

RESEARCH METHODOLOGY

Courage is not only the basis of virtue; it is its expression. Faith, hope, charity and all the rest don't become virtues until it takes courage to exercise them. There are roughly two types of courage. The first an emotional state which urges a man to risk injury or death, is physical courage. The second, more reasoning attitude which enables him to take coolly his career, happiness, his whole future or his judgement of what he thinks either right or worthwhile, is moral courage.

I have known many men, who had marked physical courage, but lacked moral courage. Some of them were in high places, but they failed to be great in themselves because they lacked moral courage. On the other hand I have seen men who undoubtedly possessed moral courage but were very cautious about taking physical risks. But I have never met a man with moral courage who couldn't, when it was really necessary, face a situation boldly.

1. A man of courage is :
(A) cunning (B) intelligent
(C) curious (D) careful
2. Physical courage is an expression of :
(A) emotions (B) deliberation
(C) uncertainty (D) defiance
3. A man with moral courage can :
(A) defy his enemies (B) overcome all difficulties
(C) face a situation boldly (D) be very pragmatic
4. People with physical courage of ten lack :
(A) mental balance (B) capacity for reasoning
(C) emotional stability (D) will to fight

5. All virtues become meaningful because of :

- (A) faith (B) charity
(C) courage (D) hope

At this stage of civilisation, when many nations are brought into close and vital contact for good and evil, it is essential, as never before, that their gross ignorance of one another should be diminished, that they should begin to understand a little of one another's historical experience and resulting mentality. It is the fault of the English to expect the people of other countries to react as they do, to political and international situations. Our genuine goodwill and good intentions are often brought to nothing, because we expect other people to be like us. This would be corrected if we knew the history, not necessarily in detail but in broad outlines, of the social and political conditions which have given to each nation its present character.

6. According to the author of 'Mentality' of a nation is mainly product of its :

- (A) history (B) international position
(C) politics (D) present character

7. The need for a greater understanding between nations :

- (A) was always there (B) is no longer there
(C) is more today than ever before (D) will always be there

8. The character of a nation is the result of its :

- (A) mentality (B) cultural heritage
(C) gross ignorance (D) socio-political conditions

9. According to the author his countrymen should :
- (A) read the story of other nations
 - (B) have a better understanding of other nations
 - (C) not react to other actions
 - (D) have vital contacts with other nations
10. Englishmen like others to react to political situations like :
- (A) us
 - (B) themselves
 - (C) others
 - (D) each others
11. Airports Authority of India approved a facial recognition technology under the 'DigiYatra' scheme for this city's Airport.
- (A) Hyderabad International Airport
 - (B) Chennai International Airport
 - (C) Mumbai International Airport
 - (D) Kolkata International Airport
12. A dishonest milkman professes to sell his milk at cost price but he mixes it with water and thereby gains 25%. The percentage of water in the mixture is :
- (A) 4%
 - (B) $6\frac{1}{4}$ %
 - (C) 20%
 - (D) 25%
13. In what ratio must water be mixed with milk to gain $16\frac{2}{3}$ % on selling the mixture at cost price ?
- (A) 1 : 6
 - (B) 6 : 1
 - (C) 2 : 3
 - (D) 4 : 3

14. Three pipes A, B and C can fill a tank in 6 hours. After working at it together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. The number of hours taken by C alone to fill the tank is :
- (A) 10 (B) 12
(C) 14 (D) 16
15. Two pipes A and B can fill a tank in 15 minutes and 20 minutes respectively. Both the pipes are opened together but after 4 minutes, pipe A is turned off. What is the total time required to fill the tank ?
- (A) 10 min. 20 sec.
(B) 11 min. 45 sec.
(C) 12 min. 30 sec.
(D) 14 min. 40 sec.
16. The present ages of three persons in proportions 4 : 7 : 9. Eight years ago, the sum of their ages was 56. Find their present ages (in years).
- (A) 8, 20, 28
(B) 16, 28, 36
(C) 20, 35, 45
(D) None of the above
17. Q is as much younger than R as he is older than T. If the sum of the ages of R and T is 50 years, what is definitely the difference between R and Q's age ?
- (A) 1 year (B) 2 years
(C) 25 years (D) Data inadequate

18. Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is :
- (A) 173 m (B) 200 m
(C) 273 m (D) 300 m
19. A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30° with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 60° . What is the distance between the base of the tower and the point P ?
- (A) 43 units (B) 8 units
(C) 12 units (D) Data inadequate
20. Find the odd man out :
1, 4, 9, 16, 23, 25, 36
- (A) 9 (B) 23
(C) 25 (D) 36
21. Find the odd man out :
10, 14, 16, 18, 21, 24, 26
- (A) 26 (B) 24
(C) 21 (D) 18
22. Find the odd man out :
835, 734, 642, 751, 853, 981, 532
- (A) 751 (B) 853
(C) 981 (D) 532

23. Evaluate :

$$\frac{(2.39)^2 - (1.61)^2}{2.39 - 1.61}$$

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

24. The value of $\frac{(0.96)^3 - (0.1)^3}{(0.96)^2 + 0.096 + (0.1)^2}$ is :

- (A) 0.86 (B) 0.95
(C) 0.97 (D) 1.06

25. On what dates of April, 2001 did Wednesday fall ?

- (A) 1st, 8th, 15th, 22nd, 29th
(B) 2nd, 9th, 16th, 23rd, 30th
(C) 3rd, 10th, 17th, 24th
(D) 4th, 11th, 18th, 25th

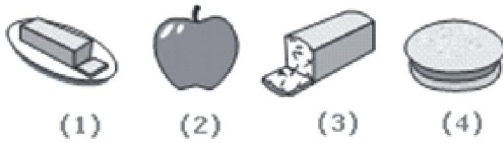
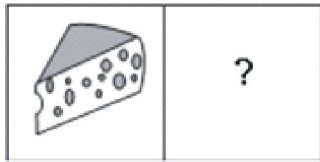
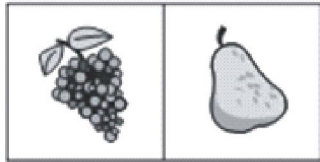
26. A right triangle with sides 3 cm, 4 cm and 5 cm is rotated the side of 3 cm to form a cone. The volume of the cone so formed is :

- (A) $12\pi \text{ cm}^3$ (B) $15\pi \text{ cm}^3$
(C) $16\pi \text{ cm}^3$ (D) $20\pi \text{ cm}^3$

27. A cistern 6 m long and 4 m wide contains water up to a depth of 1 m 25 cm. The total area of the wet surface is :

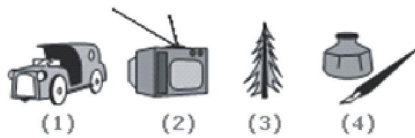
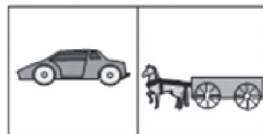
- (A) 49 m^2 (B) 50 m^2
(C) 53.5 m^2 (D) 55 m^2

28. Choose the picture that would go in the empty box so that the two bottom pictures are related in the same way as the top two are related.



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

29.



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

In each of the following questions, two statements numbered I and II are given. There may be cause and effect relationship between the two statements. These two statements may be the effect of the same cause or independent causes. These statements may be independent causes without having any relationship. Read both the statements in each question and mark your answer as

30. Statements :

- I. The prices of petrol and diesel in the domestic market have remained unchanged for the past few months.
 - II. The crude oil prices in the international market have gone up substantially in the last few months.
- (A) Statement I is the cause and statement II is its effect
 - (B) Statement II is the cause and statement I is its effect
 - (C) Both the statements I and II are independent causes
 - (D) Both the statements I and II are effects of independent causes

31. Statements :

- I. The government has recently fixed the fees for professional courses offered by the unaided institutions which are much lower than the fees charged last year.
 - II. The parents of the aspiring students launched a severe agitation last year protesting against the high fees charged by the unaided institutions.
- (A) Statement I is the cause and statement II is its effect
 - (B) Statement II is the cause and statement I is its effect
 - (C) Both the statements I and II are independent causes
 - (D) Both the statements I and II are effects of independent causes

32. Statements :

- I. The Reserve Bank of India has recently put restrictions on few small banks in the country.
 - II. The small banks in the private and co-operative sector in India are not in a position to withstand the competitions of the bigger in the public sector.
- (A) Statement I is the cause and statement II is its effect
 - (B) Statement II is the cause and statement I is its effect
 - (C) Both the statements I and II are independent causes
 - (D) Both the statements I and II are effects of independent causes

In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Give answer :

33. Statements : All bags are cakes. All lamps are cakes.

Conclusions :

- I. Some lamps are bags.
 - II. No lamp is bag.
- (A) Only conclusion I follows
 - (B) Only conclusion II follows
 - (C) Either I or II follows
 - (D) Neither I nor II follows

34. Statements : Some kings are queens. All queens are beautiful.

Conclusions :

I. All kings are beautiful.

II. All queens are kings.

(A) Only conclusion I follows

(B) Only conclusion II follows

(C) Either I or II follows

(D) Neither I nor II follows

Each of the following questions contains a small paragraph followed by a question on it. Read each paragraph carefully and answer the question given below it.

