

Exam Roll Number:

Tribhuvan University
Institute of Science and Technology
Four Years Bachelor of Information Technology (BIT)
Entrance Examination

Model Question

Full Marks: 100
Time: 2.00 hrs.

Attempt all question:

Mathematics

(40×1 = 40)

1. The number which is not rational is
(a) 1 (b) π (c) $22/7$ (d) -1
2. If A and B are the nonempty sets and $A \subset B \subset U$ then $A \cup B =$
(a) B (b) A (c) U (d) $A + B$
3. If $|x - 1| = 5$ then $x =$
(a) $\{-6, 4\}$ (b) $[6, -4]$ (c) $\{6, -4\}$ (d) $\{-6, -4\}$.
4. If $\log_3 x = 2$ then $x =$
(a) 2^x (b) 2 (c) 9 (d) 8
5. If $f(x) = 2x + 5$ for $x \in \mathbb{R}$, then $f^{-1}(x) =$
(a) $\frac{1}{2x-5}$ (b) $\frac{1}{f(x)+5}$ (c) $\frac{5}{y-2x}$ (d) $(x-5)/2$
6. If $\sin^{-1}x = \cos^{-1}x$ then $x =$
(a) $-\sqrt{2}$ (b) $-1/\sqrt{2}$ (c) $1/\sqrt{2}$ (d) $\sqrt{2}$
7. The solution of $\cos x = 1/2$ is
(a) $2n\pi \pm \pi/3$ (b) $n\pi \pm \pi/3$ (c) $2n\pi \pm \pi/2$ (d) $n\pi - \pi/3$
8. If p, q, r are in A.P. then
(a) $q = p + r$ (b) $p + r = 2q$ (c) $pr = q^2$ (d) $p + q + r = 0$
9. The fifth term of the sequence: 6, 12, 24, 48, ... is
(a) 56 (b) 70 (c) 192 (d) 96
10. If $A = [a_{ij}]$, where $a_{ij} = i + 2j$, then 2×2 matrix A is
(a) $\begin{bmatrix} 3 & 6 \\ 5 & 4 \end{bmatrix}$ (b) $\begin{bmatrix} 3 & 5 \\ 4 & 6 \end{bmatrix}$ (c) $\begin{bmatrix} 3 & 6 \\ 3 & 5 \end{bmatrix}$ (d) $\begin{bmatrix} 3 & 4 \\ 6 & 5 \end{bmatrix}$
11. The value of x for the determinant $\begin{vmatrix} x+5 & 3 \\ 0 & 1 \end{vmatrix} = 0$ is
(a) 0 (b) 5 (c) -5 (d) 3
12. The system of equations: $x + y = 5$, $x + y = 7$ has
(a) one solution (b) two solutions (c) many solutions (d) no solution.
13. If ω is the cube root of unity of a complex number then $\omega(1 + \omega)(1 + \omega^2) =$
(a) ω (b) -2 (c) -1 (d) ω
14. A quadratic equation whose roots are 2, 3 is
(a) $x^2 - 5x + 6 = 0$ (b) $x^2 + 5x + 6 = 0$ (c) $x^2 + 5x - 6 = 0$
(d) $x^2 - 5x - 6 = 0$
15. If one root of $ax^2 + bx + c = 0$ is $2 + 3i$ then the other root is
(a) $4 + 6i$ (b) $2 - 3i$ (c) $2i - 3$ (d) $2i + 3$
16. Distance between the lines $2x + 2y = 5$ and $x + y = 10$ is
(a) $15/2$ (b) $15/(2\sqrt{2})$ (c) $-15/(2\sqrt{2})$ (d) $(2\sqrt{2})$
17. The straight lines represented by $x^2 + 2xy + ky^2 = 0$ are perpendicular to each other if k =
(a) -1 (b) 1 (c) 0 (d) 2
18. $\lim_{x \rightarrow 3} \frac{x^5 - 3^5}{x - 3} =$
(a) 0 (b) 504 (c) 405 (d) 81
19. $\lim_{x \rightarrow 0} \frac{x}{\tan x} =$
(a) undefined (b) 0 (c) 1 (d) 0/0

