TEST SERIES NTA-UGC-NET/JRF JUNE 2019

BOOKLET SERIES D

Paper Code 87

Test Type: TEST SERIES

COMPUTER SCIENCE & APPLICATIONS

Duration: 03:00 Hours

Date: 07-06-2019

Maximum Marks: 300

Read the following instructions carefully:

1. Single Paper Test is divided into **TWO** Parts.
2. **Paper - I:** This part shall carry **50** questions. Each question shall be of **2 marks.**
3. **Paper - II:** This part shall contain **100** questions. Each question shall be of **2 marks**.
4. There will be no negative marking.
5. Darken the appropriate bubbles with HB pencil/Ball Pen to write your answer.
6. The candidates shall be allowed to carry the Question Paper Booklet after completion of the exam.

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CORPORATE OFFICE :
33-35, Mall Road, G.T.B. Nagar,
Opp. G.T.B. Nagar Metro Station
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T : 011-27653355, 27654455
www.careerendeavour.com

REGISTERED OFFICE :
28-A/11, Jia Sarai, Near IIT
Metro Station, Gate No. 3,
New Delhi-110 016
T : 011-26851008, 26861009
E : info@careerendeavour.com

PAPER – I

1. Which of the following is true about communication?
   1. Communication has a symbolic nature.
   2. It is an act of sharing one's ideas, emotions, attitudes, or perceptions with another person or group of persons through words (written or spoken), gestures, signals, signs, or other modes of transmitting images.
   3. Perfect communication is possible.
   4. The transmission of ideas always encounters barriers that reduce its effectiveness.

   (a) 1, 2, 3 only (b) 2, 3, 4 only (c) 1, 2, 4 only (d) All of these

2. Meta-communication relates to the speaker's:
   (a) intentional choice of dress
   (b) intentional choice of words
   (c) unintentional choice of both words and dress
   (d) unintentional choice of words

3. Which of the following is true about cross cultural (intercultural) communication?
   1. Cross-cultural communication is about dealing with people from other cultures in a way that minimizes misunderstandings and maximizes the potential for strong relationships.
   2. Globalization necessitates cultural orientation on the part of the visitors so that they are familiar with the host culture, specially the use of habitual expressions and expected behaviour in different situations.
   3. Cultural sensitivity is very important in helping a person adapt to a foreign culture.
   4. Cultural sensitivity is required to understand how to conduct oneself when attending meetings, visiting someone, joining a group or simply addressing someone.

   (a) 1, 2, 4 (b) 2, 3, 4 (c) 1, 2, 3 (d) All of these

4. If a listener paraphrases the speaker's words and lets the speaker know that the listener has accurately heard him or her then this type of response in known as …..
   (a) basic refractive (b) basic reflective (c) Clarifying (d) None of these

5. In January, 2018, Facebook CEO Mark Zuckerberg determined that users themselves could decide the difference between real and fake news when he wrote, "We could try to make that decision ourselves, but that's not something we're comfortable with." This is an example of which function of communication?
   (a) Surveillance function (b) Correlation function
   (c) Influencing social norm (d) Education and entertainment

6. The co-operative learningrequires which of the following skills?
   1. Communication, 2. Problem-solving skills,
   3. Cognition, 4. Critical thinking
   5. Affection

   (a) 1, 2, 3 (b) 1, 2, 3, 4, 5 (c) 1, 2, 3, 4 (d) 2, 3, 4, 5

7. Which of the following is correctly matched?
   1. Memory level: Teacher Centric
   2. Understanding level: Subject Centric
   3. Reflective level: Student Centric

   (a) 1, 2 (b) 1, 3 (c) 2, 3 (d) 1, 2, 3

8. Which of the following is not included in deficiency need of Maslov's Motivational model?
   (a) Cognition (b) Belonging and Love
   (c) Safety (d) Physiological

9. Which of the following is not a type of instructional material?
   1. Concrete Object
   2. Representations of concrete objects and phenomena
   3. Written descriptions
   4. Technological instructional media

   (a) 1, 2, 3 (b) Only 2 (c) 1, 3, 4 (d) None of these

10. Which of the following are the Characteristics of young adolescent intellectual development:
   1. Moving from concrete to abstract thinking.
   2. An intense curiosity and wide range of intellectual pursuit, few of which are sustained over the long term.
   3. High achievement when challenged and engaged.
   4. Prefers passive over active learning experiences.
   5. Interest in interacting with peers during learning activities.

