

लोक सेवा आयोग
नेपाल पुनर्बीमा कम्पनी लिमिटेड, सूचना प्रविधि इन्जिनियर, सातौं, उपप्रबन्धक (कम्प्यूटर) पदको खुला
प्रतियोगितात्मक लिखित परीक्षा
२०७८/१०/०२

पत्र : द्वितीय
समय : ३ घण्टा

पूर्णाङ्क : १००

विषय: सूचना प्रविधि सेवा सम्बन्धी

प्रत्येक Section को उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ । अन्यथा उत्तरपुस्तिका रद्द हुनेछ ।

Section : "A"

50 Marks

1. Briefly describe the structure of a compiler with a block diagram showing the stages of compiler. 5
2. In computer architecture, there are different ways of addressing the location of an operand in an instruction which are called as addressing modes. Explain Direct Addressing mode and Indirect Addressing mode with a suitable example. 5+5=10
3. What is a regular grammar? Explain with an example the method of converting a regular grammar into an equivalent Finite Automata. 10
4. What is projection in Computer Graphics? Mentions its types. What do you understand by hidden surface removal? Explain the different types of hidden surface detection algorithm. 5+5=10
5. Briefly describe the Turing Test that had been proposed to test intelligence of machines. Suppose you need to design a program with AI and natural language processing capabilities and try to pass the Turing Test. What would be the different components and algorithms that you would incorporate to build the architecture of such an intelligent program? Propose the different steps/stages that need to be implemented from accepting natural language question from a human to processing and understanding the questions to generating appropriate response in human understandable form. 3+6+6=15

Section : "B"

50 Marks

6. What is operation amplifier? What are its uses? 2+3=5
7. Describe key additional features of IPv6 compared to IPv4. Explain the main challenges to implement IPv6 in the existing IPv4 network setup. 5+5=10
8. Describe the various states of a process in an operating system along with a state-transition diagram. Briefly describe how virtual memory management can be implemented using page tables. 5+5=10
9. Answer the following 5+5=10
 - a) What are the major characteristics of IT Policy of Nepal, 2072?
 - b) Describe about the fundamentals of error detection and correction in electronics communications.
10. With the rapid development of ICTs and the rise of electronic commerce through the facilitation of online payment systems, how do you think the organizations can preserve the security and confidentiality of a user in Nepal? Do you think the private IT companies and IT employees of public organizations of Nepal follow the professional ethics and practices? Explain with critical incidents. 7+8=15

- The End -