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20. The function

$$f(x) = \begin{cases} \frac{x^2 - 5x}{x - 5} & x \neq 5 \\ p & x = 5 \end{cases}$$

is continuous at $x = 5$, for $p =$

- (a) 0 (b) 5 (c) -5 (d) 1

21. If $y = \sin(ax^2 + b)$ then $dy/dx =$

- (a) $\cos(ax^2 + b)$ (b) $-\cos(ax^2 + b)$
(c) $-2ax\cos(ax^2 + b)$ (d) $2ax\cos(ax^2 + b)$

22. If $x^2 + y^2 = 25$ then $dy/dx =$

- (a) $\frac{dy}{dx} = -\frac{x}{y}$ (b) $\frac{dy}{dx} = \frac{y}{x}$ (c) $\frac{dy}{dx} = \frac{x}{y}$ (d) $\frac{dy}{dx} = -\frac{y}{x}$

23. $\int (3\sqrt{x} + \sin x + 3e^{3x})dx =$

- (a) $2x^{3/2} - \cos x + e^{3x}$ (b) $x^{3/2} + \cos x + e^{3x}$
(c) $x^{3/2} + \cos x + e^{3x}$ (d) $x^{3/2} - \cos x + e^{3x}$

24. $\int_0^1 2xe^{x^2+1}dx =$

- (a) e^3 (b) $e^2 - e$ (c) $e^4 - 1$ (d) 1

25. Area bounded by the x axis and the curve $y = 3x^2$ and the lines $x = 0$ and $x = 2$ is

- (a) 8 (b) -8 (c) 3 (d) 0

26. If the marginal revenue function is $3 - 2x - x^2$, for the output x , then the total revenue function is

- (a) $x - x^2 - x^3/3$ (b) $3x - x^2 - x^3/3$
(c) $x - x^2 + x^3/3$ (d) $x - x^2 - x^3/3$

27. The critical point for $f(x) = x^3 - 6x^2 + 9x - 2$ are

- (a) 1, -3 (b) -1, 3 (c) 1, 3 (d) -1, -3

28. The letter of the word 'union' can be arranged in the number of ways:

- (a) 60 (b) 120 (c) 5 (d) 4

29. If ${}^{18}C_r = {}^{18}C_{r+2}$ then $r =$

- (a) 18 (b) 9 (c) 8 (d) 16

30. If the revenue function $R = x - 3x^2$ and cost function $C = x^2 - x$, then the maximum profit is at $x =$

- (a) 1/4 (b) 4 (c) 2 (d) 3

31. The probability that a card drawn from a pack of 52 cards will be a diamond or a king is

- (a) 1/52 (b) 1/13 (c) 2/13 (d) 4/13

32. The median of the distribution: 5, 3, 2, 4, 10, 7, 12 is

- (a) 4 (b) 6 (c) 7 (d) 5

33. The ratio of the prices of the first and second items is 3:5. If the price of the second item is Rs 125, then the price of the first item is

- (a) 375 (b) 75 (c) 625 (d) 15

34. If a profit of 10 percent is made by selling an article for Rs 1320, then the cost price in Rupees

- (a) 1200 (b) 1100 (c) 1250 (d) 1150

35. In an examination 25 percent of the examinee have been failed and 240 are passed, then the total number of examinees are

- (a) 300 (b) 320 (c) 265 (d) 350

36. A, B and C are in partnership. Towards capitals A contributed Rs 3600 and B Rs 3000. The profit amounted is Rs 3800 out of which C receives Rs 1600. The capital of C is Rs

- (a) 4800 (b) 4000 (c) 3000 (d) 2000

37. If 1 US dollar = Rs 110 then Rs 5000 will get US dollar

- (a) 46.5 (b) 44.5 (c) 45.45 (d) 50

38. If P , r , A are the principal, amount and rate of interest per annum respectively, then after n years the amount A will be