   (a) All of these (b) all except 4 (c) 1, 2 and 5 only (d) 2, 3, 4 only

11. Which of the following are the benefits of qualitative analysis software?
   1. To be able to analyze large amounts of qualitative data
   2. For improved validity and credibility of your research
   3. For decrease research collaboration
   4. To simplify complex data analysis
   5. To organise large amounts of data

   (a) 1, 2, 3 (b) 1, 2, 4, 5 (c) 1, 2, 3, 4, 5 (d) 3, 4, 5

12. How many categories of ethical principles do Diener and Crandell refer to?
   (a) Three: harm to students; lack of informed consent; invasion of privacy on social media.
   (b) Four: harm to participants; lack of informed consent; invasion of privacy; involvement of deception.
   (c) Two: ethical and unethical.
   (d) Two: right and wrong.

13. What are "natural groups" in the context of focus group research?
   (a) Groups of non-human animals studied in their natural environment.
   (b) Random samples of participants from the general population.
   (c) Groups of participants who already know each other.
   (d) Groups of strangers selected from a particular location.

14. Which of the following is not a contrast between quantitative and qualitative research?
   (a) Ontology vs. Epistemology
   (b) Generalization vs. contextual understanding
   (c) Hard, reliable data vs. rich, deep data
   (d) Interpretivist vs. Feminist

15. What is the difference between interval/ratio and ordinal variables?
   (a) The distance between categories is equal across the range of interval/ratio data.
   (b) Ordinal data can be rank ordered, but interval/ratio data cannot.
   (c) Interval/ratio variables contain only two categories.
   (d) Ordinal variables have a fixed zero point, whereas interval/ratio variables do not.

16. e-Shodh Sindhu is implemented by
   (a) INFLIBNET, Gandhinagar (b) NAD
   (c) CEC-UGC (d) UGC

17. Point out the wrong statement:
(a) The massive scale of cloud computing systems was enabled by the popularization of the Internet.
(b) Soft computing represents a real paradigm shift in the way in which systems are deployed.
(c) Cloud computing makes the long-held dream of utility computing possible with a pay-as-you-go, infinitely scalable, universally available system.
(d) Both (a) and (c).

18. The IBM (International Business Machine) started its commercial venture (Computer and computer parts sells and maintenance) in India in
(a) 1967 (b) 1951 (c) 1991 (d) 1978

19. What is the full form of "GAIS"?
(a) Gateway Internet Access Service (b) Global Internet Access Service
(c) Group for Assigned Internet Services (d) Global Array of Internet Servers

20. An e-Governance initiative should have how many domains?
(a) 2 (b) 3 (c) 4 (d) 5

21. Which of the following is not an MDG?
(a) Improve maternal health
(b) Achieve universal access to safe drinking water, sanitation and hygiene
(c) Ensure environmental sustainability
(d) Achieve universal primary education

22. Each SDG is supported by a set of Targets – specific objectives that are associated with that Goal. How many Targets are there in total?
(a) 99 (b) 1,016 (c) 169 (d) 51

23. Groundwater, oil, gas, gravel and peat are abotained by humans from
(a) Underground (b) Wetlands (c) Forests (d) Mountain Areas

24. Consider the following statements:
1. Natural Hazards are elements of circumstances in the Natural environment that have the potential to cause harm to people or property or both.
2. Natural disasters are relatively sudden and cause large scale, widespread death, loss of property and disturbance to social systems and life over which people have a little or no control.

