

M.VOC MOBILE PHONE APPLICATIONS DEVELOPMENT

1. If the system of equations $x + ky - z = 0$, $x - y + z = 0$ and $x + y - z = 0$ has a non zero solution, then the value of k is

(A) 1
(B) 2
(C) 0
(D) -1

2. Let $p(x)$ be the characteristic polynomial of the matrix $A = \begin{bmatrix} 1 & 1 & 0 \\ 2 & 3 & 4 \\ 5 & 0 & 1 \end{bmatrix}$. Then the rank of $P(A)$ is

(A) 0
(B) 2
(C) 3
(D) 1

3. The value of $\lim_{x \rightarrow \infty} x \sin \frac{1}{x}$ is

(A) 0
(B) 1
(C) ∞
(D) 2

4. The maximum value of the function $x^{25}(1-x)^{75}$ on the interval $[0, 1]$ attains at the point

(A) 0
(B) $1/4$
(C) $1/2$
(D) $1/3$

5. Let $f(x) = |x - 20|, x \in R$ where R is set of real numbers, then

- (A) $f'(20) = 0$
- (B) $f'(20)$ does not exist
- (C) $f'(20) = 1$
- (D) $f'(20) = 20$

6. The value of $\lim_{(x,y) \rightarrow (0,0)} \frac{x^3 - y^3}{x - y}$ is

- (A) 1
- (B) 0
- (C) ∞
- (D) -1

7. Let $f(x, y) = x^2 + xy + y^2$. The value of $\frac{\partial f}{\partial x}$ at $(1, 1)$ is

- (A) 1
- (B) 2
- (C) 3
- (D) 4

8. The value of $\int_1^1 \frac{dx}{1+x^2}$ is

- (A) $\frac{\pi}{4}$
- (B) $\frac{\pi}{2}$
- (C) π
- (D) 0

9. An animal population increases at a rate of $1 + 2t$ per year (where t is measured in years). By how much does the population grow in the first 4 years?

- (A) 18
- (B) 19
- (C) 14
- (D) 20

10. The gradient of the scalar field $f(x, y) = xy^2 - yz$ is

- (A) $i + (2x - z)j - 4k$
- (B) $y^2i - zj - yk$
- (C) $2xyi + 2xyj + yk$
- (D) $y^2i + (2xy - z)j - yk$

11. The curl of the vector field $F = x^2i + 2zj - yk$ is

- (A) $-3i$
- (B) $-3i + k$
- (C) $3i + j + k$
- (D) $-3i + 3j + k$

12. A differential equation is considered to be ordinary if it has

- (A) one dependent variable
- (B) one independent variable
- (C) more than one dependent variable
- (D) more than one independent variable

13. The differential equation $e^{2x} \frac{dy}{dx} + 2y = x^2y$ is

- (A) separable and not linear
- (B) both separable and linear
- (C) linear and not separable
- (D) neither separable nor linear

14. The partial differential equation $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2} = xy$ is

- (A) elliptic
- (B) parabolic
- (C) hyperbolic
- (D) constant

15. Two dice are thrown simultaneously. The probability of getting two numbers whose product even is
- (A) $1/4$
 - (B) $3/4$
 - (C) $1/6$
 - (D) $1/2$
16. If 'm' is the mean of Poisson distribution, the $P(0)$ is given by
- (A) e^{-m}
 - (B) e^m
 - (C) e
 - (D) m
17. The order of convergence of Newton-Raphson method is
- (A) 1
 - (B) 2
 - (C) 3
 - (D) ∞
18. The number of sub intervals to apply Simpson's $3/8$ rule should be
- (A) odd
 - (B) 8
 - (C) even
 - (D) multiple of three
19. Two brothers X and Y have appeared for an examination. The probability of selection of X is $1/7$ and that of B is $2/9$. Then the probability that both of them are selected is
- (A) $1/63$
 - (B) $9/14$
 - (C) $2/63$
 - (D) $2/35$
20. The number of ways that 10 true or false questions can be answered is
- (A) 512
 - (B) 20
 - (C) 100
 - (D) 1024

21. Order of the power set of a set of order n is
- (A) 2^n
 - (B) $2n$
 - (C) n^2
 - (D) N
22. The inverse of $-i$ in the multiplicative group $\{1, -1, i, -i\}$ is
- (A) $-i$
 - (B) 1
 - (C) -1
 - (D) i
23. If x is chosen at random from the set $\{1, 2, 3, 4\}$ and y is to be chosen at random from the set $\{5, 6, 7\}$, then the probability that xy will be even is
- (A) $5/6$
 - (B) $2/3$
 - (C) $1/2$
 - (D) $1/6$
24. If $(G, .)$ is a group such that $(ab)^{-1} = a^{-1}b^{-1}$, $\forall a, b \in G$, then G is
- (A) an abelian group
 - (B) a non-abelian group
 - (C) a loop
 - (D) a quasigroup
25. Let u, v, w be three non-zero vectors which are linearly independent. Then
- (A) w is linear combination of u and v
 - (B) v is linear combination of u and w
 - (C) u is linear combination of v and w
 - (D) no vector is a linear combination of other two

26. Which one of the following is a closed form expression for the generating function of the sequence $\{a_n\}$, where $a_n = 2n + 3$ for all $n = 0, 1, 2, \dots$?

