

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION (CSCE) 2009
EXAMINATION CATEGORY: TECHNICAL

PAPER II: General Subject Knowledge – Information Technology (IT)

Date	:	November 7, 2009
Total Marks	:	100
Duration	:	1 $\frac{1}{2}$ Hours
Reading Time	:	15 Minutes

INSTRUCTIONS

1. This paper consists of 8 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 $\log_{13} x = 2$, the value of x is:
 (a) 26 (b) 15 (c) 11 (d) 169
- 2) If a straight line intersects the X axis at -5 and the Y axis at 10, the equation of the line is:
 (a) $y = -2x + 10$ (b) $y = 10x + 2$ (c) $y = 2x + 10$ (d) $y = 10x + 10$
- 3) If two dice are thrown at the same time, the probability of getting 2 on both the dice is:
 (a) $\frac{1}{6}$ (b) $\frac{1}{36}$ (c) $\frac{1}{12}$ (d) $\frac{1}{9}$
- 4) $\sqrt{21}$ to 2 decimal place is:
 (a) 4.54 (b) 4.58 (c) 4.32 (d) 4.14
- 5) 99999×99999 is
 (a) 9999800001 (b) 8677999980 (c) 9898765444 (d) 6554444449
- 6) If three men take 3 days to complete a piece of work, how many days will 2 men take to complete the same piece of work?
 (a) 3 days (b) 6 days (c) 9 days (d) 12 days
- 7) The biggest of these fractions $\frac{3}{9}, \frac{3}{4}, \frac{3}{7}, \frac{3}{5}$ is:
 (a) $\frac{3}{9}$ (b) $\frac{3}{4}$ (c) $\frac{3}{7}$ (d) $\frac{3}{5}$
- 8) If two times the square of a number is eight times the number, the number is:
 (a) +2 (b) -2 (c) 4 (d) 8
- 9) The value of x if $4x + 4 = 20$ is
 (a) 5 (b) -4 (c) 4 (d) -5
- 10) A particular city uses 5 alpha numeric digits for vehicle numbers with the first digit for alphabets and the rest four digits for number 0-9. If the numeric part of a vehicle number cannot be all zeros, what is the total number of vehicles that can be registered in that city?
 (a) 260,000 (b) 259,999 (c) 100,000 (d) 99999
- 11) If seven tenths of a school's drama troupe are girls. What is the ratio of boys to girls in the troupe?
 (a) 7/10 (b) 10/7 (c) 7/3 (d) 3/7
- 12) In Electronics VLSI stands for:
 (a) Virtual language simulated instructions (b) Very large scale integrated
 (c) Very long simulated instructions (d) Virtual low scale instructions
- 13) The building blocks of computer chips are:
 (a) Memory (b) Registers (c) Transistors (d) Silicon

- 14) According to Physics, a ball made of _____ will be the most elastic:
(a) Wood (b) Rubber (c) Leather (d) steel
- 15) Which is the most obvious of Newton's Laws applied in rockets?
(a) Newton's First Law (b) Newton's Second Law
(c) Newton's Third Law (d) Newton's Fourth Law
- 16) If salt is added when meat is boiled in water:
(a) Meat will cook faster (b) Meat will cook slower
(c) There will be no effect (d) Meat will taste nice
- 17) The phenomenon employed in fiber optic communication is:
(a) Total internal reflection (b) total internal refraction
(c) light in glass (d) light through glass
- 18) A kilo byte contains:
(a) 1000 bits (b) 8000 bits (c) 1024 bits (d) 8192 bits
- 19) In strongly typed programming languages the following is true:
(a) functions return a value (b) functions don't return values
(c) procedures return a value (d) variables have to be declared before use
- 20) An enumerated data type is:
(a) User defined (b) system defined (c) not applicable (d) programmer defined
- 21) _____ is not an example of system software:
(a) Windows XP (b) Unix (c) compilers (d) RCSC's Zhiyog System
- 22) The number ABC is a example of a _____ number:
(a) Binary (b) Octa (c) Hexa (d) Decimal
- 23) The dimension of Nanotechnology is:
(a) 10^9m (b) 10^9cm (c) 10^{-9}m (d) 10^{-9}cm
- 24) In database design reducing/removing redundancies is an example of:
(a) denormalization (b) normalization
(c) naturalization (d) denaturalisation
- 25) A stack is a:
(a) First in first out queue (b) first in last out queue
(c) last in last out queue (d) none of the above
- 26) A global variable's scope is:
(a) whole function (b) whole procedure
(c) whole program (d) none of the above
- 27) A division by Zero in a program could lead to:
(a) Syntax error (b) semantic error (c) language error (d) exception error

