Council for Technical Education and Vocational Training

Office of the Controller of Examinations

Sanothimi, Bhaktapur

Regular/Back Exam-2079, Bhadra/Ashwin

Program: Diploma in Computer Engineering | **Full Marks: 80**

Year/Part: III/I (2018) | **Pass Marks: 32**

Subject: Applied Telecommunication | **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any TEN questions.

1. Define telecommunication. Draw and explain the basic block diagram of telecommunication system in detail. [1+7]
2. Classify different switching system. Explain step by step switching. What is a rotary dial telephone? [2+4+2]
3. Describe the principle of Line of Sight (LOS). Explain the frequency distribution, fading effect and noise in communication. [3+5]
4. What is combination switching? Explain sky wave and space wave communication. [3+5]
5. A group of 20 servers carry a traffic of 10 erlangs. If the average duration of call is 3 minutes, calculate the number of calls put through by a single server and the group as a whole in 1 hour period. [8]
6. Explain GOS and blocking probability. [4+4]
7. Explain the GSM architecture with necessary diagram. [8]
8. Explain FTTH network. Define OLT, ONT and CPE. [5+3]
9. Define signaling technique. Differentiate between in channel and common channel signaling technique. [2+6]
10. Explain the basic cellular system with necessary diagram. Also, describe the trunking and efficiency of mobile radio environment in brief. [5+3]
11. Write short notes on: (any **TWO**) [2×4]
    a. Wattmeter
    b. Multimeter
    c. Cable Cutter
    d. GPS

Good Luck !

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Program: Diploma in Computer Engineering — **Full Marks: 60**

Year/Part: III/I (2018) — **Pass Marks: 24**

Subject: Management Information System (MIS) — **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any SIX questions.

1.	a.	What is information system in business?	[5]
	b.	Explain the type of information system.	[5]
2.	a.	Describe the structure of a management information system.	[5]
	b.	What is data processing? Explain decision support system with an example.	[1+4]
3.	a.	What is planning process? Mention the benefits of business applications of information system.	[1+4]
	b.	Explain internet and e-commerce with its application.	[5]
4.	a.	What are security and ethical challenges?	[5]
	b.	Explain customer relationship management with an example.	[5]
5.	a.	What is accounting information system? Explain.	[5]
	b.	Explain quality information system.	[5]
6.	a.	Explain artificial intelligence with its application.	[5]
	b.	What is client server computing?	[5]
7.	Write short notes on: (any **TWO**)		[2×5]
	a.	Nature of Office	
	b.	Enterprise and Global Management	
	c.	Marketing Information System	

Good Luck !

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Program: Diploma in Computer Engineering **Full Marks: 80**

Year/Part: III/I (2018 New Course) **Pass Marks: 32**

Subject: Distributed Computing **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Attempt Any Eight questions.

1. What do you mean by distributed system? Explain advantages and disadvantages of distributed system. [4+6]
2. Explain Data and Memory level parallelism. [10]
3. Define parallelism. Explain fine-grained parallelism and Medium-grained parallelism. [2+8]
4. Illustrate Amdahl's law and Gustafson's law. [5+5]
5. What do you mean by uni-processor architecture? Differentiate between CISC and RISC processor. [2+8]
6. Explain UMA and NUMA models of multiprocessor system. [5+5]
7. Discuss Flynn's classification of computers in brief. [10]
8. Explain Distributed File System (DFS). Point out the key features of DFS. [5+5]
9. Write short notes on : **(Any Two)** [2x5=10]
   a) Mach
   b) DNS
   c) Feng's classification
10. What are main problems of Distributed system? Explain Grid and cluster types of distributed system. [2+8]

Good Luck !

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Program: Diploma in Computer Engineering — **Full Marks: 80**

Year/Part: III/I (2018) — **Pass Marks: 32**

Subject: Operating System — **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any EIGHT questions.