35. The attainment of individual and organisational goals is mutually interdependent and linked by a common denominator - employee work motivation. Organisational members are motivated to satisfy their personal goals, and they contribute their efforts to the attainment of organisational objectives as means of achieving these personal goals.

The passage best supports the statement that motivation :

(A) encourages an individual to give priority to personal goals over organisational goals.

(B) is crucial for the survival of an individual and organisation.

(C) is the product of an individual's physical and mental energy.

(D) is the external force which induces an individual to contribute his efforts.

36. Due to enormous profits involved in smuggling, hundreds of persons have been attracted towards this anti-national activity. Some of them became millionaires overnight. India has a vast coastline both on the Eastern and Western Coast. It has been a heaven for smugglers who have been carrying on their activities with great impunity. There is no doubt, that from time to time certain seizures were made by the enforcement authorities, during raids and ambush but even allowing these losses the smugglers made huge profits.

The passage best supports the statement that :

- (A) smuggling hampers the economic development of a nation.
- (B) smuggling ought to be curbed.
- (C) authorities are taking strict measures to curb smuggling.
- (D) smuggling is fast increasing in our country owing to the quick profit it entails

Each question has an underlined word followed by four answer choices. You will choose the word that is a necessary part of the underlined word.

37. lightning :

- (A) electricity
- (B) thunder
- (C) brightness
- (D) rain

38. cage :

- (A) enclosure
- (B) prisoner
- (C) animal
- (D) zoo

- 39.** The film director wants an actress for the lead role of Lucy who perfectly fits the description that appears in the original screenplay. He is not willing to consider actresses who do not resemble the character as she is described in the screenplay, no matter how talented they are. The screenplay describes Lucy as an average-sized, forty something redhead, with deep brown eyes, very fair skin, and a brilliant smile. The casting agent has four actresses in mind.

Actress #1 is a stunning red-haired beauty who is 5'9" and in her mid-twenties. Her eyes are brown and she has an olive complexion.

Actress #2 has red hair, big brown eyes, and a fair complexion. She is in her mid-forties and is 5'5".

Actress #3 is 5'4" and of medium build. She has red hair, brown eyes, and is in her early forties.

Actress #4 is a blue-eyed redhead in her early thirties. She's of very slight build and stands at 5'.

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

- 40.** Mrs. Carson took a taxi to meet her three friends for lunch. They were waiting for her outside the restaurant when she pulled up in the car. She was so excited to see her friends that she left her tote bag in the taxi. As the taxi pulled away, she and her friends took notice of the license plate number so they would be able to identify the car when they called the taxi company.

#1 : The four women seem to agree that the plate starts out with the letter J.

#2 : Three of them agree that the plate ends with 12L.

#3 : Three of them think that the second letter is X, and a different three think that the third letter is K.

The four license plate numbers below represent what each of the four women thinks she saw. Which one is most likely the license plate number of the taxi ?

- | | |
|-------------|-------------|
| (A) JXK 12L | (B) JYK 12L |
| (C) JXK 12I | (D) JXX 12L |

41. Who among the following has been elected the new President of International Boxing Association (AIBA) ?
- (A) Thomas Bach (B) P. S. Bopanna
(C) Will Smith (D) Gafur Rakhimov
42. Which port plans to host an edible oil refinery to maximise revenue and ensure captive cargo ?
- (A) Jawaharlal Nehru Port Trust
(B) Kandla Port
(C) Mormugao Port
(D) Paradip Port
43. How many MoU's signed on India-Japan Annual Summit 2018 ?
- (A) 32 (B) 25
(C) 18 (D) 10
44. This country tops in the FIFA's world rankings :
- (A) France (B) England
(C) Belgium (D) Argentina
45. A Japanese rocket lifted off the United Arab Emirates first locally made satellite, the KhalifaSat Earth observation satellite, into orbit. The name of the rocket is :
- (A) Sakigake (B) M-V rocket
(C) Ohsumi (D) H2A