- (a) $P(1 + r/100)^n$ (b) $P(1 - r/100)^n$
(c) $(P + r100)^n$ (d) $P(r + 1/100)^n$

39. The amount of annuity due of Rs 25 a year for 5 yrs at 4 percent per year is

- (a) 140.0 (b) 140.4 (c) 125.0 (d) 150

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40. If $x + iy = (2 + i3)^2$ then $(x, y) =$
(a) $(5, -12)$ (b) $(-5, -12)$ (c) $(5, 12)$ (d) $(-5, 12)$

English (40×1=40)

41. Could youthese papers .
(a) clear out (b) clear away (c)clear up (d) clear off
42. I am going toa house that I 'm thinking of buying.
(a) look on (b) look through (c) look over (d) look into
43. You can not ride or drive safely before he has been
(a) break down (b)break out (c)break off (d) break in
44. we had todried milk as fresh milk wasn't available.
(a) fall back on (b) fall back (c) fall in (d) fall off
45. He is a pleasant friendly man whowell with nearly everybody.
(a) get over (b) get round (c) get off (d) get on
46. A scientific method of photostating is
(a) Zeroxography (b) photography (c) orthography (d) lithography
47. Morbid fear of everything in general is
(a) pathophobia (b) panophobia (c) podophobia (d) xenophobia
48. Lover of trees is called
(a) podophile (b) hippophile (c) dendrophile (d) paedophile
49. Hater of knowledge
(a) pacifist (b) iconoclast (c) misogynist (d) misologist
50. Choose the right synonym of the word "magniloquent"
(a) boastful (b) sentimental (c) mournful (d) venal
51. Choose the right synonym of "pellucid"
(a) dark (b) transparent (c) dim light (d) vague
52. Give right synonym of "overwhelm"
(a) over joy (b) over lap (c) overpower (d) over stretch

53. The antonym of "alienate" is.....
(a) social (b) alleviate (c)transfer (d) reconcile
54. Choose the right antonym of "wanton"
(a) restrained (b) reckless (c) unruly (d) vagabond
55. One who plays for pleasure is.....
(a) fanatic (b) amateur (c) egoist (d) feminist
56. Fill in the words in right order:
The..... of these roses is sweet. The...of burning rubber is unbearable.
(a)scent, perfume (b)perfume, scent (c) smell, stink (d) stink, smell
57. One who abandons his/ her religious faith:
(a) heuristic (b) fanatic (c) agnostic (d) apostate
58. What do you understand by the expression "the philosopher's stone" ?
(a) an imaginary substance that people believed could change any metal into gold,or enable people to live for ever;
(b) scholar's step wise argument
(c) ground for discussion
(d) philosopher related land
59. A person who is hard to please is
(a) taciturn (b) fastidious (c) stubborn (d) hedonist
60. John is born..... highly educated parents.
(a) of (b) by (c) for (d) from
61. We can travelcar or walkfeet or go.....horseback.
(a)by, on ,on (b) for, by, on (c) on, by,on (d)on,on,on
62. Lucky was fined... parking his vehiclea no parking area.
(a) in ,for (b) for, in (c) at ,for (d) for, with
63. Nobody knew the way.....except John.
(a) besides (b) but (c) except (d) beside
64. He would think ithim to tell a lie.
(a) above (b) below (c) under (d) beneath
65.doing the cooking, I help hostel boys.
(a) besides (b) beside (c) behind (d) opposite