Which of the statements given above is/are correct?
(a) 1 only (b) 2 only (c) Both 1 and 2 (d) None of these

25. Which of the following is/are the Guiding Principles of ISA?
1. Members take coordinated actions through Programmes and activities launched on a voluntary basis, aimed at better harmonizing and aggregating demand for, inter alia, solar finance, solar technologies, innovation, research and development, and capacity building.
2. In this endeavor, Members cooperate closely and strive for establishing mutually beneficial relationships with relevant organizations, public and private stakeholders, and with non-member countries.
3. Each Member shares and updates, for those solar applications for which it seeks the benefits of collective action under the ISA, and based on a common analytical mapping of solar applications, relevant information regarding: its needs and objectives; domestic measures and initiatives taken or intended to be taken in order to achieve these objectives; obstacles along the value chain and dissemination process. The Secretariat maintains a database of these assessments in order to highlight the potential for cooperation.
4. Each Member designates a National Focal Point for the ISA. National Focal Points constitute a permanent network of correspondents of the ISA in Member countries. They inter alia interact with one another and also with relevant stakeholders to identify areas of common interest, design Programmes proposals and make recommendations to the Secretariat regarding the implementation of the objectives of the ISA.

(a) 1, 2, 3 only (b) All of these (c) None of these (d) 1, 2, 4

The table for a country's foreign trade for the year 1990-91 to 1996-97 are given in the following table. Answers the **Q.26 to Q.30** on the basis of the information given.

***A country's foreign trade* (*Rupees in crores*)**

Year	Exports	Imports	Trade deficit
1990 – 91	6711	12549	5838
1991 – 92	7806	13608	5802
1992 – 93	8803	14293	5490
1993 – 94	9771	15831	6060
1994 – 95	11855	17173	5318
1995 – 96	10420	18371	7951
1996 – 97	12550	20063	7513

26. Which of the following showed an increase every year ?
(a) Exports (b) Imports (c) Trade deficit (d) All of these

27. The ratio of imports to exports was maximum in the year ?
(a) 1990-91 (b) 1996-97 (c) 1995-96 (d) 1992-93

28. The percentage increase in exports was maximum in the year ?
(a) 1990-91 (b) 1996-97 (c) 1994-95 (d) 1994-93

29. The total trade deficit for the last five years is ?
(a) ` 28,508 crore (b) ` 32,332 crore (c) ` 44,322 crore (d) ` 32,232 crore

30. The difference between imports and exports was maximum in the year ?
(a) 1995-96 (b) 1996-97 (c) 1994-95 (d) 1993-94

31. The ratio of Meena's age and Kamla's age is 3 : 5 and the sum of their ages is 80 years. The ratio of their ages after 10 years will be
(a) 2 : 3 (b) 1 : 2 (c) 3 : 2 (d) 3 : 5

32. The difference between 78 % of number and 59 % of the same number is 323, what is 62 % of that number?
(a) 1054 (b) 1178 (c) 1037 (d) 1159

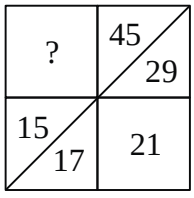
33. If DEW is written as '1625529' and GET is '4925400', then how will TWO be written:
(a) 400529522 (b) 400529225 (c) 400925225 (d) 400225925

34. Find missing number ?

A	D	G
D	I	N
I	P	?

(a) V (b) W (c) X (d) Y

35. Find the missing number ?



(a) 8 (b) 10 (c) 14 (d) 16

36. Raja Rammohan Roy setup which college in 1817 A.D. ?
(a) Bombay college (b) Calcutta college (c) Delhi college (d) None of these

37. 'Parliamentary supermacy' is a definite feature of the political system ?
(a) U.K. (b) India (c) Canada (d) Australia

38. The Election Commission of a state can be removed from office
(a) only by the Governor.
(b) in the same manner and on the same ground as a Judge of Supreme Court.
(c) Only by the President on the advice of the Chief Justice of concerned state.
(d) in the same manner as the Vice-President.

