

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2012
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALIZATION PAPER for IT 4 YEARS

Date	: 14 October 2012
Total Marks	: 100
Examination Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

1. Write your Roll Number clearly on the Answer Booklet in the space provided.
2. The first 15 minutes is being provided to check the number of pages, printing errors, clarify doubts and to read the instructions. You are NOT PERMITTED TO WRITE during this time.
3. Use either Blue or Black ink pen or ball point pen for the written part and Pencils for the sketches and drawings.
4. All answers should be written on the Answer Booklet provided. Candidates are not allowed to write anything on the question paper or any other materials.
5. All answers must be labeled with appropriate question numbers (Section, Question and sub-Question Numbers wherever applicable). Unlabelled answers will not be assessed.
6. This paper is divided into two sections-namely SECTION A and SECTION B.
7. SECTION A consists of two parts: Part I and Part II.

Part I consists of 30 Multiple-Choice Questions carrying one (1) mark each and is compulsory. The answer of your choice should be clearly written in whole along with the question and option number on your answer booklet. Eg. 31(c).

Part II consists of four (4) short answer questions of five (5) marks each and all questions are compulsory.
8. SECTION B consists of two Case Studies. Choose only ONE case study and answer the questions under your choice. Each case study carries fifty (50) marks in total.
9. This Paper consists of nine (9) pages including this Instruction page.

SECTION A

PART I - Multiple Choice Questions (30 Marks)

Choose the correct answer and write down the letter of the correct answer chosen in the Answer Sheet against the question number. E.g. 31 (c). Each question carries ONE mark.

- 1) Which of the following is the most advanced data transmission technique for Wide Area Networks
 - a) ATM
 - b) Packet Switching
 - c) Circuit Switching
 - d) Frame Relay
- 2) The minimum size of a TCP header is
 - a) 8 bits
 - b) 20 bytes
 - c) 20 bits
 - d) 60 bytes
- 3) The following is **TRUE** when the SYN flag bit in a TCP header is set to **1**
 - a) Payload field is encrypted
 - b) Data transfer is complete
 - c) The sequence number value is the starting sequence number
 - d) None of the above
- 4) Which of the following TCP segment fields takes care of flow control
 - a) Source Port
 - b) Destination Port
 - c) Data Offset
 - d) Window Size
- 5) An approach for error control involving detection of errors followed by further processing of the received information that attempts to correct the errors is known as
 - a) ARQ
 - b) FEC
 - c) FSK
 - d) CRC
- 6) In an IPV4 header the fields *Destination Address* and *Protocol* represents
 - a) Destination port number and UDP protocol
 - b) Destination Host IP address and the Higher layer protocol using the IP protocol
 - c) MAC address of the host and the ARP protocol
 - d) None of the above

PAPER III: SUBJECT SPECIALIZATION PAPER for IT 4 YEARS (Technical)

- 7) Spectrum of a signal is
 - a) The range of frequencies it contains
 - b) The maximum amplitude of the signal
 - c) The fundamental frequency of the signal
 - d) All of the above
- 8) The following are all signal transmission impairments EXCEPT
 - a) Attenuation
 - b) Delay Distortion
 - c) Noise
 - d) Frequency Modulation
- 9) Which of the following guided transmission media is not affected by electromagnetic field
 - a) Optical Fiber
 - b) Coaxial Cable
 - c) CAT 3 UTP
 - d) CAT 5 UTP
- 10) Microwave frequencies are frequencies falling in the range
 - a) 30MHz-1GHz
 - b) 1GHz-40GHz
 - c) 100Hz-1KHz
 - d) 1KHz-100MHz
- 11) IEEE 802.11 is a
 - a) High level programming language
 - b) Wireless networking standard
 - c) Ethernet LAN standard
 - d) Microprocessor
- 12) Which of the following is not a UML Behavioral Diagram
 - a) Activity diagram
 - b) State machine diagram
 - c) Use case diagram
 - d) Class diagram
- 13) A *Fork* in a UML activity diagram depicts
 - a) Decision making
 - b) Inheritance
 - c) Beginning of a parallel activity
 - d) End of a parallel activity

PAPER III: SUBJECT SPECIALIZATION PAPER for IT 4 YEARS (Technical)

- 14) Encapsulation in OOP means
- a) Packaging method and the data in an object and giving access to the object data through interfaces
 - b) Packaging the method and the data in an array
 - c) Instantiating a class by using a constructor
 - d) Ability of objects to provide context when methods or operators are called on the object.
- 15) Which of the following statements is **NOT TRUE** about Java abstract classes
- a) Abstract classes cannot be instantiated
 - b) An abstract class must be defined using the *Abstract* keyword
 - c) An abstract class must have at least one abstract method
 - d) A non abstract subclass does not need to provide implementation for all the inherited abstract methods.
- 16) Which MSDOS command displays the directory list including files in tree structure
- a) Dir/s/f
 - b) Tree/f
 - c) Tree/s/f
 - d) Dir/F
- 17) Private data members or member functions of a C++ class are accessible to
- a) All the functions in the program
 - b) All the functions in the program with void return type
 - c) Any member function of the class
 - d) All of the above
- 18) _____ is a measure of the lack of uniqueness of data in a table when working with indexes in database
- a) Selectivity
 - b) Density
 - c) Index depth
 - d) Composite index
- 19) In Java computing, an applet
- a) Performs various tasks depending on the need
 - b) Runs on its own whenever computer is powered up
 - c) Is a small application that performs one specific task and runs within the scope of a larger program
 - d) All of the above

