सामाजिकसुरक्षाकोष

पाठ्यक्रमको रूपरेखा :- यस पाठ्यक्रमको आधारमा निम्नानुसार दुई चरणमा परीक्षा लिङ्ग छः:

प्रथम चरण :- लिखित परीक्षा
पुरुष= 200

द्वितीय चरण :- अन्तर्वाची
पुरुष= 30

प्रथम चरण – लिखित परीक्षा योजना (Examination Scheme)

<table>
<thead>
<tr>
<th>पत्र</th>
<th>विषय</th>
<th>पुरुषांक</th>
<th>उत्तरांक</th>
<th>परीक्षा प्राधिक</th>
<th>प्रश्न संख्या अधिकार</th>
<th>समय</th>
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</thead>
<tbody>
<tr>
<td>प्रथम</td>
<td>कम्प्यूटर इन्ज़िनियरिंग</td>
<td>100</td>
<td>40</td>
<td>वस्तुत बहुउत्सर (Multiple Choice)</td>
<td>100×1=100</td>
<td>1 घण्टा 30 मिनेट</td>
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<tr>
<td>प्रथम</td>
<td>सम्बन्धी विषय</td>
<td>100</td>
<td>40</td>
<td>विषयगत(Subjective)</td>
<td>4×5 =20</td>
<td>दिनांक 30</td>
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<tr>
<td>प्रथम</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1×10 =10</td>
<td></td>
</tr>
</tbody>
</table>

द्वितीय चरण

<table>
<thead>
<tr>
<th>विषय</th>
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<th>परीक्षा प्राधिक</th>
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<tbody>
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<td>व्यक्तिगत अन्तर्वाची</td>
<td>30</td>
<td>मौखिक</td>
</tr>
</tbody>
</table>

1.लिखित परीक्षाको माध्यम भाषा नेपाली बा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवे हुन सक्नेछ।
2. पाठ्यक्रमको प्रथम र द्वितीय पत्रको विषयवस्तु एउठै हुनेछ।
3. प्रथम र द्वितीयपत्रको लिखित परीक्षा छुट्टाछै हुनेछ।
4. प्रथम तथा द्वितीय पत्रका एकाइहरूको प्रश्न संख्या निम्नानुसार हुनेछः:

<table>
<thead>
<tr>
<th>प्रथम पत्रका एकाइ</th>
<th>1</th>
<th>2</th>
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<th>8</th>
<th>.9</th>
<th>10</th>
<th>.11</th>
<th>12</th>
<th>13</th>
<th>.14</th>
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<td>7</td>
<td>8</td>
<td>.</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

| प्रथम पत्रका एकाइ | 7 | 5 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 5+10 |
| प्रश्न संख्या       | 7 | 5 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 5+10 |
1. **Computer Networks**

1.1 Protocol stack, switching

1.2. Link Layer: services, error detection and correction, multiple access protocols, LAN addressing and ARP (Address Resolution Protocol), Ethernet, CSMA/CD multiple access protocol, Hubs, Bridges, and Switches, Wireless LANs, PPP (Point to Point Protocol), Wide area protocols


1.4. Transport Layer: principles, multiplexing and demultiplexing, UDP, TCP, flow control, principles of congestion control, TCP congestion control

1.5. Application Layer: Web and Web caching, FTP (File Transfer Protocol), Electronic mail, DNS (Domain Name Service), socket programming

1.6. Distributed system, Clusters General concept of IT planning.

2. **Structured and object-oriented programming**

2.1 Data types, ADT

2.2 Operators, variables and assignments, control structures

2.3 Procedure/function
2.4 Class definitions, encapsulation, inheritance, object composition, Polymorphism
2.5 Pattern and framework

3. Artificial Intelligence

3.1 Search
3.2 Natural Language Processing
3.3 Game Playing
3.4 Learning
3.5 Automated reasoning
3.6 Planning
3.7 Vision and Robotics

4. Data structures

4.1 General concepts: Abstract data Type, Time and space analysis of algorithms, Big oh and theta notations, Average, best and worst-case analysis
4.2 Linear data structures
4.3 Trees: General and binary trees, Representations and traversals, Binarysearch trees, balancing trees, AVL trees, 2-3 trees, red-black trees, self-adjusting trees, Splay Trees
4.4 Algorithm design techniques: Greedy methods, Priority queue search, Exhaustive search, Divide and conquer, Dynamic programming, Recursion
4.5 Hashing
4.6 Graphs and digraphs
4.7 Sorting

5. Computer Architecture & Organization and Micro-processors

5.1 Basic Structures: sequential circuits, design procedure, state table and state diagram, VonNeumann / Harvard architecture, RISC/CISC architecture
5.2 Addressing Methods and Programs, representation of data, arithmetic operations, basic operational concepts, bus structures, instruction, cycle and excitation cycle.
5.3 Processing Unit: instruction formats, arithmetic and logical instruction.
5.4 addressing modes
5.5 Input Output Organization: I/O programming, memory mapped I/O, basic interrupt system, DMA
5.6 Arithmetic
5.7 Memory Systems
5.8 808X and Intel microprocessors: programming and interfacing
6. Digital Design

