

नेपाल सरकार
शिक्षक सेवा आयोग
माध्यमिक तह, तृतीय श्रेणी शिक्षक पदको खुला प्रतियोगितात्मक परीक्षा
विषयगत परीक्षा-२०८१

तह : माध्यमिक

पूर्णाङ्क : १००

समय : ३ घण्टा

उत्तीर्णाङ्क : ४०

विषय : कम्प्यूटर विज्ञान

सबै प्रश्नहरू अनिवार्य छन् । प्रत्येक खण्डका लागि बेग्लाबेग्लै उत्तरपुस्तिका प्रयोग गर्नुपर्नेछ, अन्यथा उत्तर पुस्तिका रद्द हुनेछ ।

Group A

1. Explain the significance of Boolean algebra in the context of digital system. Illustrate its application in simplifying logic circuits through Boolean laws and theorems.	5+5
2. What are the innovative approaches for integrating multimedia technology into project-based learning? Differentiate between video, animation and graphics.	4+6
3. Explain the concept of polymorphism in object-oriented programming with specific reference to both C++ and Java. Provide examples in each language to illustrate how polymorphism is implemented and how it enhances code reusability and flexibility.	5+5
4. Develop a project-based learning session that needs HTML website design by using basic tags. How do you assess student progress in project-based learning model? Explain with concrete procedures and steps.	6+4
5. How do you teach the VPN concept at the secondary level school education? Differentiate between half duplex and full duplex communication by confining within the scope of Grade X curriculum.	7+3

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Group B

6. Discuss the importance of concurrency control and transaction processing in database management system. Compare and contrast the ACID (Atomicity, Consistency, Isolation, Durability) properties with BASE (Basically Available, Soft state, Eventually consistent) properties in the context of transaction processing with examples.	4 + 6
7. How does an operating system implement virtual memory and paging to handle processes larger than the physical memory available? And, explain an application process of system administration by using Linux.	6 + 4

8. What is software re-engineering? What ethical considerations should be taken into account while conducting reverse engineering on proprietary software?	3 + 7
9. Explain the cloud computing and its application. Briefly examine ethical and social issues associated with an application of ICT.	4 + 6
10. Discuss the role of constructivism and connectivism in shaping modern educational practices, particularly in the integration of ICT in education. How do these learning theories influence the design of e-learning concepts and ICT-integrated lessons? And, highlight importance of ICT for the purpose of Teacher Professional Development.	3 + 4 + 3
