

ROYAL CIVIL SERVICE COMMISSION  
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2010  
EXAMINATION CATEGORY: TECHNICAL

PAPER II: GENERAL SUBJECT KNOWLEDGE ICT Group

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Date	:	November 23, 2010
Total Marks	:	100
Duration	:	1 $\frac{1}{2}$ Hours
Reading Time	:	15 Minutes (before commencement of writing)

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INSTRUCTIONS

1. This paper consists of 7 pages. Ensure that you have all of them.
2. There are two parts to this paper: PART I contains 70 multiple choice questions worth 1 mark each. PART II contains 10 short answer questions worth 3 marks each.
3. You are required to attempt all questions in both parts.
4. If any question or part of a question is not clear, make reasonable assumptions and attempt the question. Assumptions must be clearly stated in the answer sheet.
5. All Answers must be written in separate answer sheets provided. Answers written on question papers will not be accepted.

## PART I

- 1) If the length of a rectangle is increased by 20 percent and the width is decreased by 20 percent, then the area:
  - (a) decreases by 4%
  - (b) decreases by 20%
  - (c) increases by 4%
  - (d) stays the same
- 2) What is the value of  $x+y$  if  $x-y=4$  and  $3x+3y=4$ ?
  - (a)  $\frac{3}{9}$
  - (b)  $\frac{4}{3}$
  - (c) 1
  - (d)  $\frac{3}{4}$
- 3) What is the maximum number of points of intersection of two circles that have unequal radii?
  - (a) none
  - (b) infinite
  - (c) 3
  - (d) 2
- 4) If ten men take 3 days to complete a piece of work, how many days will 2 men take to complete the same work?
  - (a) 3 days
  - (b) 6 days
  - (c) 9 days
  - (d) 15 days
- 5) If the equation of a line is  $3y = x+6$  then, the line intersects the  $x$  and  $y$  coordinates at:
  - (a)  $(\frac{1}{3}, 2)$
  - (b)  $(-6, 2)$
  - (c)  $(1, 6)$
  - (d)  $(6, 1)$
- 6) The slope of the line in Question 5) is:
  - (a)  $\frac{1}{3}$
  - (b) 1
  - (c) -6
  - (d) 2
- 7) In a household survey 60% of the respondents owned a car, 80% owned a T.V. If 45% owned both a T.V. and a car, what percent of the respondents didn't own either a car or a T.V.?
  - (a) 20%
  - (b) 5%
  - (c) 25%
  - (d) 10%
- 8) There are 20 girls and 10 boys in a class. In their school lottery, each student has  $\frac{1}{1000}$  chance of winning. What is the probability that the class would win the lottery if one student is allowed only one draw and there is only one prize to be won:
  - (a) 0.01
  - (b) 0.02
  - (c) 0.03
  - (d) none
- 9) A particular city uses 3 numeric digits for vehicle numbers. If numbers with last digit 0 are reserved for VIPs and not issued to the public, what is the total number of public vehicles that can be registered in that city?
  - (a) 900
  - (b) 1000
  - (c) 9000
  - (d) 10000
- 10) If  $\log_x 9 = 2$ , the value of  $x$  is:
  - (a) 2
  - (b) 18
  - (c) 11
  - (d) 3
- 11)  $\lim_{x \rightarrow 0} (2x^2 + 20x + 20)$  is
  - (a) 0
  - (b) 2
  - (c) 20
  - (d) 22
- 12) A coat was sold for Nu. 90.00. The coat was sold for 150% of its cost. How much did the coat cost?

