

Ph.D. COURSE WORK: SEMESTER-A 2010

Paper-I: ICT & Research Methodology
(Faculty of Science)

MODEL PAPER

Time: 3hrs
Max. Marks: 100

Attempt any five selecting at least two from any section.

SECTION-A

1. What do you mean by research? What are different stages or steps of research?
Explain each step using suitable examples 2+8+10
2. What is the purpose of research design?. Briefly discuss characteristics of good research design using suitable examples from your subject? 4+16
3. (a) What are different type of errors normally found in experimental research?.
What are the sources of these errors and how to reduce it? 5+10

(b) What you mean by propagation of errors? Explain with suitable examples. 5
4. (a) What is chi-square test? Explain its significance in statistical analysis 2+4

(b) Explain meaning and significance of concept of “Standard Error’ in sampling analysis 8

(c) State the reasons why sampling is used in the context of research studies 6

SECTION-B

5. What is ICT? How ICT can be used in your area of research for good quality research? Explain with suitable examples. 2+18
6. (a) Answer following: 6x 2=12 Marks
 - (i) Differentiate between Internet and intranet
 - (ii) What is IP address? Give an example
 - (iii) What is URL? Give an example
 - (iv) How much time is required to transfer a file of 1000MB file using a LAN working 100Mbps
 - (v) What is baudrate? Write down speed of following Internet links

- (a) Dial-up connection (b) BSNL Broad band connection
(vi) What is a computer virus? What is a computer worm?

(b) Write down specifications of a desktop computer & laser printer required for your research work 8

7. (a) What is a PDF file? What are its advantages in research for transmitting reports and manuscripts 2+3

(b) Give approximate size(in bytes) of following type of data files normally encountered in your research work 3x3=9

(i) Manuscript without images (ii) Photograph (bitmap files) © Photograph after compression (jpg files)

(c) Suggest the type of image compressions (jpg or gif) useful for following type of data 2 x 3=6

(i) Electron microscope image (b) Drawing

8. (a) Write down important web sites for following resources in your subject 2x3=6

(i) Books (ii) Databases useful for your research work

(b) What is a search engine? What are the features available in Google Scholar for searching research work in a specific topic 4+5

(c) Write down 10 keywords in your research topic (write down keywords after giving name of your area of research and proposed title of thesis) 5