39. During the ancient period students were taught by which method ?
(a) Only Shruti (b) Only Smriti (c) Both (a) and (b) (d) None of these

40. How many Open University are there in India ?
(a) 10 (b) 13 (c) 19 (d) 21

41. The part of the knowledge include
(a) Prama (b) Aprama (c) Both (a) and (b) (d) Rationality

42. Anumana has how many terms ?
(a) One (b) Two (c) Three (d) Four

43. The major term is called
(a) Sadhya (b) Paksha (c) Vyapti (d) None of these

44. Hetu is the _____ term in Anumana.
(a) major term (b) minor term (c) middle term (d) None of these

45. Vyapti has _____.
(a) Vyapta (b) Vyapaka (c) Both (a) and (b) (d) None of these

Read the following passage carefully and answer the questions 46 to 50:

Each one has his reasons : for one art is a flight; for another, a means of conquering. But one can flee into a hermitage, into madness, into death. One can conquer by arms. Why does it have to be writing? Because, behind the various aims of authors, there is a deeper and more immediate choice which is common to all of us. We shall try to elucidate this choice, and we shall see whether it is not in the name of this very choice of writing that the engagement of writers must be required.

Each of our perceptions is accompanied by consciousness that human reality is a 'revealer'. That is, it is through human reality that 'there is' being, or, to put it differently, that man is the means by which things are manifested. It is our presence in the world which multiplies relations. It is we who set up a relationship between this tree and that bit of sky. Thanks to us, that star which has been dead for millenia, that quarter moon, and that dark river are disclosed in the unity of a landscape. It is the speed of our auto and out airplane which organizes the great masses of the earth. With each of our acts, the world reveals to us a new face. But, if we know that we are directors of being, we also know that we are not its producers. If we turn away from this landscape, it will sink back into its dark permanence. At least, it will sink back : there is no one mad enough to think that it is going to be annihilated. It is we who shall be annihilated, and the earth will remain in its lethargy until another consciousness comes along to awaken it. Thus, to our inner certainty of being 'revealers' is added that of being inessential in relation to the thing revealed.

One of the chief motives of artistic creation is certainly the need of feeling that we are essential in relationship to the world. If I fix on canvas or in writing a certain aspect of the fields or the sea or a look on someone's face which I have disclosed, I am conscious of having produced them by condensing relationships, by introducing order where there was none, by imposing the unit of mind on the diversity of things. That is , I think myself essential in relation to my creation. But this time it is the created object which escapes me; I cannot reveal the

produce at the same time. The creation becomes inessential in relation to the creative activity. First of all, even if it appears to others as definitive, the created object always seems to us in a state of suspension; we can always change this line, that shade, that word. Thus, it never forces itself. A novice painter asked his teacher, 'When should I consider my painting finished'? And the teacher answered, "When you can look at it in amazement and say to yourself 'I'm the one who did that!".

Which amounts to saying 'never'. For it is virtually considering one's work with someone else's eyes and revealing what has been created. But it is self-evident that we are proportionally less conscious of the thing produced and more conscious of our productive activity. When it is a matter of poetry or carpentry, we work according to traditional norms, with tools whose usage is codified; it is Heidegger's famous 'they' who are working without our hands. In this case, the result can seem to us sufficiently strange to preserve its objectivity in our eyes. But if we ourselves produce the rules of production, the measures, the criteria, and if our creative drive comes from the very depths of our heart, then we never find anything but ourselves in our work. It is we who have invented the laws by which we judge it, it is our history, our love, our gaiety that we recognise in it. Even if we should regard it without touching it any further, we never receive from it that gaiety or love we put them into it. The results which we have obtained on canvas or paper never seem to us objective. We are too familiar with the processes of which they are the effects. These processes remain a subjective discovery : they are ourselves, our inspiration, our ruse, and when we seek to perceive our work, we create it again, we repeat mentally the operation which produced it; each of its aspects appears as a result. Thus, in the perception, the object is given as the essential thing and the subject as the inessential. The latter seeks essentially in the creation and creation and obtains it, but then it is the object becomes the inessential.