(A) $\frac{3}{(1-x)^2}$

(B) $\frac{3}{(1+x)^2}$

(C) $\frac{2-x}{(1-x)^2}$

(D) $\frac{3-x}{(1-x)^2}$

27. The set $\{1, 2, 4, 7, 8, 11, 13, 14\}$ is a group under multiplication modulo 15. The inverses of 4 and 7 are respectively

(A) 3 and 13

(B) 2 and 11

(C) 4 and 13

(D) 8 and 11

28. Let X, Y, Z be sets of sizes x, y, z respectively. Let $W = X \times Y$ and E be the set of all subsets of W . The number of functions from Z to E is

(A) z

(B) $z \times 2^{xy}$

(C) $2z$

(D) 2^{xyz}

29. The radius of convergence of power series $\sum_{m=0}^{\infty} \frac{(3m)!}{(m!)^3} x^{3m}$ is

(A) 3

(B) $-1/3$

(C) $1/3$

(D) 1

30. Let A be the invertible matrix. If the inverse of $7A$ is $\begin{bmatrix} -1 & 2 \\ 4 & -7 \end{bmatrix}$, then the matrix A is

- (A) $\begin{bmatrix} 1 & 2/7 \\ 4/7 & 1/7 \end{bmatrix}$
(B) $\begin{bmatrix} 7 & 2 \\ 4 & 1 \end{bmatrix}$
(C) $\begin{bmatrix} 1 & -4/7 \\ -2/7 & 1/7 \end{bmatrix}$
(D) $\begin{bmatrix} 7 & 4 \\ 2 & 1 \end{bmatrix}$

COMPUTER SCIENCE

31. The layer can perform ASCII to non-ASCII character conversions.
- (A) transport
(B) data link
(C) presentation
(D) application
32. CPU fetches an instruction from memory according to the value of
- (A) program counter
(B) status register
(C) instruction register
(D) program status word
33. The code that changes the value of the semaphore is
- (A) remainder section code
(B) non – critical section code
(C) critical section code
(D) None of the above
34. A compiler that runs on one machine and produces code for a different machine is called
- (A) Cross compiler
(B) Assembler
(C) Two pass compiler
(D) Virtual machine

35. The effectiveness of the cache memory is based on the property of
- (A) Memory location
 - (B) Locality of reference
 - (C) Memory size
 - (D) CPU speed
36. The number of failed attempts to access memory, stated in the form of fraction is called as
- (A) Hit rate
 - (B) Failure rate
 - (C) Miss rate
 - (D) Delay rate
37. Computer Speed is measured in
- (A) Seconds
 - (B) Minutes
 - (C) Clock cycles
 - (D) Bits
38. The process of obtaining confidential information from a computer user by falsifying his/her identity is known as
- (A) Spoofing
 - (B) Phishing
 - (C) Spamming
 - (D) Bugging
39. Which of the following is not a version of Android mobile operating system?
- (A) Cupcake
 - (B) Jam roll
 - (C) Donut
 - (D) Éclair
40. The process of mapping data into predefined groups is
- (A) Regression
 - (B) Time series analysis
 - (C) Prediction
 - (D) Classification

41. A transformation that slants the shape of objects is called
- (A) Reflection
 - (B) Shear
 - (C) Translation
 - (D) Rotation
42. Minimal subset of super keys are called
- (A) Schema keys
 - (B) Candidate keys
 - (C) Domain keys
 - (D) Attribute keys
43. Which of the following is not a form of memory?
- (A) Translation look-a-side buffer
 - (B) Instruction register
 - (C) Instruction cache
 - (D) Instruction opcode
44. Which of the following addressing modes are suitable for program relocation at run time?
- (A) Absolute addressing and Indirect addressing
 - (B) Absolute addressing and Base addressing
 - (C) Base addressing and Relative addressing
 - (D) Absolute addressing, Base addressing and Indirect addressing
45. Transformation of Conceptual schema from the high level data model into the implementation data model is known as
- (A) Logical model
 - (B) Data model mapping
 - (C) Both (A) and (B)
 - (D) None of the above
46. The inorder and preorder traversal of a binary tree are $d b e a f c g$ and $a b d e c f g$, respectively. The postorder traversal of the binary tree is
- (A) $d e b f g c a$
 - (B) $e d b g f c a$
 - (C) $e d b f g c a$
 - (D) $d e f g b c a$

47. Match the following.

X:	depth first search	1:	heap
Y:	breadth-first search	2:	queue
Z:	sorting	3:	stack

- (A) X—1 Y—2 Z—3
- (B) X—3 Y—1 Z—2
- (C) X—3 Y—2 Z—1
- (D) X—2 Y—3 Z—1

48. In which of the following page replacement policies Balady's anomaly does not occur?

(I) FIFO (II) LRU (III) LFU (IV) NRU

- (A) Only (I)
- (B) (II), (III) and (IV)
- (C) (I) and (II)
- (D) All of the above

49. Consider the following table with preemptive SJF,

Process	Arrival time	Burst time
P1	0	5
P2	1	3
P3	2	3
P4	4	1

What is the average turn around time?

- (A) 5.5
- (B) 6.0
- (C) 6.5
- (D) 6.7

50. The universal gate is

- (A) NAND gate
- (B) OR gate
- (C) AND gate
- (D) None of the above

51. Software testing is
- (A) the process of establishing that errors are not present
 - (B) the process of establishing confidence that a program does what it is supposed to do
 - (C) the process of executing a program to show that it is working as per specifications
 - (D) the process of executing a program with the intent of finding errors
52. Bankers algorithm is for
- (A) deadlock prevention
 - (B) deadlock avoidance
 - (C) deadlock detection
 - (D) deadlock creation
53. An entity–relationship diagram is a tool to represent
- (A) data model
 - (B) process model
 - (C) event model
 - (D) customer model
54. Producer consumer problem can be solved using
- (A) semaphores
 - (B) event counters
 - (C) monitors
 - (D) All the above
55. The baud rate is
- (A) always equal to the bit transfer rate
 - (B) equal to twice the bandwidth of an ideal channel
 - (C) not equal to the signaling rate
 - (D) equal to half of the bandwidth of an ideal channel
56. In a relational schema, each tuple is divided in fields called
- (A) relations
 - (B) domains
 - (C) queries
 - (D) All the above

57. Queue is a list.
- (A) LIFO
 - (B) LILO
 - (C) FILO
 - (D) FIFO
58. 2's complement of binary number 0101 is
- (A) 1011
 - (B) 1111
 - (C) 1101
 - (D) 1110
59. A primary key for an entity is
- (A) a candidate key
 - (B) any attribute
 - (C) a unique attribute
 - (D) a super key
60. Number of binary trees formed with 5 nodes are
- (A) 32
 - (B) 36
 - (C) 120
 - (D) 42

VERBAL AND READING COMPREHENSION

Directions: Read the following passage and answer the questions.