6.1 Digital and Analog Systems, Number Systems.
6.2 Logic Elements
6.3 Combinational Logic Circuits
6.4 Sequential Logic
6.5 Arithmetic Circuits
6.6 MSI Logic circuits
6.7 Counters and Registers
6.8 IC logic families
6.9 Interfacing with Analog Devices
6.10 Memory Devices

7. Software Engineering

7.1 Software process: The software lifecycle models, risk-driven approaches
7.2 Software Project management: Relationship to lifecycle, project planning, project control, project organization, risk management, cost models, configuration management, version control, quality assurance, metrics
7.3 Software requirements: Requirements analysis, requirements solicitation, analysis tools, requirements definition, requirements specification, static and dynamic specifications, requirements review.
7.4 Software design: Design for reuse, design for change, design notations, design evaluation and validation
7.5 Implementation: Programming standards and procedures, modularity, data abstraction, static analysis, unit testing, integration testing, regression testing, tools for testing, fault tolerance
7.6 Maintenance: The maintenance problem, the nature of maintenance, planning for maintenance

8. Database Management System

8.1 Introduction: The relational model, ER model, SQL, Functional dependency and relational database design, File structure
8.2 Transaction Management and Concurrency Control: Concurrent execution of the user programs, transactions, Concurrency control techniques
8.3 Crash Recovery: types of failure, Recovery techniques
8.4 Query Processing and Optimization
8.5 Indexing: Hash based indexing, Tree based indexing
8.6 Distributed Database Systems and Object-oriented database system
8.7 Data Mining and Data Warehousing
8.8 Security Management System

9. Operating System

9.1 Processes and Threads: Symmetric Multiprocessing, Micro-kernels, Concurrency, Mutual Exclusion and Synchronization, Deadlock.
9.2 Scheduling
9.3 Memory Management
9.5 Distributed Systems: Distributed Message passing, RPC, Client/ServerComputing, Clusters.

10. Management Information System (MIS) and Web Engineering

10.1 Information Systems, Client-Server Computing.
10.2 Information Systems and Decision Making.
10.3 Database Design issues
10.4 Knowledge Management, The strategic use of Information Technology.
10.6 Software Supported Demonstrations including advanced Spreadsheet topics, Software Component Based Systems (CBSE),
10.7 Multimedia
10.8 Object-Oriented Programming with COMS & DECOMS,
10.9 Group Decision Support Systems
10.10 Basics of Website Design.

11. E-Commerce Technology

11.1 Introduction to E-Commerce.
11.2 Electronic Commerce Strategies.
11.3 Electronic Commerce Security Issues.
11.4 Success Models of E-Governance.
11.5 E-Business: b2b, b2c, b2e, c2c, g2g, g2c.
11.6 Principles of Electronic Payment, Strategies & Systems.
11.7 E-marketing, Reverse Engineering.
11.8 E-Banking, Electronic data interchange (EDI) Methods, SWIFT.
11.9 Encryption and Decryption Methods, XML, Layout Managers, Event Model.

12. System Analysis and Design Project Management
12.1 Defining the System, System Owner, System User, System Designers and System Builders, System Analysts, Variations on the System Analyst title, System life Cycle,
12.4 Requirements analysis: Representing System Analysis Model, Requirement Model, Design Model,
12.5 Development Process: Design Method.
12.7 Relationship Sets: Degree of Relationship and Cardinality Relationship, Specialization, Generalization, Aggregation.
12.8 Data Flow Diagrams (DFDs): Introductions, Data flow Diagram, Symbol, Files or data store, External entities, Data flows,
12.9 Describing System by Data Flow Diagram: Context diagram, Top level DFD, Expansion Level DFD, Conversions of Data.
12.10 Object Modeling: Object -Oriented Concept, Object Structure, Object Feature, Class and Object.
12.11 Representation: Association and Composition, Inheritance, Multiple Inheritances.

13. IT in Nepal

13.1 History of IT in Nepal
13.2 National Information and Communication Technology Policy,2015
13.3 Electronic Transaction Act, 2063 B.S.
13.4 Copyright Act, 2059 B.S.
13.5 Nepali Unicode, Nepali Fonts

14. Social Security Fund

14.1 Introduction to Social Security Fund
14.2 Vision, Mission and Objectives of Social Security Fund
14.3 Organizational Structure of Social Security Fund
14.4 नेपालको संविधान २०७२
14.5 सामाजिक सुरक्षाको अवधारणा
14.6 योगदानमा आधारित सामाजिक सुरक्षा ऐन, २०७४
14.7 योगदानमा आधारित सामाजिक सुरक्षा नियमावली, २०७४
14.8 सामाजिक सुरक्षा कोषको (कर्मचारी प्रशासन) विनियमावली, २०७४
14.9 सामाजिक सुरक्षा योजना संचालन कार्य व ध, २०७५
14.10 रोजगारदाता र श्र मकको सु चकरण सम्बन्धी कार्य व ध, २०७५
14.11 श्रम ऐल. २०७४
14.12 श्रम नियमावली, २०७५
14.13 बोनस ऐल. २०३०
14.13 बोनस नियमावली, २०३९
14.14 कोषको रकम (चा णाङ्ग बैंकहरुमा) लगानि गर्ने कार्य व ध, २०७५

---The end---