The dialectic is nowhere more apparent than in the art of writing, for the literary object is a peculiar top which exists only in movement. To make it come into view a concrete act called reading in necessary, and it last only as long as this act can last. Beyond that, there are only black marks on paper. Now, the writer cannot read what he writes, whereas the shoemaker can put on the shoes he has just made if they are to his size, and the architect can live in the house he has built. In reading one foresees: one waits. He foresees the end of the sentence, the following sentence, the next page. He waits for them to confirm or disappoint his foresights. The reading is composed of a host of hypotheses, followed by awakenings, of hopes and deceptions. Readers are always ahead of the sentence they are reading in a merely probale future which partly collapse and partly comes together in proportion as they progress, which withdraws from one page to the next and forms the moving horizon of the literary object. Without waiting, without a future, without ignorance, there is no objectivity.

46. The author holds that:
(a) there is an objective reality and a subjective reality.
(b) nature is the sum total of disparate elements.
(c) It is human action that reveals the various facets of nature.
(d) apparently disconnected elements in nature are unified in fundamental sense.

47. It is author's contention that:
(a) artistic creations are results of human consciousness.
(b) the very act of artistic creation leads to the escape of the created object.
(c) man can produce and reveal at the same time.
(d) an act of creation forces itself on our consciousness leaving us full of amazement.

48. The passage makes a distinction between perception and creation in terms of:
(a) objectivity and subjectivity.
(b) revelation and action.
(c) objective reality and perceived reality.
(d) essentiality and non-essentiality of objects and subjects.

49. The art of writing manifests the dialectic of perception and creation because :
(a) reading reveals the writing till the act of reading lasts.
(b) writing to be meaningful needs the concrete act of reading.
(c) this art is anticipated and progresses on a series of hypotheses.
(d) this literary object has a moving horizon brought about by the very act of creation.

50. A writer as an artist:
(a) reveals the essentiality of revelation.
(b) makes us feel essential vis-a-vis nature.
(c) creates reality.
(d) reveals nature in its permanence.

PAPER – II

1. How many time is spent scanning across each row of pivels during screen refresh on a raster system with a resolution of 640 by 480 and a refresh rate of 60 frames per second ?
(a) 34.42 μs (b) 35.72 μs (c) 0.3475 μs (d) None of these

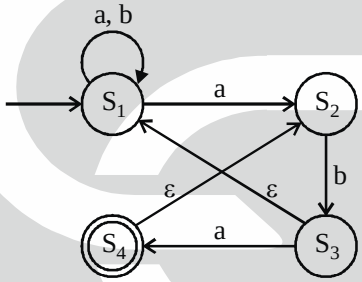
2. The distance between the pixels on a screen is called
(a) OCR (b) LCD (c) Dot pitch (d) Refresh rate

3. Reflection of a point *y* about *x*-axis followed by a counter-clockwise rotation of 90°, is equivalent to reflection about the line
(a) $x = -y$ (b) $y = -x$ (c) $x = y$ (d) $x + y = 1$

4. In B-Spline curve, if control points are $n + 1$, then the curve is described with the number of blending function?
(a) n (b) $n + 1$ (c) $n - 1$ (d) $n + 2$

5. The Bresenham's line generation algorithm by digitizing the line with end points (20, 10) and (30, 18) ?
(a) (21, 11), (22, 12), (23, 12), (24, 13), (25, 14)
(b) (21, 11), (22, 12), (23, 12), (24, 16), (25, 14)
(c) (21, 11), (22, 12), (24, 14), (24, 13), (25, 14)
(d) None of the above

6. Consider the following non-deterministic automaton, where S_1 start state and S_4 is the final (accepting) state. The alphabet is {a, b}. A transition with label e can be taken without consuming any symbol from the input.



