



# PURBANCHAL UNIVERSITY

Birantagar, Nepal

## FACULTY OF SCIENCE & TECHNOLOGY

ENTRANCE EXAMINATION – 2073

BCA/ BIT

Time : 2:00 hrs

Total Marks: 100

Choose the correct answer and DARKEN the circle on the attached **ANSWER SHEET**. Answer all questions. All questions carry equal marks.

### ENGLISH

25×1 = 25 Marks

1. She absented ..... from the meeting yesterday.  
(a) her (b) herself (c) him (d) himself
2. I let him ..... the work for me.  
(a) to do (b) do (c) doing (d) be doing
3. The Merchant of Venice ..... good reading.  
(a) make (b) making (c) makes (d) is making
4. Lots of advice ..... given to me yesterday.  
(a) was (b) were (c) have (d) has
5. I ..... to bed after I had taken dinner.  
(a) had gone (b) went (c) go (d) had been
6. The message was sent globally. It means .....  
(a) whole (b) circled (c) completely (d) around
7. His attitude is very hostile. It means .....  
(a) arrogant (b) humble (c) haughty (d) hateful
8. I wished that I ..... earlier.  
(a) had come (b) could have come (c) could (d) hadn't come
9. Glossy means .....  
(a) hard (b) smooth (c) coarse (d) filmy
10. Enigma means .....  
(a) clear (b) obstinate (c) baffled (d) calm
11. They paid an eagle's look. What do the words underlined mean?  
(a) close look (b) sharp look (c) rough look (d) cruel look
12. Occurring after death is .....  
(a) premature (b) mortality (c) posthumous (d) indefinite
13. Physical examination of a dead body is .....  
(a) autopsy (b) morgue (c) mortality (d) postmortem
14. Existing at the same time is .....  
(a) contemporary (b) colleague (c) peer (d) co-existence
15. One who does unpaid work is .....  
(a) honorary (b) voluntary (c) unpaid (d) sinecure
16. The old lady died ..... cholera.  
(a) by (b) of (c) from (d) due to
17. In which year was America discovered?  
(a) 1496 (b) 1444 (c) 1498 (d) 1492
18. There are ..... kinds of gender in English grammar.  
(a) Two (b) three (c) four (d) five
19. Krishna is a school boy. Here in the sentence noun 'school' is used as:  
(a) An adverb (b) adjective (c) pronoun (d) verb
20. Ceylon is ..... island.  
(a) an (b) a (c) the (d) on
21. The clerk applied for medical leave. But he had the greatest ...when he met his boss at the cinema.  
(a) Embarrassment (b) indisposed (c) feasible (d) impunity

22. Oncologist is a doctor of:  
 (a) Eye & neck (b) old people (c) cancer (d) stomach
23. All efforts of the doctors were in .....as the patient succumbed to death.  
 (a) Vain (b) dedicated (c) advance (d) devotion
24. For which of the functions is 'should' used in 'where would we go for lunch'?  
 (a) Probability (b) advice (c) possibility (d) duty
25. Kevin together with his friends ..... ready to go picnic.  
 (a) was (b) were (c) should (d) could