- 28) Which about JAVA language is not true:
 (a) High level language (b) object oriented language
 (c) Machine independence (d) procedural language
- 29) Ajax is a:
 (a) Web technology (b) processor (c) new OS (d) none of the above
- 30) A secure way of transferring data in web is:
 (a) http (b) ftp (c) https (d) none of the above
- 31) Linux is an example of:
 (a) Proprietary software (b) open source software
 (c) application software (d) none of the above
- 32) The value of binary number 1111 is:
 (a) 11 (b) 12 (c) 14 (d) 15
- 33) The value of Hexa number 2E is:
 (a) 32 (b) 30 (c) 46 (d) 48
- 34) In IP V4 there are _____ IP addresses in total:
 (a) 2^{128} (b) $2^{128}-1$ (c) 2^{32} (d) 2^{68}
- 35) In IP V6 there are _____ IP addresses in total:
 (a) 2^{128} (b) $2^{128}-1$ (c) 2^{32} (d) 2^{68}
- 36) The number **00-18-8B-C4-87-88** is an example of:
 (a) IP address (b) Mac Address (c) host name (d) network name
- 37) A router is an example of OSI layer _____ equipment.
 (a) 2 (b) 4 (c) 5 (d) none of the above
- 38) The terms "push" and "pop" are related to:
 (a) queues (b) stacks (c) all lists (d) arrays
- 39) When you send a same message "speak" to a cat object, a dog object and a cow object, and if each one responds appropriately such that the cat purrs, the dog barks and the cow moos, what is this an example of in OOP?
 (a) object (b) inheritance (c) encapsulation (d) polymorphism
- 40) A computer program compiles successfully but doesn't produce the expected output. This is a case of:
 (a) Semantic error (b) syntax error (c) exception error (d) general bug
- 41) The mobile communications standard used in Bhutan is:
 (a) CDMA (b) GSM (c) TDMS (d) CDMS
- 42) XML stands for:
 (a) Extended machine Language (b) Extended Markup Language

- (b) Extensible Markup language (d) none of the above
- 43) The most expensive stage to rectify a computer system under development is after it has reached the _____ stage:
 (a) Design (b) coding (c) testing (d) analysis
- 44) Satellite Internet connection is not technically appropriate for call centre business because:
 (a) it is very expensive (b) it has low bandwidth
 (c) some places may not have it (d) it has inherent delay
- 45) The definition of internet broadband used in Bhutan is:
 (a) bandwidth ≥ 512 kbps (b) bandwidth ≥ 256 kbps
 (c) bandwidth ≤ 128 kbps (d) bandwidth ≥ 64 kbps
- 46) VoIP stands for:
 (a) Voice over Internet Protocol (b) Virtually Over-layered Internet Presence
 (c) Voice over Intranet Protocol (d) none of the above
- 47) Microsoft recently released its latest Operating System called:
 (a) Vista 1 (b) Vista 2 (c) Windows 5 (d) Windows 7
- 48) The first file that is displayed when visiting a website is the:
 (a) Index file (b) home page (c) first file (d) php file
- 49) LAMP is a combination of technology used for:
 (a) Object Oriented Programming (b) Coding Operating System
 (c) Web programming (d) Linux troubleshooting
- 50) Apache is:
 (a) An OS (b) Desktop (c) Web server (d) Linux clone
- 51) _____ has the maximum bandwidth capacity.
 (a) UTP cable (b) coaxial cable (c) fiber optic cable (d) wimax
- 52) Facebook is:
 (a) Name of Google's website (b) Microsoft's mirror site
 (c) A free downloads site (d) a social networking site
- 53) The study based on the human nervous system is:
 (a) Robotics (b) The Bionic Eye
 (c) Neural Networks (d) Immunology based Antivirus
- 54) The "Ping" command is used to:
 (a) Test for basic connectivity (b) retrieve IP address
 (c) Trace connectivity route (d) get host name
- 55) If I can access the RCSC's website using IP address, but not its URL, then there is something wrong with:
 (a) The DHCP (b) DNS (c) Domain Controller (d) the website

