31	35
40 g	42	47	52	38

- 1) Is there evidence to indicate that dosage level affects bioactivity? Use $\alpha = 0.05$. (Use $F_{0.05, 2, 11} = 3.95$)
 2) If it is appropriate to do so, make comparisons between the pairs of means. What conclusions can you draw?
 3) Analyze the residuals from this experiment and comment on model adequacy.
- b) Solve any two questions from the following. 10**
 1) Explain types of errors in design of experiments.
 2) Discuss any five applications of experimental design.
 3) What are the choices of the tools available for collecting primary data? Give examples.

SLR-EM-25-B

- Q.4 a)** An insurance company provides auto insurance and is analysing the data obtained from fatal crashes. A sample of the motor vehicle death is randomly selected for a two years period. The number of fatalities is listed below for the different days of the week. At the 0.05 significance level, test the claim that accidents occur on different days with equal frequency. **10**

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of fatalities	31	20	20	22	22	29	36

Use critical values of Chi-square χ^2 for specified degrees of freedom, if required.

Degree of Freedom	Level of Significance		
	10%	5%	1%
6	10.645	12.592	16.812
7	12.017	14.067	18.475

- b) Solve any two questions from the following.** **10**
- 1) A computer ANOVA output is shown below. Fill in the blanks.

One-way ANOVA				
Source	DF	SS	MS	F
Factor	3	36.15	?	?
Error	?	?	?	
Total	19	196.04		

Figure. 01

- 2) Explain the difference between Journal Paper and Conference Paper.
 3) What are the Common reasons for manuscript rejection?

- Q.5 a)** Discuss importance of good report writing skills. Comment on various elements of structure of report. **10**
- b) Solve any two questions from the following.** **10**
- 1) Write short note on 'Guidelines for avoiding plagiarism'.
 2) Write short note on Intellectual property rights.
 3) Discuss role of ICT at different stages of research.

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Education (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 Time: 11.00 AM to 02.00 PM

Max. Marks: 100

सूचना : 1) सर्व प्रश्न आवश्यक आहेत.

2) उजवीकडील अंक पूर्ण गुण दर्शवितात.

- प्र. 1 अ) वैज्ञानिक पद्धती म्हणजे काय? ज्ञान संपादनाच्या पद्धती स्पष्ट करा. 10
 ब) खालील प्रश्नांची थोडक्यात उत्तरे लिहा. (कोणतेही दोन) 10
 1) आंशिक सहसंबंध/परस्पर संबंध ची संकल्पना स्पष्ट करा.
 2) ई-पुस्तके ही संकल्पना स्पष्ट करा.
 3) संशोधन साधनांच्या सपरमाणातेचे प्रकार स्पष्ट करा.
- प्र.2 अ) गुणात्मक संशोधनाची संकल्पना व गरज स्पष्ट करा 10
 ब) खालील प्रश्नांची थोडक्यात उत्तरे लिहा. (कोणतेही दोन) 10
 1) परिकल्पना पडताळणीमध्ये टी-परिक्षिकेचे महत्व स्पष्ट करा.
 2) ANOVA / प्रसरण विश्लेषण यावर टीप लिहा.
 3) इम्पॅट फॅक्टर ची संकल्पना स्पष्ट करा.
- प्र.3 अ) संख्यात्मक संशोधनाची संकल्पना व गरज स्पष्ट करा 10
 ब) खालील प्रश्नांची थोडक्यात उत्तरे लिहा. (कोणतेही दोन) 10
 1) एच-निर्देशांक संकल्पना स्पष्ट करा.
 2) ई-माहिती संकलनाची प्रक्रिया स्पष्ट करा.
 3) संशोधन साधनांच्या विश्वसनियतेची संकल्पना स्पष्ट करा.
- प्र.4 अ) संबंधीत संशोधनाचा आढावा ही संकल्पना व त्याची गरज स्पष्ट करा 10
 ब) खालील प्रश्नांची थोडक्यात उत्तरे लिहा. (कोणतेही दोन) 10
 1) घटक विश्लेषण यावर टीप लिहा.
 2) संशोधन करताना होणाऱ्या विविध त्रुटी स्पष्ट करा.
 3) पेटंट ची संकल्पना व प्रकार स्पष्ट करा.
- प्र.5 अ) रेषिय प्रतिगमन व प्रतिगमन समीकरणाची संकल्पना स्पष्ट करा. 10
 ब) खालील प्रश्नांची थोडक्यात उत्तरे लिहा. (कोणतेही दोन) 10
 1) ई-रिडर ॲप वर टीप लिहा.
 2) संशोधनात ई-सबमिशनची भूमिका स्पष्ट करा.
 3) वैज्ञानिक विचार प्रक्रियेची संकल्पना स्पष्ट करा.

Seat No.	
----------	--

Ph.D. Course Work Examination October-2021
Education (Paper – I)
RESEARCH METHODOLOGY & INFORMATION COMMUNICATION
TECHNOLOGY (ICT)

Day & Date: Monday, 11-10-2021
 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 Scientific Method? Explain methods of acquiring knowledge. **10**
- b) **Answer the following Question in brief (Any Two)** **10**
- 1) Explain the concept of partial co-relation.
 - 2) Explain the concept of e-books.
 - 3) Explain the types of Validity of research tools.
- Q.2** a) Explain the concept, need of Qualitative Research. **10**
- b) **Answer the following Question in brief (Any Two)** **10**
- 1) Explain the importance of t-test in hypothesis testing.
 - 2) Write short note of ANOVA.
 - 3) Explain the concept of Impact factor.
- Q.3** a) Explain the concept, need of Quantitative Research. **10**
- b) **Answer the following Question in brief (Any Two)** **10**
- 1) Explain the concept of h-index.
 - 2) Explain the process of gathering e-information.
 - 3) Explain concept of Reliability of research tools.
- Q.4** a) Explain the concept, need of Review of related researches. **10**
- b) **Answer the following Question in brief (Any Two)** **10**
- 1) Write short note on factor analysis.
 - 2) Explain different types of errors in conducting research.
 - 3) Explain concept and types of patents.
- Q.5** a) Explain the concept of Linear Regression and the Regression equation. **10**
- b) **Answer the following Question in brief (Any Two)** **10**
- 1) Write short note of e-reader application.
 - 2) Explain the role of e-submission in research.
 - 3) Explain concept of Scientific thinking process.