**MATHEMATICS**

**25×1 = 25 Marks**

26. What is the slope of a line joining the points (1, 3) and (2, -1)?  
 (a) 4 (b)  $\frac{1}{4}$  (c) -4 (d)  $-\frac{1}{4}$
27. What is the distance of the line  $3x+y+1 = 0$  from the origin?  
 (a) 10 units (b)  $\sqrt{10}$  units (c) 5 units (d)  $1/\sqrt{10}$  units
28. What is the modulus of complex number  $(1+\sqrt{2})-i$ ?  
 (a)  $2+\sqrt{2}$  (b)  $\sqrt{2(2+\sqrt{2})}$  (c)  $\sqrt{(2+\sqrt{2})}$  (d)  $4-2\sqrt{2}$
29. What is the complex number represented by the polar form  $2(\cos 150^\circ + i \sin 150^\circ)$ ?  
 (a)  $\sqrt{3}-i$  (b)  $-\sqrt{3}-i$  (c)  $\sqrt{3}+i$  (d)  $-\sqrt{3}+i$
30. What is the remainder if  $(x^2-5x+8)$  is divided by  $x-2$ ?  
 (a) 0 (b) 1 (c) 2 (d) 3
31. What is a value of K for which the line  $2x-y+4k = 0$  touches the circle  $x^2+y^2-2x-2y-3 = 0$ ?  
 (a) 4 (b) 3 (c) 2 (d) 1
32. What is the value of  $\lim_{x \rightarrow 1} \frac{\log x}{x-1}$ ?  
 (a) 0 (b) 1 (c) 0/0 (d) Does not exist
33. If  $f(x) = \frac{x^2-4}{x-2}$  for  $x \neq 2$  and  $f(x) = K$  for  $x = 2$  is continuous at  $x = 2$ ; what is value of K?  
 (a) 2 (b) -2 (c) 4 (d) -4
34. If  $y = e^{2 \ln x}$ ; then  $dy/dx = ?$   
 (a)  $2x$  (b)  $e^{2 \ln x}$  (c)  $2/x$  (d)  $2e^{2 \ln x}$
35. In which interval the function  $f(x) = 2x^3 - 15x^2 + 36x + 1$  is decreasing?  
 (a)  $(-\infty, 2)$  (b) (2, 3) (c) (3,  $\infty$ ) (d)  $(-\infty, \infty)$
36. If the area of triangle formed by the points  $z, z + iz$  and  $iz$  on the complex number is 18, then the value of  $|z|$  is  
 (a) 3 (b)  $4\sqrt{2}$  (c) 9 (d) 6
37. If the sum of the roots of the equation  $x^2+px+q=0$  is equal to sum of their squares then  
 (a)  $p^2+p=2q$  (b)  $p^2+2p=q$  (c)  $p^2-2q=2p$  (d)  $p^2+q^2=1$
38. If one root of the equation  $x^2-ax+1=0$  is  $a$ , then the other root is:  
 (a)  $1/a$  (b)  $-1/a$  (c)  $1-a$  (d)  $1+a$
39. Sum of 1st n terms of the series  $2^2+4^2+6^2+ \dots + n$  term is  
 (a)  $n^2(n+3)/4$  (b)  $n^2(n-1)/3$  (c)  $2n(n+2)/6$  (d)  $\{2n(n+1)(2n+1)\}/3$
40. The value of  $\sum_{n=1}^{10} (-1)^n$  is equal to:  
 (a) 1 (b) 0 (c) -1 (d) 2
41. If  $x, y, z$  are in G.P; then  $\ln x, \ln y, \ln z$  are in .....  
 (a) A.P (b) H.P (c) G.P (d) Not in any progression
42. In which interval the function  $f(x) = x^2 - 3x$  increasing?  
 (a) (2, 3) (b)  $(2/3, \infty)$  (c)  $(3/2, \infty)$  (d) None of these
43. If discriminant of a quadratic equation is zero then the roots are:  
 (a) real and equal (b) real and unequal (c) Imaginary and unequal (d) may be real or imaginary
44. If  $A = \begin{pmatrix} 3 & -1 \\ -5 & 2 \end{pmatrix}$ ; then  $A^{-1} = ?$   
 (a)  $\begin{pmatrix} 3 & 1 \\ 5 & 2 \end{pmatrix}$  (b)  $\begin{pmatrix} 2 & -1 \\ -5 & 3 \end{pmatrix}$  (c)  $\begin{pmatrix} 3 & -5 \\ -1 & 2 \end{pmatrix}$  (d)  $\begin{pmatrix} 2 & 1 \\ 5 & 3 \end{pmatrix}$



45. A matrix  $A = (a_{ij})$  is called symmetric matrix if,  
 (a)  $a_{ij} \neq a_{ji}$  (b)  $a_{ij} = -a_{ji}$  (c)  $a_{ij} = a_{ji}$  (d)  $a_{ij} > a_{ji}$
46. If  $\tan^{-1} x + \tan^{-1} y = \tan^{-1} p$ ; then  $p = ?$   
 (a)  $\frac{x-y}{1+xy}$  (b)  $\frac{x+y}{1-xy}$  (c)  $\frac{x-y}{1-xy}$  (d)  $\frac{1-xy}{x+y}$
47. The graph of  $f(x) = x^2 - 4x + 3$  is .....  
 (a) Concave upwards (b) Concave downwards (c) Straight line (d) Circle
48. When  $x \rightarrow \infty$ , the function  $f(x) = 1/2^x$  tends to;  
 (a) zero (b)  $-\infty$  (c)  $\infty$  (d) 1
49. If A and B are subsets of U with  $n(U) = 360$   
 $n(A) = 240$  and  $n(B) = 160$ , what is the maximum value of  $n(A \cap B)$ ?  
 (a) 240 (b) 160 (c) 360 (d) 120
50. What is the sum of infinite series  $5 + 5/2 + 5/4 + 5/8 + \dots$ ?  
 (a) 5 (b) 10 (c) 15 (d) 20