46. Which company has acquired a software company Red Hat, recently ?
- (A) Intel (B) Cisco Systems
(C) IBM (D) Oracle
47. Who will be the head of 'Approach to Agriculture : A Holistic Overview' on approach to agriculture for doubling farmer's income ?
- (A) Urjit Patel (B) Ram Naik
(C) Ananth Kumar (D) Leela Chandran
48. Name the Boxer who has been nominated for the Dronacharya Award for 2018 in Boxing :
- (A) Omkar Yadav
(B) Subedar Chenanda Achaiah Kuttappa
(C) Premkumar
(D) Ram Niwas
49. India has launched Green Agriculture project along with which international organisation to bring transformative change in the farm sector ?
- (A) UNESCO (B) UNODC
(C) ILO (D) FAO
50. Recently, India and _____ signed the revised Air Services Agreement.
- (A) Turkey (B) Egypt
(C) Morocco (D) Israel

COMPUTER SCIENCE & ENGINEERING

51. Which one of the following is known as response time or latency ?
- (A) cycle time (B) memory time
(C) access time (D) time
52. Which one of the following circuits is capable of storing one bit of information ?
- (A) full adder (B) half adder
(C) flip-flop (D) combinational circuit
53. How many stable states are there in a simple flip-flop ?
- (A) 5 (B) 2
(C) 3 (D) 4
54. Which command is used to show the contents of the file on the screen in LINUX ?
- (A) cat (B) man
(C) pwd (D) echo
55. How many bytes of memory are required to store an integer ?
- (A) 8 (B) 2
(C) 4 (D) 1
56. The expression $XYZ + XYZ + XYZ$ is called :
- (A) Canonical sum
(B) Sum of standard product terms
(C) Sum of minterms
(D) Cartesian product

57. DeMorgan's second theorem is :
- (A) $\overline{A.B} = \bar{A} + \bar{B}$ (B) $\overline{A.B} = \bar{A} . \bar{B}$
 (C) $A.B = A-B$ (D) $A.B = A + B$
58. The device that accomplishes the modulation-demodulation process is called :
- (A) flip-flop (B) MODEM
 (C) chip (D) CPU
59. Job scheduling led to the concept known as the :
- (A) SPOOLING (B) resident monitors
 (C) time-sharing (D) multiprogramming
60. Sending a message to a group is called :
- (A) multitasking (B) group message
 (C) routing (D) multicast routing
61. An open source testing tool used to test the performance of the application when it is under heavy load is :
- (A) Apache JMeter (B) Loadrunner
 (C) TSL (D) PSP
62. _____ holds the information before it goes to the decoder.
- (A) Control register (B) Bus register
 (C) Data register (D) Address register
63. The Clique problem is :
- (A) NP-Complete (B) NP-Hard
 (C) NP-Soft (D) MST

64. The COCOMO model deals with :
- (A) software cost (B) software risk
(C) scheduling (D) testing
65. What type of language is Visual Basic ?
- (A) object-based (B) object-oriented
(C) pure OOPS language (D) hypertext
66. VIRUS stands for :
- (A) Very Intelligent Result Until Source
(B) Very Interchanged Resource Under Search
(C) Vital Information Resource Under Siege
(D) Viral Important Record User Searched
67. The mechanism by which two different file systems can be combined together is called :
- (A) mounting (B) paging
(C) process (D) buddy system
68. A binary semaphore can take only one of the following 2 values :
- (A) 0 and 1 (B) 0 and 10
(C) 0 and 2 (D) 1 and 10
69. What is the range of values ProcessID (PID) can take ?
- (A) 0 to 32767 (B) 0 to 128
(C) 0 to 256 (D) 0 to 1024

70. What is the system call to create a new process ?
- (A) fork (B) nice
(C) exec() (D) brk()
71. A B-Tree of order m is an m -way search tree with :
- (A) all leaves of the tree on the same level
(B) each node, except for root and leaves, having less than $m/2$ subtrees
(C) the root of the tree having more than m subtrees
(D) all its leaves connected to form a linked list
72. A browser is a software tool that helps :
- (A) linking of application program modules
(B) viewing of application information
(C) developing application programs
(D) debugging of application software
73. Which of the following is *not* an element of C ?
- (A) tokens (B) identifiers
(C) datatypes (D) structures
74. Which of the following is *not* an element of C++ ?
- (A) tokens (B) identifiers
(C) variables (D) constructors
75. Name the two communication satellites :
- (A) geosynchronous and low-orbit
(B) synchronous and orbit
(C) geosynchronous and trunks
(D) trunks and tunneling