1. Justify "Operating System as resource manager". Explain the types of operating system in brief. [4+6]
2. Why process need to be preemptive? Explain long and short term brust. [4+6]
3. Define process control block. Consider a system with a set of process A, B, C, D with their CPU brust time and arrival time being mentioned as below: [3+7]

Process	Brust Time	Arrival Time
A	6	1
B	10	3
C	2	5
D	4	7

4. How starvation differ dead lock? Explain deadlock handling policies. [4+6]
5. How safe state in achieved in banker algorithm? [10]
6. Define swapping. Differentiate between fixed and variable sized partitioning in multiprogramming. [3+7]
7. What is segmentation? Explain the importance and drawbacks of segmentation. [2+8]
8. What is semaphore? Describe Peterson's algorithm. [3+7]
9. Write short notes on: (any **TWO**) [2×5]
   a. Process Scheduling
   b. Virtual Memory
   c. Thread Vs Process
   d. Interrupt Handlers

Good Luck !

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Program: Diploma in Computer Engineering | **Full Marks: 80**

Year/Part: III/I (2018) | **Pass Marks: 32**

Subject: Computer Networks | **Time: 3 hrs.**

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt any TEN questions.

1. What is computer network? Explain OSI model. [2+6]
2. What is a network protocol? Differentiate between a connection oriented and connectionless services. [4+4]
3. Explain IEEE 802.3 and IEEE 802.4. Explain CSMA/CD protocol. [4+4]
4. What are transmission media? Explain any two types. Discuss flow control in data link layer. [4+4]
5. What is channel bandwidth? Explain the concept of sub-netting. Define inter-network. [2+4+2]
6. Explain transaction of IPV4 to IPV6. Explain how packets are formed and functions of network layer. [2+6]
7. Write short notes on: (any **TWO**) [2×4]
   a. DNS b. Firewall
   c. VPN d. WWW
8. Explain two protocols of transport layer? Why does need flow control in transport layer? [4+4]
9. Explain client server model. Why security is a necessity in the field of computer networks? Discuss. [3+5]
10. How confidentiality, integrity and availability is maintained in computer network? [8]
11. Classify computer networks. Write down the differences between repeater and router. [5+3]

Good Luck !

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Program: Diploma in Computer Engineering **Full Marks: 80**

Year/Part: III/I (2018 New Course) **Pass Marks: 32**

Subject: Java Programming (Elective) **Time: 3 hrs**

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Attempt Any Eight questions.

1. a) Explain Java and its characteristics. [5]
   b) What are constants in Java? Explain it with suitable example.
2. Explain the operators used in Java. [10]
3. a) Explain the concept of two-dimensional arrays in Java. [5]
   b) Distinguish between errors and exceptions. [5]
4. What is the use of packages in java? Explain the process of creation of packages. [2+8]
5. Explain the method of handling exception in Java with suitable example. [10]
6. a) How will you implement an interface? Explain with an example. [7]
   b) Define objects and classes in Java. [3]
7. a) Explain polymorphism in Java. [5]
   b) Explain basic data types used in Java. [5]
8. What is abstract? Write the simple Java Program that reads data from one file and writes data to another file. [2+8]
9. Write short notes on : **(Any Two)** [2x5=10]
   a) Dynamic Binding
   b) Super classes and subclasses
   c) This keyword
   d) Java "white paper" buzzwords

Good Luck !

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Program: Diploma in Computer Engineering — **Full Marks: 40**

Year/Part: III/I (2018 New Course) — **Pass Marks: 16**

Subject: Cyber Security & Professional Ethics — **Time: $1\frac{1}{2}$ hrs**

Candidates are required to give their answers in their own words as far as practicable.
The figures in the margin indicate full marks.

Attempt Any Four questions.

1. a) Define cyber security. Briefly explain about the different techniques used by a hacker. [5]

   b) Define Firewall. Explain in brief about its types. [5]

2. a) Explain why SSL is required in an e-commerce website? [5]

   b) Define Digital Signature? Explain types of Cryptography. [5]

3. a) Write about cyber law in Nepal. [5]

   b) Define Security Policy. Explain brief about its importance. [5]

4. a) Define Ethical dissent and whistle-blowing? Explain the role of the professional in public policy. [5]

   b) What is code of ethics? How to deal with harassment and discrimination in Nepal? [5]

5. Write short notes on : **(Any Two)** [2x5=10]

   a) Software risk

   b) Risk assessment and management

   c) Intellectual Property Right

   d) Intrusion Detection

Good Luck !