Which of the following regular expression corresponds to the language accepted by this automation?
(a) (a + b)* aba (b) aba (a + b)* aba
(c) (a + b) aba (b + a)* (d) aba (a + b)*

7. If an N.F.A. contains 10 states and 6 final states then how many maximum number of final states in equivalent D.F.A.?
(a) 1008 (b) 64 (c) 1024 (d) 16

8. Consider the language $L \subseteq \{a, b, c\}^*$ defined as $L = \{a^p b^q c^r : p = q \text{ or } q = r \text{ or } r = p\}$. Which of the following answer is TRUE about the complexity of this language ?
(i) L is regular, but not context-free
(ii) L is context-free, but not regular
(iii) L is decidable, but not context-free
(a) (i) only (b) (ii) only (c) All of these (d) None of these

9. Which of the following is/are regular ?
(i) $L_1 = \{x\, c\, y \mid x, y \in \{a, b\}^*\}$
(ii) $L_2 = \{w \mid w \text{ reads the same forwards and backward}\}$
(a) (i) only (b) (ii) only (c) Both (i) and (ii) (d) None of these

10. Consider the language $L = \{xy, xx, yxx\}$
(i) xyxxyxxxyxx (ii) xxxxyxxxx (iii) yxxxxxyxxxxy (iv) yxxxxxyxx
Which of the following string are in L^* ?
(a) (i), (ii) and (iii) (b) (ii), (iii) and (iv) (c) (i), (ii) and (iv) (d) All of these

11. Which of the following statement is FALSE ?
(a) There exists a language which is recursive which is NOT C.S.L.
(b) Intersection of regular language and C.F.L. is C.F.L.
(c) The power of L.B.A. is equivalent to the power of T.M.
(d) Every left recursive grammar is convertible into equivalent right recursive grammar and vice-versa.

12. Match the following Lists:

List-1	**List-2**
A. Missing operator	1. Scanner
B. Finite automata	2. Parser
C. Context-free grammar	3. Semantic error
D. Lexical error	4. Presence of illegal symbol

Codes:
(a) A-3, B-1, C-2, D-4 (b) A-3, B-1, C-4, D-2
(c) A-1, B-2, C-3, D-4 (d) None of these

13. Consider the following grammar:
$S \rightarrow XaXa \mid YbYa$
$X \rightarrow \varepsilon$
$Y \rightarrow \varepsilon$
Which of the following is correct for above grammar ?
(a) Grammar is LL(1) (b) Grammar is SLR(1)
(c) Grammar is LR(1) (d) Both (a) and (c)

14. Consider the following grammar:
$S \rightarrow BCD$
$B \rightarrow bB \mid \lambda$
$C \rightarrow Cg \mid g \mid Ch \mid i$
$D \rightarrow SB \mid \lambda$
What is follow (C)
(a) {$, g, b, i} (b) {$, g, b} (c) {$, g, b, i, h} (d) None of these

15. If w is a terminals and A, B are two non-terminals, then which of the following are right linear grammars is/are?
(i) $A \rightarrow Bw$ (ii) $A \rightarrow Bw \mid w$ (iii) $A \rightarrow wB \mid w$
(a) (i) and (ii) (b) (ii) only (c) (iii) only (d) All of these

16. Blind write appears in
(a) conflict serializable schedule. (b) view serializable schedule.
(c) Both (a) and (b) (d) None of these

17. Consider the following schedules involving two transaction:
$\mathbf{S_1}$: $r_1(X); r_2(Z); r_1(Z); r_3(X); r_3(Y); w_1(X); w_3(Y); r_2(Y); w_2(Z); w_2(Y)$
$\mathbf{S_2}$: $r_1(X); r_2(Z); r_1(Z); r_3(X); r_3(Y); w_1(X); w_3(Y); r_2(Y); w_2(Z); w_2(Y)$
$\mathbf{S_3}$: $r_1(X); r_2(Z); r_3(X); r_1(Z); r_2(Y); r_3(Y); w_1(X); w_2(Z); w_3(Y); w_2(Y)$
Which of the following statement is/are not conflict serialization ?
(a) S_1 and S_2 (b) S_1 and S_3 (c) S_3 only (d) None of these