Nehru's was a many sided personality. He enjoyed reading and writing books as much as he enjoyed fighting political and social evils or residing tyranny. In him, the scientist and the humanist were held in perfect balance. While he kept looking at special problems from a scientific standpoint. He never forgot that we should nourish the total man. As a scientist, he refused to believe in a benevolent power interested in men's affairs. but, as a self proclaimed non-believer, he loved affirming his faith in life and the beauty of nature. Children he adored. Unlike Wordsworth, he did not see him trailing clouds of glory from the recent sojourn in heaven. He saw them as a blossoms of promise and renewal, the only hope for mankind.

61. Nehru though that children
- (A) were tailing clouds of glory
 - (B) held promise for a better future
 - (C) were like flowers to be loved and admired

- (D) held no hope for mankind
62. Which of the statements reflects Nehru point of view?
- (A) Humanism is more important than science
 - (B) Science is supreme and humanism is subordinate to it
 - (C) Science and Humanism are equally important
 - (D) There is no ground between science and humanism
63. In this passage, 'a benevolent power interested in men's affairs' means
- (A) a supernatural power of god
 - (B) beauty of nature
 - (C) the spirit of science
 - (D) the total man
64. A 'many-side personality' means
- (A) a complex personality
 - (B) a secretive person
 - (C) a person having varied interests
 - (D) a capable person

Directions: Read the following passage and answer the questions.

Organisations are institutions in which members compete for status and power. They compete for resource of the organisation, for example finance to expand their own departments, for career advancement and for power to control the activities of others. In pursuit of these aims, groups are formed and sectional interests emerge. As a result, policy decisions may serve the ends of political and career systems rather than those of the concern. In this way, the goals of the organisation may be displaced in favour of sectional interests and individual ambition. These preoccupations sometimes prevent the emergence of organic systems. Many of the electronic firms in the study had recently created research and development departments employing highly qualified and well paid scientists and technicians. Their high pay and expert knowledge were sometimes seen as a threat to the established order of rank, power and privilege. Many senior managers had little knowledge of technicality and possibilities of new developments and electronics. Some felt that close cooperation with the experts in an organic system would reveal their ignorance and show their experience was now redundant.

65. The theme of the passage is
- (A) groupism in organizations
 - (B) individual ambitions in organizations
 - (C) frustration of senior managers
 - (D) emergence of sectional interests in organizations

66. "Organic system" as related to the organization implies its
- (A) growth with the help of expert knowledge
 - (B) growth with input from science and technology
 - (C) steady all around development
 - (D) natural and unimpeded growth
67. Policy decision in organization would involve
- (A) cooperation at all levels in the organization
 - (B) modernization of the organization
 - (C) attracting highly qualified personnel
 - (D) keeping in view the larger objectives of the organizations
68. The author makes out a case for
- (A) organic system
 - (B) Research and Development in organizations
 - (C) an understanding between senior and middle level executives
 - (D) a refresher course for senior managers
69. The author tends to the senior managers as
- (A) ignorant and incompetent
 - (B) a little out of step with their work environment
 - (C) jealous of their younger colleagues
 - (D) robbed of their rank, power and privilege

Direction: Read the following comprehension and answer the questions given below.

Today I Rabindranath Tagore complete eighty years of my life. As I look back on the vast stretch of years that lie behind me and see in clear perspective the history of my early development, I am struck by the change that has taken place both in my own attitude and in the psychology of my countrymen -- a change that carries within it a cause of profound tragedy.

Our direct contact with the larger world of men was linked up with the contemporary history of the English people whom we came to know in those earlier days. It was mainly through their mighty literature that we formed our ideas with regard to these newcomers to our Indian shores. In those days the type of learning that was served out to us was neither plentiful nor diverse, nor was the spirit of scientific enquiry very much in evidence. Thus their scope being strictly limited, the educated of those days had recourse to English language and literature. Their days and nights were eloquent with the stately declamations of Burke, with Macaulay's long-rolling sentences; discussions centered upon Shakespeare's drama and Byron's poetry and above all upon the large-hearted liberalism of the nineteenth-century English politics.

At the time though tentative attempts were being made to gain our national independence, at heart we had not lost faith in the generosity of the English race. This belief was so firmly rooted in the sentiments of our leaders as to lead them to hope that the victor would of his own grace pave the path of freedom for the vanquished. This belief was based upon the fact that England at the time provided a shelter to all those who had to flee from persecution in their own country. Political martyrs who had suffered for the honour of their people were accorded unreserved welcome at the hands of the English.

I was impressed by this evidence of liberal humanity in the character of the English and thus I was led to set them on the pedestal of my highest respect. This generosity in their national character had not yet been vitiated by imperialist pride. About this time, as a boy in England, I had the opportunity of listening to the speeches of John Bright, both in and outside Parliament. The large-hearted, radical liberalism of those speeches, overflowing all narrow national bounds, had made so deep an impression on my mind that something of it lingers even today, even in these days of graceless disillusionment.