### BASIC COMPUTER

25×1 = 25 Marks

51. IBM 1401 computer was  
 (a) Mainframe Computer (b) Mini Computers (c) Micro Computers (d) None
52. ASCII stands for  
 (a) American Scientific Code for International Interchange  
 (b) American Standard Code for Intelligence Interchange  
 (c) American Scientific Code for Information Interchange  
 (d) American Standard Code for Information Interchange
53. Which of the following is a storage device?  
 (a) Tape (b) Hard Disk (c) Floppy Disk (d) All of these
54. Signals can be analog or digital and a computer that processes the both type of signals is known as  
 (a) Analog computer (b) Digital Computer (c) Hybrid Computer (d) Mainframe Computer
55. The word length of a computer is measured in  
 (a) Bytes (b) Millimeters (c) Meters (d) Bits
56. Type of backup storage in which data is read in a sequence is classified as  
 (a) storage access (b) permanent access (c) direct access (d) serial access
57. 'megabytes' of computer storage capacity consists of  
 (a) one million (b) two million (c) three million (d) four million
58. Method of representing numbers such as 0s and 1s is called  
 (a) variable notation (b) primary notation (c) secondary notation (d) binary notation
59. Binary string which is formed by replacing 0s by 1s and 1s by 0s is referred as  
 (a) ones complement (b) twos complements (c) ones string (d) twos string
60. Total number of bytes in '4K' bytes are  
 (a) 4096 bytes (b) 4078 bytes (c) 4032 bytes (d) 4058 bytes
61. What is the intersection of a column and a row on a worksheet called?  
 (a) Column (b) Value (c) Address (d) Cell
62. This type of software is designed for users who want to customize the programs they use.  
 (a) freeware (b) open-source software (c) shareware (d) None of these
63. A group of 8 bits is known as a  
 (a) byte (b) kilobyte (c) binary digit (d) None of these
64. A program that runs in parts on several computers is said to be  
 (a) delegated (b) spread (c) distributed (d) real time
65. A..... is a collection of data that is stored electronically as a series of records in a table.  
 (a) spreadsheet (b) presentation (c) database (d) MS-Word

66. Where does a computer add and compare its data?  
 (a) CPU (b) Memory (c) Hard disk (d) Floppy disk
67. Computers on an internet are identified by  
 (a) e-mail address (b) street address (c) IP address (d) None of these
68. Which one of the following is not an Internet Service Provider (ISP)?  
 (a) NTC (b) NCELL (c) F1 Soft (d) Otel
69. The hexadecimal number system consists of the symbols  
 (a) 0—7 (b) 0—9, A—F (c) 0—7, A—F (d) None of these
70. The set of computer programs that manage the hardware/software of a computer is called  
 (a) Compiler system (b) Operation system (c) Operating system (d) None of these
71. Which of the following is the extension of graphics files?  
 (a) .BMP (b) .TXT (c) .DOC (d) .EXE
72. Which of the following languages is more suited to a structured program?  
 (a) PL/1 (b) FORTRAN (c) BASIC (d) PASCAL
73. A computer assisted method for the recording and analyzing of existing or hypothetical systems is  
 (a) Data transmission (b) Data flow (c) Data capture (d) Data processing
74. The brain of any computer system is  
 (a) ALU (b) Memory (c) CPU (d) Control unit
75. What difference does the 5th generation computer have from other generation computers?  
 (a) Technological advancement (b) Scientific code  
 (c) Object Oriented Programming (d) All of these