76. Which of the following is *not* a memory management scheme ?

- (A) paging memory (B) lock
(C) mutual exclusion (D) critical region

77. Which of the following algorithm deals with deadlock ?

- (A) Banker's algorithm (B) Bakery algorithm
(C) RR (D) Priority algorithm

78. Which of the following is *not* an asymptotic notation ?

- (A) Big 'oh' (B) Omega
(C) Theta (D) Alpha

79. Kuhn-Tucker conditions deal with :

- (A) non-linear programming (B) matroids
(C) LPP (D) assignment problem

80. The Max-Flow-Min-Cut theorem deals with :

- (A) network flow problem (B) LPP
(C) matroids (D) non-linear programming

81. Internet-based broadcasting of audio and video content is :

- (A) webcasting (B) webonomics
(C) webhosting (D) web content design

82. What is the cardinality of the set of odd positive integers less than 10 ?

- (A) 10 (B) 5
(C) 3 (D) 20

- 83.** If for a square matrix A(non-singular) and B, null matrix O, $AB = O$ then :
- (A) B is a null matrix
 - (B) B is a non-singular matrix
 - (C) B is an identity matrix
 - (D) B is an inverse matrix
- 84.** The complexity of linear search algorithm is :
- (A) $O(n)$
 - (B) $O(\log n)$
 - (C) $O(n^2)$
 - (D) $O(n \log n)$
- 85.** The Worst case occur in linear search algorithm when :
- (A) Item is somewhere in the middle of the array
 - (B) Item is not in the array at all
 - (C) Item is the last element in the array
 - (D) Item is the last element in the array or is not there at all
- 86.** Let $P(x)$ denote the statement " $x > 7$ ". Which of these have truth value true ?
- (A) $P(0)$
 - (B) $P(4)$
 - (C) $P(6)$
 - (D) $P(9)$
- 87.** The statement," Every comedian is funny" where $C(x)$ is "x is a comedian" and $F(x)$ is "x is funny" and the domain consists of all people.
- (A) $\exists x(C(x) \wedge F(x))$
 - (B) $\forall x(C(x) \wedge F(x))$
 - (C) $\exists x(C(x) \rightarrow F(x))$
 - (D) $\forall x(C(x) \rightarrow F(x))$

88. Which of the following groups is/are token together into semantic structures ?
- (A) Syntax analyzer
 - (B) Intermediate code generation
 - (C) Lexical analyzer
 - (D) Semantic analyzer
89. What is the output of lexical analyzer ?
- (A) parse tree
 - (B) A list of tokens
 - (C) Intermediate code
 - (D) Machine code
90. Grammar of the programming is checked at _____ phase of compiler.
- (A) Semantic analysis
 - (B) Syntax analysis
 - (C) Code optimization
 - (D) Code generation
91. _____ is a process of finding a parse tree for a string of tokens.
- (A) Parsing
 - (B) Analysing
 - (C) Recognizing
 - (D) Tokenizing
92. Lexical analysis is about breaking a sequence of characters into :
- (A) Groups
 - (B) Packets
 - (C) Lines
 - (D) Tokens
93. Which of the following types of table constraints will prevent the entry of duplicate rows ?
- (A) Primary key
 - (B) Unique
 - (C) Null
 - (D) Foreign key

94. A cookie :
- (A) Stores the password of the user
 - (B) Stores information about the user's web activity
 - (C) Stores software developed by the user
 - (D) Stores the-commands used by the user
95. Which of the following is required to create an HTML document ?
- (A) Search engine
 - (B) Text editor
 - (C) Internet
 - (D) Browser
96. Which of the following represents the fastest data transmission speed ?
- (A) Gbps
 - (B) Kbps
 - (C) Bps
 - (D) Bandwidth
97. How many bits are there in the Ethernet address ?
- (A) 16 bits
 - (B) 32 bits
 - (C) 48 bits
 - (D) 64 bits
98. The slowest transmission speeds are those of :
- (A) Coaxial cable
 - (B) Twisted-pair wire
 - (C) Fiber-optic cable
 - (D) Microwaves
99. Which unit controls the movements of signals between CPU and I/O ?
- (A) Control unit
 - (B) Memory unit
 - (C) ALU
 - (D) Secondary storage
100. Which of the following is the main circuit-board of the system unit ?
- (A) Motherboard
 - (B) Intel board
 - (C) Graphics board
 - (D) Control unit