70. From the first paragraph, give a synonym for 'deep'

- (A) Perspective
- (B) Profound
- (C) Tragedy
- (D) Psychology

71. What helped the Indians to conceive of a notion of the Englishmen?

- (A) Their advanced weaponry
- (B) Their literature
- (C) Their orders
- (D) Their administration

72. Who could read and gain from English literature?

- (A) The educated Indians
- (B) All the Indians
- (C) Only writers such as Rabindranath Tagore
- (D) None of the above

73. From the third paragraph, give an antonym for 'victorious'

- (A) Victor
- (B) Vanquished
- (C) Belief
- (D) Persecution

74. Whose speeches did Tagore listen to, as a boy?

- (A) Shakespeare
- (B) Byron
- (C) John Bright
- (D) Macaulay

Direction: Read the following comprehension and answer the questions given below.

What needs to be set right is our approach to work? It is a common sight in our country of employees reporting for duty on time and at the same time doing little work. If an assessment is made of time they spent in gossiping, drinking tea, eating "pan" and smoking cigarettes, it will be shocking to know that the time devoted to actual work is negligible. The problem is the standard which the leadership in administration sets for the staff. Forget the ministers because they mix politics and administration. What do top bureaucrats do? What do the below down officials do? The administration set up remains weak mainly because the employees do not have the right example to follow and they are more concerned about being in the good books of the bosses than doing work.

75. The employees in our country
- (A) are quite punctual but not duty conscious
 - (B) are not punctual, but somehow manage to complete their work
 - (C) are somewhat lazy but good natured
 - (D) are not very highly qualified
76. According to the writer, the administration in India
- (A) is by and large effective
 - (B) is very strict and firm
 - (C) is affected by red tape
 - (D) is more or less ineffective
77. The word 'assessment' means
- (A) enquiry
 - (B) report
 - (C) evaluation
 - (D) summary
78. The leadership in administration
- (A) sets a fine example to the employees
 - (B) is of a reasonably high standard
 - (C) is composed of idealists
 - (D) is of a very poor standard

79. The central idea of passage could be best expressed by the following
- (A) The employee outlook towards work is justified
 - (B) The employee must change their outlook towards work
 - (C) The employee would never change their work culture
 - (D) The employer-employee relationship is far from healthy

Directions: Read the following passage and answer the questions.

I felt the wall of the tunnel shiver. The master alarm squealed through my earphones. Almost simultaneously, Jack yelled down to me that there was a warning light on. Fleeting but spectacular sights snapped into and out of view, the snow, the shower of debris, the moon, looming close and big, the dazzling sunshine for once unfiltered by layers of air. The last twelve hours before re-entry were particular bone-chilling. During this period, I had to go up in to command module. Even after the fiery re-entry splashing down in 81° water in south pacific, we could still see our frosty breath inside the command module.

80. The word 'Command Module' used twice in the given passage indicates perhaps that it deals with
- (A) an alarming journey
 - (B) a commanding situation
 - (C) a journey into outer space
 - (D) a frightful battle
81. Which one of the following reasons would one consider as more as possible for the warning lights to be on?
- (A) There was a shower of debris
 - (B) Jack was yelling
 - (C) A catastrophe was imminent
 - (D) The moon was looming close and big
82. The statement that the dazzling sunshine was "for once unfiltered by layers of air" means
- (A) that the sun was very hot
 - (B) that there was no strong wind
 - (C) that the air was unpolluted
 - (D) None of the above

Directions: Read the following passage and answer the questions.

Harold a professional man who had worked in an office for many years had a fearful dream. In it, he found himself in a land where small slug-like animals with slimy tentacles lived on people's bodies. The people tolerated the loathsome creatures because after many years they grew into elephants which then became the nation's system of transport, carrying everyone wherever he wanted to go. Harold suddenly realised that he himself was covered with these things, and he woke up screaming. In a vivid sequence of pictures this dream dramatised for Harold what he had never been able to put in to words; he saw himself as letting society feed on his body in his early years so that it would carry him when he retired. He later threw off the "security bug" and took up freelance work.

83. In his dream Harold found the loathsome creatures
- (A) in his village
 - (B) in his own house
 - (C) in a different land
 - (D) in his office
84. Which one of the following phrases best helps to bring out the precise meaning of 'loathsome creatures'?
- (A) Security bug and slimy tentacles
 - (B) Fearful dream and slug-like animals
 - (C) Slimy tentacles and slug-like animals
 - (D) Slug-like animals and security bug
85. The statement that 'he later threw off the security bug' means that
- (A) Harold succeeded in overcoming the need for security
 - (B) Harold stopped giving much importance to dreams
 - (C) Harold started tolerating social victimization
 - (D) Harold killed all the bugs troubled him
86. Harold's dream was fearful because
- (A) it brought him face to face with reality
 - (B) it was full of vivid pictures of snakes
 - (C) he saw huge elephant in it
 - (D) in it he saw slimy creatures feeding on people's bodies

Directions: Read the following passage and answer the questions.

Male lions are rather reticent about expanding their energy in hunting more than three quarters of kills are made by lionesses are in front, tensely scanning ahead, the cubs lag playfully behind and the males bring up the rear, walking slowly, their massive heads nodding with each step as if they were bored with the whole matter. But slothfulness may have survival value. With lioness's busy hunting, the males function as guard for the cubs, protecting them particularly from hyenas.