- 56) The term URL stands for:
 (a) Universal resource locator (b) uniform resource locator
 (c) Unified resource locator (d) none of the above
- 57) _____ is a secured way of communication over the unsecure internet.
 (a) VPN (b) VLAN (c) VoIP (d) NTP
- 58) NIC card is another name for:
 (a) Network card (b) memory card (c) graphics card (d) data card
- 59) DMZ is part of the network where you host:
 (a) Services internal to the organizations (b) Services external to the organization
 (c) Services for both internal and outside (d) DHCP services
- 60) Which about UDP is true?
 (a) Layer 3 protocol (b) same as TCP
 (c) connectionless (d) connection oriented
- 61) A _____ separates a LAN into different collision domains.
 (a) hub (b) switch (c) router (d) firewall
- 62) A _____ separates a network into different broadcast domains.
 (a) hub (b) switch (c) router (d) firewall
- 63) The IP address 172.16.0.0 is an example of:
 (a) Broadcast address (b) network address
 (c) Multicast address (d) subnet mask
- 64) IP address 202.144.155.7 is an example of Class _____ IP address:
 (a) A (b) B (c) C (d) D
- 65) In a Class C IP address, 2 bits are used for subnets. The total number of hosts is:
 (a) 64 (b) 128 (c) 256 (d) 62
- 66) A type of malware that looks for private or sensitive information, tracking what the user does with the computer, and passing the information back to the attacker is called a:
 (a) worm (b) spyware (c) keystroke logger (d) Phisher
- 67) In the given sequence, -1, 2, 1, 3, 4, _____, the number most appropriate in the blank is:
 (a) 12 (b) 7 (c) 18 (d) 21
- 68) In the number arrangement below, the value in the _____ should be:
 (a) 7 (b) 9 (c) 1 (d) 2
- | | | |
|---|---|---|
| 1 | 4 | 3 |
| 5 | 9 | 4 |
| 4 | 5 | — |
- 69) In the sequence, 4, 54, 654, _____, the number in the _____ should be:

(a) 543

(b) 6543

(c) 7654

(d) 456

70) Deki needs 17 bottles of water from the store. She can carry only 3 bottles at a time. How many trips will she have to make?

(a) 5

(b) 5.5

(c) 6

(d) 7

PART II

- 1) Write a Pseudo code to find the n^{th} power of a number x , (x^n), where the power operator is not available. All other operators are available.
- 2) List the seven layers of the OSI model. Explain the function of layer 3.
- 3) What is open source software? Briefly mention two benefits it has for a country like Bhutan.
- 4) What is outsourcing? What potential does it have for Bhutan?
- 5) What three parameters are the most important in project management? State the tradeoffs that exist between the three?
- 6) Some people say that consuming hot beverage such as tea during hot days helps cool the body. Is it scientifically true or false? Explain your answer.
- 7) What is denial of service or DOS attack?
- 8) In an ISP, a particular link that provides services to its customers has 3 parallel routers, so that the link fails only if all the three routers go down at the same time. If the failure rate of each router is 0.1%. What is the reliability of that particular link?
- 9) What is normalization in database design? State one reason why a designer would choose not to normalize the relations.
- 10) Explain the differences between TCP and UDP. Name an application suitable for each protocol.