- (a) 60      (b) 65      (c) 120      (d) 150
- 13) If the ratio of boys to girls in a class is 1:2 and if the total number of girls is 10 what is the total number of students in the class?  
 (a) 5      (b) 10      (c) 20      (d) 15
- 14) If the ratio of the angles of a triangle is 1:2:2 then the triangle is:  
 (a) scalene      (b) isosceles      (c) equilateral      (d) right
- 15) The eighth term of the sequence 1, 4, 9, 16, 25,... is  
 (a) 80      (b) 88      (c) 64      (d) 46
- 16) \_\_\_\_\_ is used to manufacture chips.  
 (a) Silicon      (b) Carbon      (c) Aluminium      (d) Tungsten
- 17) In Electronics VLSI is a term used in:  
 (a) chip manufacture      (b) solving equations      (c) digital to analog conversion      (d) analog to digital conversion
- 18) The building blocks of computer chips are:  
 (a) Memory      (b) Registers      (c) Transistors      (d) Silicon
- 19) \_\_\_\_\_ is the latest technology in use  
 (a) Milli technology      (b) micro technology      (c) nano technology      (d) pico technology
- 20) A diode allows current to flow in:  
 (a) One direction      (b) both direction      (c) many directions
- 21) Many people throw up while travelling in vehicles. A Physicist would explain the phenomenon using Newton's \_\_\_\_\_ Law:  
 (a) First      (b) Second      (c) Third      (d) Fourth
- 22) Water at  $100^{\circ}\text{C}$  and steam at  $100^{\circ}\text{C}$  will burn you equally:  
 (a) True      (b) False
- 23) A pulley multiplies:  
 (a) energy      (b) force      (c) momentum      (d) inertia
- 24) A big boy running at the same speed as a smaller boy would cause more damage if they both ran into someone. You would explain the difference in terms of Newton's \_\_\_\_\_ Law.  
 (a) First      (b) Second      (c) Third      (d) Fourth
- 25) The terms "Push" and "Pull" are associated with \_\_\_\_\_.  
 (a) Stacks      (b) Queues      (c) Arrays      (d) records
- 26) The phenomenon employed in fiber optic communication is:  
 (a) Total internal reflection      (b) total internal refraction  
 (c) light in glass      (d) light through glass

- 27) A kilo byte contains:  
 (a) 1000 bits      (b) 8000 bytes      (c) 1024 bytes      (d) 8192 bytes
- 28) In computer programming, functions:  
 (a) return a value      (b) don't return values  
 (c) cannot take functions      (d) are same as procedures
- 29) A programmer defined data type is called \_\_\_\_\_ data type:  
 (a) User defined      (b) system defined      (c) enumerated      (d) programmer defined
- 30) \_\_\_\_\_ is an example of application software:  
 (a) Windows XP      (b) Unix      (c) compilers      (d) RCSC's Zhiyog System
- 31) The number DEE is an example of a \_\_\_\_\_ number:  
 (a) Binary      (b) Octa      (c) Hexa      (d) Decimal
- 32) In database design a candidate key is:  
 (a) Another name for primary key      (b) composite key  
 (c) a potential primary key      (d) concatenated key
- 33) A queue is a:  
 (a) First in first out list      (b) first in last out list  
 (c) stack      (d) none of the above
- 34) A variable defined within a function is \_\_\_\_\_.  
 (a) Global variable      (b) local variable  
 (c) user defined variable      (d) none of the above
- 35) Syntax error can be detected during:  
 (a) Running      (b) Compilation      (c) Testing      (d) design
- 36) The term machine independence is associated with \_\_\_\_\_ programming language:  
 (a) Fortran      (b) Ada      (c) C      (d) JAVA
- 37) FTP stands for:  
 (a) File transport protocol      (b) file transfer protocol      (c) file to printer      (d) none of the above
- 38) MS Windows is an example of:  
 (a) Proprietary software      (b) open source software  
 (c) application software      (d) none of the above
- 39) The value of binary number 1110 is:  
 (a) 11      (b) 12      (c) 14      (d) 15
- 40) The value of Hexa number 21 is:  
 (a) 32      (b) 33      (c) 34      (d) 35
- 41) \_\_\_\_\_ is the latest addressing scheme in networking.  
 (a) IP V4      (b) IP V5      (c) IP V6      (d) IP V7