87. According to the passage male lions generally do not go for huntings because

- (A) they don not like it
- (B) they want lioness to get training
- (C) they wish to save their vigour for other things
- (D) they are very lazy

88. Male lions protect their cubs

- (A) from the members of their own species
- (B) from hyenas only
- (C) from hyenas as much as from other enemies
- (D) more from hyenas than from other animals

89. Lioness go for hunting

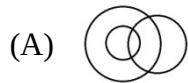
- (A) all alone
- (B) with their male partners only
- (C) with their cubs and male partners
- (D) with their cubs only

90. When the lionesses go in search for their prey, they are very

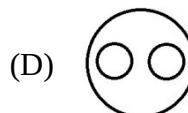
- (A) serious
- (B) cautious
- (C) playful
- (D) sluggish

LOGICAL REASONING

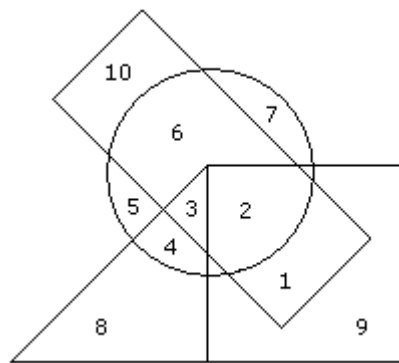
91. Which of the following diagrams indicates the best relation between men, father and doctor?



92. Which of the following diagrams indicates the best relation between passenger, plane and trains?



93. In the following diagram the boys who are athletic and are disciplined are indicated by which number?



Rectangle → Boys Circle → Athletics
Diamond → Girls Square → Disciplined

- (A) 1
(B) 2
(C) 10
(D) 6

Directions: Read the following passage and answer the questions.

Eight friends: Ajit, Byomkesh, Gargi, Jayanta, Kikira, Manik, Prodosh and Tapeshe are going to Delhi from Kolkata by a flight operated by Cheap Air. In the flight, sitting is arranged in 30 rows, numbered 1 to 30, each consisting of 6 seats, marked by letters A to F from left to right, respectively. Seats A to C are to the left of the aisle (the passage running from the front of the aircraft to the back), and seats D to F are to the right of the aisle. Seats A and F are by the windows and referred to as Window seats, C and D are by the aisle and are referred to as Aisle seats while B and E are referred to as Middle seats. Seats marked by consecutive letters are called consecutive seats (or seats next to each other). A seat number is a combination of the row number, followed by the letter indicating the position in the row; e.g., 1A is the left window seat in the first row, while 12E is the right middle seat in the 12th row.

Cheap Air charges Rs. 1000 extra for any seats in Rows 1, 12 and 13 as those have extra legroom. For Rows 2-10, it charges Rs. 300 extra for Window seats and Rs. 500 extra for Aisle seats. For Rows 11 and 14 to 20, it charges Rs. 200 extra for Window seats and Rs. 400 extra for Aisle seats. All other seats are available at no extra charge.

The following are known:

1. The eight friends were seated in six different rows.
2. They occupied 3 Window seats, 4 Aisle seats and 1 Middle seat.
3. Seven of them had to pay extra amounts, totaling to Rs. 4600, for their choices of seat. One of them did not pay any additional amount for his/her choice of seat.
4. Jayanta, Ajit and Byomkesh were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but all of them paid different amounts for their choices of seat. One of these amounts may be zero.
5. Gargi was sitting next to Kikira, and Manik was sitting next to Jayanta. Prodosh and Tapeshe were sitting in seats marked by the same letter, in consecutive rows in increasing order of row numbers; but they paid different amounts for their choices of seat. One of these amounts may be zero.

94. In which row was Manik sitting?

- (A) 10
- (B) 11
- (C) 12
- (D) 13

95. How much extra did Jayanta pay for his choice of seat?
- (A) Rs. 300
(B) Rs. 400
(C) Rs. 500
(D) Rs. 1000
96. How much extra did Gargi pay for her choice of seat?
- (A) 0
(B) Rs. 300
(C) Rs. 500
(D) Rs. 1000
97. Who among the following did not pay any extra amount for his/her choice of seat?
- (A) Kikira
(B) Manik
(C) Gargi
(D) Tapes

Directions: Read the following passage and answer the questions.

Healthy Bites is a fast food joint serving three items: burgers, fries and ice cream. It has two employees Anish and Bani who prepare the items ordered by the clients. Preparation time is 10 minutes for a burger and 2 minutes for an order of ice cream. An employee can prepare only one of these items at a time. The fries are prepared in an automatic fryer which can prepare up to 3 portions of fries at a time, and takes 5 minutes irrespective of the number of portions. The fryer does not need an employee to constantly attend to it, and we can ignore the time taken by an employee to start and stop the fryer; thus, an employee can be engaged in preparing other items while the frying is on. However fries cannot be prepared in anticipation of future orders.

Healthy Bites wishes to serve the orders as early as possible. The individual items in any order are served as and when ready; however, the order is considered to be completely served only when all the items of that order are served.

The table below gives the orders of three clients and the times at which they placed their orders;

Client No.	Time	Order
1	10:00	1 burger, 3 portions of fries, 1 order of ice cream
2	10:05	2 portions of fries, 1 order of ice cream
3	10:07	1 burger, 1 portion of fries

98. Assume that only one client's order can be processed at any given point of time. So, Anish or Bani cannot start preparing a new order while a previous order is being prepared. At what time is the order placed by Client 1 completely served?
- (A) 10:17
 - (B) 10:10
 - (C) 10:15
 - (D) 10:20
99. Assume that only one client's order can be processed at any given point of time. So, Anish or Bani cannot start preparing a new order while a previous order is being prepared. At what time is the order placed by Client 3 completely served?
- (A) 10:35
 - (B) 10:22
 - (C) 10:25
 - (D) 10:17
100. Suppose the employees are allowed to process multiple orders at a time, but the preference would be to finish orders of clients who placed their orders earlier. At what time is the order placed by Client 2 completely served?
- (A) 10:10
 - (B) 10:12
 - (C) 10:15
 - (D) 10:17
101. Suppose the employees are allowed to process multiple orders at a time, but the preference would be to finish orders of clients who placed their orders earlier. Also assume that the fourth client came in only at 10:35. Between 10:00 and 10:30, for how many minutes is exactly one of the employees idle?
- (A) 7
 - (B) 10
 - (C) 15
 - (D) 23

Directions (Question No. 102 to 106): Read the following passage and answer the questions

Five students, P, Q, R, S and T stand in a line in some order and receive cookies and biscuits to eat. No student gets the same number of cookies or biscuits. The person first in the queue gets the least number of cookies. Number of cookies or biscuits received by each student is a natural number from 1 to 9 with each number appearing at least once.

