

लोक सेवा आयोग
वर्षात्मक उद्घयन प्राधिकरण, प्राविधिक, ईलेक्ट्रोनिक एण्ड टेलिकम्युनिकेशन इन्जिनियरिङ्ग, चाटी
वरिष्ठ अधिकृत पदको खुला प्रतियोगितात्मक लिखित परीक्षा
२०८०/१०/१९

पूर्णाङ्क : १००

विषय : सेवा सम्बन्धी

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

Section "A"

50 Marks

1. What is an oscillator? Explain Wien bridge oscillator with a circuit diagram. 1+4=5
2. Describe the signal to noise ratio. Write the Kepler's Laws of Orbital Motion. Explain why specific frequency bands are allocated for satellite communication in the radio spectrum. 1+2+2=5
3. Explain various error detection and correction techniques in digital communication. 10
4. Compare the characteristics of push-pull amplifiers and untuned amplifiers. Discuss the applications of Klystron and Magnetrons in amplification. Explain the V-I characteristics of SCR. 3+4+3=10
5. Explain about Integrated Services Digital Network (ISDN) and Broadband-ISDN. List the advantages and disadvantages of ISDN. 4+2+4=10
6. What is an Optical Fiber? Explain its properties. Elaborate the working principle of optical fiber. List out the advantages of optical fiber over copper cable communication. 2+2+3+3=10

Section "B"

50 Marks

7. What is Radar? Explain the working principle of MTI Radar. 1+4=5
8. Differentiate between spectrum analyzer and oscilloscope. 5
9. What is the role of multiplexing in telecommunication networking? Explain the types of multiplexing techniques. Differentiate between the digital networks: ISDN, Frame Relay and ATM. 1+3+6=10
10. Discuss the key features of surge protectors and how they contribute to equipment safety. What is the significance of measuring RF field strength and how is it related to modulation schemes? Name three main types of UPS systems and outline their primary characteristics. 4+3+3=10
11. What is a photovoltaic cell? Explain with a diagram how solar energy is converted into electricity. 2+8=10
12. The radio spectrum is regarded as a valuable and limited asset for a nation. In what way is it considered as such? How is the radio spectrum managed internationally and at the national level? Explain the role of ITU, ICAO, MoCIT, MoCTCA, NTA and CAAN in this regard. 10