#### APTITUDE TEST

25×1 = 25 Marks

76. If a mother is 40 years older than her 11 years old son, then after how many years will mother be triple of her son?  
 (a) 6 (b) 7 (c) 8 (d) 9
77. If  $0.45:x :: 9:5$ , then x is equal to \_\_\_\_?  
 (a) 0.25 (b) 0.3 (c) 0.75 (d) 0.15
78. What is the binary equivalent of  $(139)_{10}$ ?  
 (a) 11010001 (b) 10001011 (c) 1001011 (d) 1101001
79. The cost of 7 kg rice and 5 kg wheat is Rs. 485. If the cost of 10 kg wheat is Rs. 400, then what is the cost of 3 kg wheat?  
 (a) Rs. 115 (b) Rs 120 (c) Rs. 123 (d) Rs. 145
80. What is the missing term in the sequence: SJT, RLQ, QNN, \_\_\_\_, ORH ?  
 (a) POL (b) POK (c) PPK (d) PPI
81. Which one of the following is not a prime number?  
 (a) 97 (b) 151 (c) 117 (d) 71
82. A person buys a shirt with marked price Rs.300 at 20% discount. In order to make a profit of 20%, the person should sell the shirt for \_\_\_\_?  
 (a) Rs. 288 (b) Rs. 300 (c) Rs. 240 (d) Rs. 360
83. Which of the following are in descending order of their value?  
 (a)  $1/3, 2/5, 3/7, 4/5, 5/6, 6/7$  (b)  $3/4, 2/5, 3/5, 4/7, 5/6, 6/7$   
 (c)  $5/6, 2/5, 3/5, 2/3, 5/7, 6/7$  (d)  $6/7, 5/6, 4/5, 3/7, 2/5, 1/3$
84. What is the decimal equivalent of  $(11010011)_2$ ?  
 (a) 422 (b) 211 (c) 322 (d) 311
85. Which is the first national newspaper of Nepal?  
 (a) Kantipur (b) Gorkhapatra (c) Nepalbhumi (d) Rastriya Dainik

86. A person crosses a 700m long street in 12 minutes. What is his speed in km per hour?  
 (a) 3.5 (b) 4.5 (c) 4.25 (d) 3.75
87. The sum of three numbers is 52. If the ratio of the first to second is 4:5 and that of the second to third is 5:4, then what is the sum of first and third numbers?  
 (a) 34 (b) 42 (c) 32 (d) 27
88. What is the normal temperature of human body?  
 (a) 94.8°F (b) 98.4°F (c) 97.4°F (d) 98.6°F
89. Which of the following countries is not a member of SAARC countries?  
 (a) Maldives (b) China (c) Bhutan (d) Afghanistan
90. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?  
 (a) 10/21 (b) 11/21 (c) 8/15 (d) 5/9
91. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?  
 (a)  $\frac{1}{2}$  (b)  $\frac{2}{5}$  (c)  $\frac{8}{15}$  (d)  $\frac{9}{20}$
92. What is the probability of getting a sum 9 from two throws of a dice?  
 (a)  $\frac{1}{6}$  (b)  $\frac{1}{8}$  (c)  $\frac{1}{9}$  (d)  $\frac{1}{12}$
93. Three unbiased coins are tossed. What is the probability of getting at most two heads?  
 (a)  $\frac{3}{4}$  (b)  $\frac{1}{4}$  (c)  $\frac{7}{8}$  (d)  $\frac{3}{8}$
94. Odometer is to mileage as compass is to \_\_\_\_\_?  
 (a) speed (b) depth (c) weight (d) direction
95. If  $2994 \div 14.5 = 172$ , then  $29.94 \div 1.45 = ?$   
 (a) 0.172 (b) 1.72 (c) 17.2 (d) 172
96. 42 students were boys out of 60 in a classroom. What percent of students were girls?  
 (a) 22% (b) 30% (c) 25% (d) 16%
97. Hari purchased 7 dozen pencils in Rs. 504. How many copies can he buy in Rs. 300?  
 (a) 40 (b) 45 (c) 42 (d) 50
98. A number divided by 9 gives 54 after adding 39. What is that number?  
 (a) 144 (b) 125 (c) 135 (d) 150
99. If  $x+y = 24$  and  $x-y = 16$ , then what is the value of  $xy$ ?  
 (a) 36 (b) 55 (c) 60 (d) 80
100. Determine the next number in the series: 40, 15, 25, 5, 25, 10, 40, 30, \_\_\_\_.  
 (a) 70 (b) 50 (c) 55 (d) 30