The total number of cookies is two more than the total number of biscuits distributed. R who was in the middle of the line received more goodies (cookies and biscuits put together) than everyone else. T receives 8 more cookies than biscuits. The person who is last in the queue received 10 items in all, while P receives only half as many totally. Q is after P but before S in the queue. Number of cookies Q receives is equal to the number of biscuits P receives. Q receives one more good than S and one less than R. Person second in the queue receives an odd number of biscuits and an odd number of cookies.

102. Who was 4th in the queue?

- (A) P
- (B) Q
- (C) R
- (D) S

103. How many cookies did Q get?

- (A) 2
- (B) 3
- (C) 4
- (D) 5

104. If we know that S received more cookies than biscuits, then how many cookies did R receive?

- (A) 3
- (B) 4
- (C) 5
- (D) 6

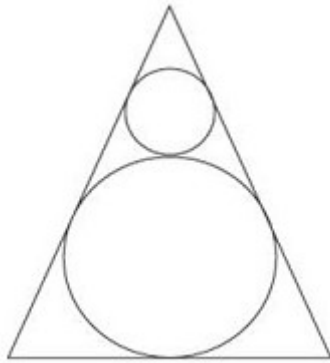
105. If R received fewer cookies than S, how many cookies did S receive?

- (A) 6
- (B) 7
- (C) 8
- (D) 9

106. How many cookies were distributed in all?

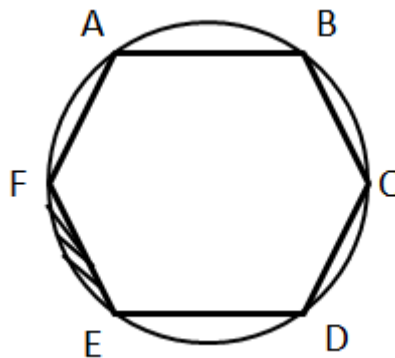
- (A) 22
- (B) 23
- (C) 24
- (D) 25

107. Two circles are placed in an equilateral triangle as shown in the figure. What is the ratio of the area of the smaller circle to that of the equilateral triangle?



- (A) $\pi : 36\sqrt{3}$
- (B) $\pi : 18\sqrt{3}$
- (C) $\pi : 27\sqrt{3}$
- (D) $\pi : 42\sqrt{3}$

108. ABCDEF is a regular hexagon inscribed inside a circle. If the shortest diagonal of the hexagon is of length 3 units, what is the area of the shaded region?



- (A) $\frac{1}{6}(3\pi - (9\sqrt{3})/2)$
- (B) $\frac{1}{6}(2\pi - (6\sqrt{3})/2)$
- (C) $\frac{1}{6}(3\pi - (8\sqrt{3})/2)$
- (D) $\frac{1}{6}(6\pi - (15\sqrt{3})/2)$

109. "Some men are definitely intelligent, others are definitely not intelligent, but of intermediate men, we should say, 'intelligent'? Yes, I think, so or no, I shouldn't be inclined to call him intelligent."

Which of the following reflects the intention of the writer well?

- (A) To call men intelligent who are not strikingly so must be to use the concept with undue imprecision
 - (B) Every empirical concept has a degree of vagueness
 - (C) Calling someone intelligent or not depends upon one's whim
 - (D) There is no need to be as indecisive as the writer of the above
110. In Contrary to earlier predictions, demand for sugarcane has not increased in recent years. Yet, even though prices and production amounts have also been stable during the last three years, sugarcane growers last year increased their profits by more than ten percent over the previous year's level.

Any of the following statements, if true about last year, helps to explain the rise in profits EXCEPT

- (A) Many countries that are large consumers of sugarcane increased their production of sugarcane-based ethanol, yet their overall consumption of sugarcane decreased
 - (B) Sugarcane growers have saved money on wages by switching from paying laborers an hourly wage to paying them by the amount harvested
 - (C) The price of oil, the major energy source used by sugarcane growers in harvesting their crops, dropped by over twenty percent
 - (D) Many small sugarcane growers joined together to form an association of sugarcane producers and began to buy supplies at low group rates
111. If highways were restricted to cars and only those trucks with capacity of less than 8 tons, most of the truck traffic would be forced to run outside highways. Such a reduction in the amount of truck traffic would reduce the risk of collisions on highways.

The conclusion drawn in the 1st sentence depends on which of the following assumptions?

- (A) The roads outside highway would be as convenient as highway for most drivers of trucks
- (B) Most of the roads outside highways are not ready to handle truck traffic
- (C) Most trucks that are currently running in highway have a capacity of more than 8 tons
- (D) Cars are at greater risk of being involved in collisions than are trucks

112.

P	J	O
A	D	I
O	F	?