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66. Peter hardly ever goes to parties,.....?
(a) doesn't he? (b) does he ? (c) did he? (d) didn't he?
67. Ann'll lend it to you , Oh no,.....
(a) she'll. (b) she can't. (c) she won't. (d) she did.
68. Everyone warned you,.....
(a) have they? (b) haven't they? (c) didn't they ? (d) did they?
69. They are ugly and expensive;.....people buy them.
(a) but (b) however (c) still (d) yet
70. He had no qualification;...he got the job.
(a) however (b) in spite of (c) though (d) nevertheless
71. Students **come to a bad end** if they do not mend their ways in time.It means:
(a) they may become criminal, go to jail and suffer disgrace;
(b) will die soon (c) marry and settle
(d) fight with their parents and relatives
72. What does "be neck and neck" stand for ?
(a) equally good in competition (b) be good friends
(c) great enmity (d) ready for competition
73. As a beginner in the Spanish class I could not **stand the pace**.
(a) could not learn (b) maintain the level
(c) very weak (d) not fit for the class
74. He is the friend.....I trust most in family matters.
(a) who (b) whom (c) which (d) him
75. Public oftenpeople who are good at sport.
(a) attract (b) appeal (c) admire (d) support
76. Choose the word with correct spelling :
(a) forein (b) foraign (c) foreign (d) foreigne
77. In the word "transcendental" which syllable has the primary stress:
(a) 1st syllable (b) 2nd syllable (c) 3rd syllable (d) 4th syllable
78. I was invited to dinner given to welcome the new ambassador.
(a) a (b) the (c) an (d) none
79. He goes totemple sometimes to give lectures.
(a) a (b) the (c) an (d) none
80. He has worked for us ever ...he left school.
(a) from (b) during (c) for (d) since

General Knowledge (G.K.) & IT Related (20×1=20)

81. Analog computer works on the supply of
(a) physical strength. (b) natural strength.
(c) magnetic strength. (d) continuous electrical pulses.
82. We can make use of the wild card entries such as in Windows Explorer.
(a) #,@ (b) ^,* (c) ?,* (d) ?,#
83. Which of the following is the second largest measurement of RAM?
(a) Megabyte (b) Gigabyte (c) Byte (d) Terabyte
84. Cache memory acts between
(a) CPU and Hard disk. (b) RAM and ROM.
(c) CPU and RAM . (d) All of these .
85. Which of the following is billionth of a second?
(a) Microsecond (b) Nanosecond
(c) Terabyte (d) Gigabyte
86. The Binary Coded Decimal (BCD) uses
(a) 6 bits (b) 8 bits (c) 16 bits (d) 32 bits
87. RAM is also called as
(a) Virtual memory . (b) Volatile memory .
(c) Non volatile memory. (d) Cache memory.
88. CPU stands for
(a) Central Planning Unit. (b) Computer Planning Union.
(c) Computer Processing Unit. (d) Central Processing Unit.
89. If you want to copy a portion of the text then you need to use
(a) Control & C (b) Command & C
(c) Control & V (d) Command and V

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90. Which one is not an operating system?
(a) Windows (b) Linux
(c) Unix (d) LaTeX
91. Who described his policy of unification as one of 'blood and iron'?
(a) Hitler (b) Mazzini (c) Napoleon (d) Bismarck
92. Who is known as the father of Modern Medicine?
(a) Erastosthenes (b) Euclid (c) Pythagoras (d) Hippocrates
93. Which of the following is the place of worship for Judaism?
(a) Temple (b) Fire Temple (c) Chapel (d) Synagogue
94. The hottest planet of the solar system is
(a) Mercury (b) Venus (c) Mars (d) Jupiter
95. The first word pronounced at the surface of the Moon during Apollo Expedition is
(a) OK! (b) Yes! (c) Hurry! (d) Fine!
96. The longest district of Nepal is
(a) Kavrepalunchowk (b) Sindhupalunchowk
(c) Parsa (d) Udaypur
97. Which person had divided Nepal into 32 districts?
(a) Chandra Samsher (b) Ranoddip
(c) Bir Samsher (d) Judhha Samsher
98. The longest glacier of Nepal is
(a) Khumbu. (b) Lamtang. (c) Upper Arun.
(d) Kanchanjangha.
99. Rawan of epic Ramayana had written two books. The name of one of those books is
(a) Arkapakshya. (b) Rawapakshya.
(c) Manupakshya. (d) Jiwapakshya.
100. The founder of *Tao Religion* is
(a) Kanfusus. (b) Laotse. (c) Ding. (d) Fung.