- 42) In IP V4 there are \_\_\_\_\_ IP addresses in total:  
 (a)  $2^{128}$  (b)  $2^{128}-1$  (c)  $2^{32}$  (d)  $2^{48}$
- 43) The Mac Address is \_\_\_\_\_:  
 (a) Assigned by user (b) assigned by Network Administrator (c) comes assigned from Factory (d) None of the above
- 44) A switch is an example of OSI layer \_\_\_\_\_ equipment.  
 (a) 2 (b) 4 (c) 5 (d) none of the above
- 45) The terms "tail" and "head" are related to:  
 (a) queues (b) stacks (c) all lists (d) arrays
- 46) The term "Polymorphism" is associated with \_\_\_\_\_ programming:  
 (a) Database (b) Procedural (c) Object Oriented Programming (d) C
- 47) If a division by zero happens when you run a program then you will get \_\_\_\_\_ error:  
 (a) Under flow error (b) syntax error (c) exception error (d) general bug
- 48) GSM, the mobile communications standard used in Bhutan stands for:  
 (a) Global system for mobile communications (b) Group Standard for Mobile  
 (c) Group for standardizing mobile (d) none of the above
- 49) XML stands for:  
 (a) Extended machine Language (b) Extended Markup Language  
 (c) Extensible Markup Language (d) none of the above
- 50) In system analysis and design DFD stands for:  
 (a) Design for database (b) database for design (c) data flow diagram (d) none of the above
- 51) UTP in network cabling stands for:  
 (a) Universal transport pair (b) Unshielded twisted pair  
 (c) Unified twisted pair (d) none of the above
- 52) \_\_\_\_\_ has the minimum bandwidth capacity.  
 (a) UTP cable (b) coaxial cable (c) fiber optic cable (d) wifi
- 53) If a network administrator wants to find the path taken by a piece of data to go from her computer network to another network she would use the \_\_\_\_\_ command.  
 (a) ping (b) dig (c) nslookup (d) tracert
- 54) Google's web browser is called:  
 (a) Internet Explorer (b) Netscape (c) Chrome (d) None of the above
- 55) The php language is predominantly used to program:  
 (a) websites (b) industrial machines (c) databases (d) system software
- 56) Apache is a:

- (a) Web browser (b) Web server (c) database server (d) none of the above
- 57) SMTP is associated with:  
 (a) website (b) mail (c) blog (d) security
- 58) Spam is unwanted \_\_\_\_\_.  
 (a) E-mail (b) website (c) ping message (d) none of the above
- 59) \_\_\_\_\_ is not a security threat.  
 (a) Denial of service attack (b) Crackers (c) spoofing (d) encryption
- 60) DNS stands for \_\_\_\_\_.  
 (a) Domain name server (b) domain name system (c) discreet name system  
 (d) none of the above
- 61) VoIP stands for \_\_\_\_\_.  
 (a) Voice over IP (b) Voice on IP (c) Voice Internet Packets  
 (d) none of the above
- 62) 3G in tele-communications stands for \_\_\_\_\_.  
 (a) 3 Gigahertz (b) Triple Play (c) 3<sup>rd</sup> Generation (d) data card
- 63) A Firewall is used to create \_\_\_\_\_.  
 (a) DMZ (b) DNS (c) DHCP (d) ARP
- 64) The IP address 172.16.1.1 is an example of \_\_\_\_\_ address:  
 (a) Broadcast (b) network (c) VLAN (d) subnet mask
- 65) Which about TCP is true?  
 (a) Layer 1 protocol (b) same as UDP (c) connectionless  
 (d) connection oriented
- 66) If an organization has about 100 staff members and no plans of future expansion then the most appropriate IP class they can use is \_\_\_\_\_.  
 (a) Class A (b) Class B (c) Class C (d) Class D
- 67) Phreaking is a specific type of hacking or cracking directed toward \_\_\_\_\_ system.  
 (a) applications (b) server (c) website (d) telephone
- 68) ARP stands for \_\_\_\_\_.  
 (a) Alternate resource protocol (b) address resolution protocol  
 (c) alternate route protocol (d) none of the above
- 69) The C in CIA Triad Security Principles stands for \_\_\_\_\_.  
 (a) carefulness (b) carelessness (c) confidentiality (d) count
- 70) The most common means of distributing viruses is \_\_\_\_\_.  
 (a) websites (b) unapproved software (c) commercial software (d) email

## PART II

- 1) Write a Pseudo code to output a multiplication table. The code should get an integer number input and produce the product of the number with 1 to 10 in sequence. The code should check that the input supplied is an integer (and not other data type such as a character). If not integer it should print an error message and get the input again.
- 2) List the seven layers of the OSI model. Explain the function of layer 7.
- 3) Write the truth table for (A or B) and B.

A	B
T	T
T	F
F	T
F	F

- 4) List the Seven stages of the waterfall model of software development. Explain Systems Requirement stage.
- 5) SLAs are important aspects of customer and service provider relations. What does SLA stand for and what is it?
- 6) What is artificial intelligence?
- 7) What is data mining? Mention one use.
- 8) What do you understand by Object-relational databases? Mention one advantage of it.
- 9) What do you understand by secondary storage in computer systems? Give an example.
- 10) Write the full form of ODBC. What does it do?

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