- (A) F
- (B) G
- (C) H
- (D) K

113. Melt : Liquid :: Freeze : ?

- (A) Ice
- (B) Condense
- (C) Solid
- (D) Crystal

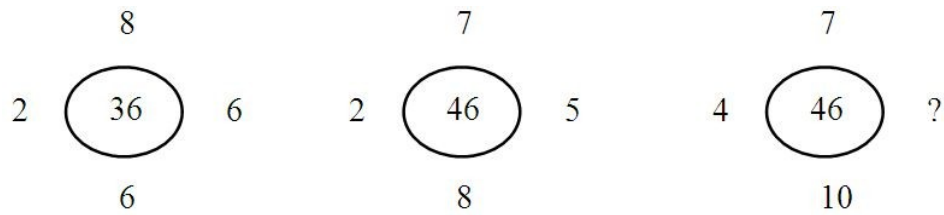
114. A bus for Kochi leaves every thirty minutes from a bus stand. An enquiry clerk told a passenger that the bus had already left ten minutes ago and the next bus will leave at 9.35 a.m. At what time did the enquiry clerk gives this information to the passenger?

- (A) 9.15 a.m.
- (B) 9.08 a.m.
- (C) 9.05 a.m.
- (D) 8.55 a.m.

115. An institute organized a fete and $\frac{1}{5}$ of the girls and $\frac{1}{8}$ of the boys participated in the same. What fraction of the total number of students took part in the fete?

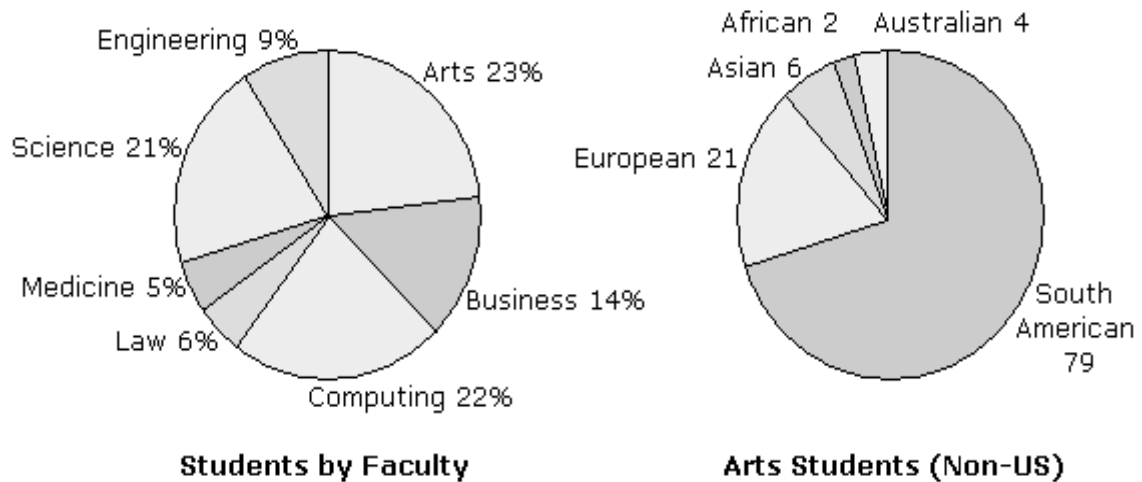
- (A) $\frac{2}{13}$
- (B) $\frac{13}{40}$
- (C) Data inadequate
- (D) None of the above

116. What will come in the place of '?' ?



- (A) 2
- (B) 4
- (C) 6
- (D) 8

Direction (Question No. 117 to 120): Use the following information to answer the questions given below.



The pie charts above show the percentage of students in each faculty at North West University and the number of non-US students in the Arts faculty. These percentages have been rounded to the nearest whole number. There are a total of 1049 student in the Arts faculty.

117. What percentage of students in the Arts faculty are non-US students?

- (A) 14%
- (B) 9%
- (C) 30%
- (D) 11%

118. How many students are there in the Engineering faculty?
- (A) 420
 - (B) 410
 - (C) 390
 - (D) 440
119. How many students are there at the university?
- (A) 4650
 - (B) 4560
 - (C) 4640
 - (D) 4450
120. If six percent of Science students are Asian. How many Asian students are there studying Science?
- (A) 48
 - (B) 66
 - (C) 120
 - (D) 57

PROGRAMMING APTITUDE

121. What is the output of the following C code?

```
#include <stdio.h>
void main()
{
    int b = 6;
    int c = 7;
    int a = ++b + c--;
    printf("%d", a);
}
```

- (A) Run time error
- (B) 15
- (C) 13
- (D) 14

122. What is the scope of an external variable?

- (A) Whole source file in which it is defined
- (B) From the point of declaration to the end of the file in which it is defined
- (C) Any source file in a program
- (D) From the point of declaration to the end of the file being compiled

123. What will be the data type returned for the following function?

```
#include <stdio.h>
int func()
{
    return (double)(char)5.0;
}
```

- (A) char
- (B) int
- (C) double
- (D) multiple type-casting in return is illegal

124. When will method overloading be determined?

- (A) At run time
- (B) At compile time
- (C) At coding time
- (D) At execution time

125. String in Java is a

- (A) class
- (B) object
- (C) variable
- (D) character array

126. Find the output.

```
#include <stdio.h>
int main()
{
    int *ptr, a = 10;
    ptr = &a;
    *ptr += 1;
    printf("%d,%d/n", *ptr, a);
}
```

- (A) 10, 10
- (B) 10, 11
- (C) 11, 10
- (D) 11, 11

127. What is the output of this program?

```
class char_increment
{
public static void main(String args[])
{
    char c1 = 'D';
    char c2 = 84;
    c2++;
    c1++;
    System.out.println(c1 + " " + c2);
}
}
```

- (A) E U
- (B) U E
- (C) V E
- (D) U F

128. What will be the output of the following program?

```
#define clrscr() 100
main()
{
    clrscr();
    printf("%d\n", clrscr());
}
```

