Scheme and syllabus of competitive examination for the posts of Basic Computer Instructor:-

The examination shall carry 200 marks. There will be two papers. Paper-I shall be of 100 marks and paper-II shall be of 100 marks.

Paper -I

1. The question paper will carry maximum 100 marks.
2. Duration of question paper will be 2.00 hours.
3. The question paper will carry 100 questions of multiple choices.
4. Paper shall include following subjects:-
(i) Art & Culture, History, Geography, General Science and Current Affairs of Rajasthan.
(ii) General Ability shall include following point :-
   A. Logical Reasoning and Analytical Ability.
   B. Decision Making and Problem Solving.
   C. General Mental Ability.
   D. Basic Numeracy - Numbers and their relations, orders of magnitude, etc. **(Class X level)**
   E. Data Interpretation - Charts, Graphs, Tables, Data Sufficiency, etc. **(Class X level)**
5. Negative marking shall be applicable in the evaluation of answer. For every wrong answer **one third (1/3)** of the marks prescribed for that particular question shall be deducted.

Explanation: Wrong answer shall mean an incorrect answer out of multiple choices given for a question.

Paper -II

1. The question paper will carry maximum 100 marks.
2. Duration of question paper will be 2.00 hours.
3. The question paper will carry 100 questions of multiple choices.
4. Negative marking shall be applicable in the evaluation of answer. For every wrong answer **one third (1/3)** of the marks prescribed for that particular question shall be deducted.

Explanation: Wrong answer shall mean an incorrect answer out of multiple choices given for a question.

5. Paper shall include following subjects:-

(i) Pedagogy

(ii) **Mental Ability:** Decision making and Problem solving, Data Interpretation, Data Sufficiency, Logical Reasoning and Analytical Ability, Major developments in the field of Information Technology.

(iii) **Fundamentals of Computer:** Overview of the Computer System including input-output devices, pointing devices, and scanner. Representation of Data (Digital versus Analog, Number System - Decimal, Binary & Hexadecimal), Introduction to Data Processing, Concepts of files and its types.

(iv) **Data Processing:** Word Processing (MS-Word), Spread Sheet Software (MS Excel), Presentation Software (MS Power Point), DBMS Software (MS-Access).

(v) **Programming Fundamentals:** Introduction to C, C++, Java, DotNet, Artificial Intelligence (AI), Machine learning, Python and Block Chain, Principles and Programming Techniques, Introduction of Object Oriented Programming (OOPs) concepts, Introduction to "Integrated Development Environment" and its advantages.

(vi) **Data structures and Algorithms:** Algorithms for Problem Solving, Abstract data types, Arrays as data structures, linked list v/s array for storage, stack and stack operations, queues, binary trees, binary search trees, graphs and their representations, sorting and searching, symbol table. Data structure using c & c++.

(vii) **Computer Organization and Operation System:** Basic Structure of Computers, Computer Arithmetic Operations, Central Processing Unit and Instructions, Memory Organization, I/O Organization, Operating Systems Overview, Process Management, Finding and processing files.

(viii) **Communication and Network Concepts:** Introduction to Computer Networks, Introduction: Networks layers/Models, Networking Devices, Fundamentals of Mobile Communication.

(ix) **Network Security:** Protecting Computer Systems from viruses & malicious attacks, Introduction to Firewalls and its utility, Backup & Restoring data, Networking (LAN & WAN), Security, **Ethical Hacking.**

(x) **Database Management System:** An Overview of the Database Management, Architecture of Database System, Relational Database Management System (RDBMS), Database Design, Manipulating Data, NoSQL Database Technologies, Selecting Right Database.

(xi) **System Analysis and Design:** Introduction, Requirement Gathering and Feasibility Analysis, Structured Analysis, Structured Design, Object-Oriented Modelling Using UML, Testing, System Implementation and Maintenance, Other Software Development Approaches.

(xii) **Internet of things and its application :** Introduction of Internet Technology and Protocol, LAN, MAN, WAN, Search Services/Engines, Introduction to online & offline messaging, World Wide Web Browsers, Web publishing, Basic knowledge HTML, XML and Scripts, Creation & maintenance of Websites, HTML interactivity Tools, Multimedia and Graphics, Voice Mail and Video Conferencing, Introduction to e-Commerce.