- (A) 99
- (B) 100
- (C) Compile time error
- (D) Run time error

129. Find the output of the following program segment.

```
main()
{
    int i=5, j=6, z;
    printf("%d", i+++j);
}
```

- (A) 12
- (B) 11
- (C) 13
- (D) No output

130. Find the output of the following program segment.

```
main()
{
    unsigned int i=65000;
    while(i++!=0);
    printf("%d", i);
}
```

- (A) 1
- (B) 2
- (C) 4
- (D) 5

131. In C++, default arguments are given

- (A) only in function prototype
- (B) only in function definition
- (C) only in function call
- (D) in all the above

132. Which one of the following is not a valid reserved keyword in C++?

- (A) Explicit
- (B) Public
- (C) Implicit
- (D) Private

133. Which header file contains C++ file I/O instructions?

- (A) iostream.h
- (B) fstream.h
- (C) ifstream.h
- (D) ostream.h

134. What is the value of "d" after this line of code has been executed?

```
double d = Math.round( 2.5 + Math.random() );
```

- (A) 2
- (B) 3
- (C) 4
- (D) 2.5

135. System class in Java is defined in

- (A) java.lang package
- (B) java.util package
- (C) java.io package
- (D) java.awt package

136. Which is a perfect example of runtime polymorphism?

- (A) Method overloading
- (B) Method overriding
- (C) Constructor overloading
- (D) None of the above

137. The command javac

- (A) Converts a java program into binary code
- (B) Converts a java program into machine language
- (C) Converts a java program into bytecode
- (D) Converts a java program into text file

138. Find the output of the following.

```
main ()
{
char p[]="year2018";
printf("%s", p+4);
}
```

The output is

- (A) year2018
- (B) 2018
- (C) r2018
- (D) 018

139. Null character needs a space of

- (A) Zero bytes
- (B) One byte
- (C) Three bytes
- (D) Four bytes

140. After 3 calls of the c function bug() below, the values of i and j will be:

```
int j = 1;
bug()
{static int i = 0; int j = 0;
i++; j++;
return (i);}
```

- (A) i = 0, j = 0
- (B) i = 3, j = 3
- (C) i = 3, j = 0
- (D) i = 3, j = 1

141. Find the output of the following "C" code:

```
main ()
{int x = 20, y = 35;
x = y++ + x++;
y = ++y + ++x;
printf("%d", %d\n, x, y);
}
```

- (A) 55, 93
- (B) 53, 97
- (C) 56, 95
- (D) 57, 94

142. The data hiding is taken care by

- (A) abstraction
- (B) encapsulation
- (C) modularity
- (D) inheritance

143.

```
main ()
{char *str="abcde";
printf("%c", *str);
printf("%c", *str++);
printf("%c", *(str++));
printf("%s", str);}
```

The output of the above 'C' code will be:

- (A) a a c b c d e
- (B) a a c c c d e
- (C) a a b c d e
- (D) None of the above

144. Given that $x = 7.5$, $j = -1.0$, $n = 1.0$, $m = 2.0$

The value of $-x+j == x>n>=m$ is:

- (A) 0
- (B) 1
- (C) 2
- (D) 3

145. How many tokens will be generated by the scanner for the following statement?

$x = x * (a + b) - 5;$

- (A) 12
- (B) 11
- (C) 10
- (D) 07

146. Under which package is the string class encapsulated?

- (A) java.lang
- (B) java.util
- (C) java.io
- (D) java.awt

147. What will be the output of the following 'C' code?

```
main ()
{int x = 128;
printf ("n\\%d", 1 + x++);
}
```

- (A) 128
- (B) 129
- (C) 130
- (D) 131

148. In object-oriented programming, new classes can be defined by extending existing classes. This is an example of

- (A) encapsulation
- (B) interface
- (C) composition
- (D) inheritance

149. While (87) printf("computer");

The above C statement will

- (A) print "computer" 87 times
- (B) print "computer" 0 times
- (C) print "computer" 1 times
- (D) print "computer" infinite times

150. Which of the following operators cannot be overloaded in C++?

- (A) *
- (B) +=
- (C) ==
- (D) ::

ANSWER KEY**Subject Name: 621 M VOC MOBILE PHONE APPLICATION DEVELOPMENT**

SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key	SI No.	Key
1	A	31	C	61	B	91	A	121	D
2	A	32	A	62	C	92	C	122	D
3	B	33	C	63	A	93	B	123	B
4	B	34	A	64	C	94	A	124	B
5	B	35	B	65	B	95	C	125	A
6	B	36	C	66	B	96	D	126	D
7	C	37	C	67	C	97	D	127	A
8	B	38	B	68	A	98	B	128	B
9	D	39	B	69	A	99	C	129	B
10	D	40	D	70	B	100	A	130	A
11	A	41	B	71	B	101	B	131	A
12	B	42	B	72	A	102	B	132	C
13	B	43	D	73	B	103	B	133	B
14	A	44	C	74	C	104	C	134	B
15	B	45	C	75	A	105	A	135	A
16	A	46	A	76	D	106	D	136	B
17	B	47	C	77	C	107	C	137	C
18	D	48	B	78	D	108	A	138	B
19	C	49	A	79	B	109	A	139	B
20	D	50	A	80	C	110	A	140	D
21	A	51	D	81	C	111	C	141	D
22	D	52	B	82	D	112	A	142	A
23	B	53	A	83	C	113	C	143	C
24	A	54	D	84	C	114	A	144	A
25	D	55	B	85	A	115	A	145	A
26	D	56	B	86	A	116	C	146	A
27	C	57	D	87	C	117	D	147	B
28	D	58	A	88	D	118	B	148	D
29	B	59	C	89	C	119	B	149	D
30	A	60	D	90	B	120	D	150	D