18. Which of the following is true for relational calculus ?
(a) $\forall x(P(x) \equiv \neg(\exists x) \neg(\exists x)(P(x))$ (b) $\forall x(P(x)) \equiv \neg(\exists x)(P(x))$
(c) $\forall x(P(x)) \equiv (\exists x)(\neg P(x))$ (d) $\forall x(P(x)) \equiv (\exists x)(P(x))$

19. If an ER diagram is mapped to tables, which of the following relationships may not be mapped to table ?
(a) Whose cardinality is 1 : n
(b) That are weak
(c) Both (a) and (b)
(d) Neither (a) nor (b)

20. Consider a relation schema R(A, B, C, D, E) with the functional dependencies F = {BD $\rightarrow$ E, A $\rightarrow$ C} and the contents as

A	B	C	D	E
1	2	3	4	5
1	8	3	4	4

The decomposition of R into R_1 = (A, B, C) and R_2 = (D, E) is
(a) lossless and dependency preserving.
(b) lossless and not dependency preserving.
(c) lossy but dependency preserving.
(d) lossy and not dependency preserving.

21. Consider the following set of functional dependencies on the scheme (A, B, C) ?
A $\rightarrow$ BC
B $\rightarrow$ C
A $\rightarrow$ B
AB $\rightarrow$ C
The canonical cover for this set is
(a) A $\rightarrow$ BC and B $\rightarrow$ C
(b) A $\rightarrow$ BC and AB $\rightarrow$ C
(c) A $\rightarrow$ BC and A $\rightarrow$ B
(d) A $\rightarrow$ B and B $\rightarrow$ C

22. Select *
From Table
Where T1A = all (Select T2B)
From Table2
Where T2B >='b'
How many number of row will be there in the output
(a) 1 (b) 2 (c) 3 (d) 0

23. A company needs to provide IT services to world wide customer base utilizing a diverse set of devices. Which attribute of cloud computing can help the company deliver such services?
(a) Pervasiveness
(b) Hadoop servers
(c) Vertical sacling of application servers
(d) Horizontal scaling of application servers.

24. Which customer scenario is best suited to maximize the benefits gained from using virtual private cloud?
(a) Private cloud uses different IOT and IIOT environments
(b) An enterprise whose it infrastructure is under ultilized on average and the system load is fairly consistent.
(c) An enterprise that requires minimal security over their data and has a large existing infrastructure that is capable of handing future needs.
(d) An enterprise that does not want to sacrifice security or make changes to their management practices but needs additional resources far test and development of new solutions.

25. Which statements is true about the public model 2
(a) It meets security and avdinting requirements for highly regulated industries.
(b) Resources and infrastructure are managed and maintained by the enterprise it operation staff.
(c) It shifts the bulk of the costs from capital expenditures and it infrastructure investment to an utility operating expense model.
(d) This model is secure and prevents different malware attacks.

26. Which of the following different services uses TCP?
(I) DHCP (II) SMTP (III) HTTP (IV) FTP (V) TELNET
(a) I, II, III (b) II, III, IV (c) I, III, V (d) None of these

27. A firm that initially planned its web-based system to support 10,0000 users unexpectedly notices that there is a four times increase in demand with original cost C. Assuming that the company has deployed its system in a true cloud environment, what are the incremental maintenance costs to adding novel resources to this environment?
(a) Negligible. (b) 3C (c) 4C (d) 5C

28. What is/are data mining and uses to aid ?
1. Operational management and a large quantities of operational data stored over a period of time.
2. Analyzing past decision made by managers.
3. Detecting patterns in operational data and retrieving archival data.
4. GIS system using Genome database
5. Several tape drives to store archival data.
(a) 1, 2, 3 (b) 2, 3, 4 (c) 1, 3, 4 (d) None of these

29. Which is/are correct in the following?
S_1: Decision support systems are essential for a day-to-day operation of an organization.
S_2: Volume of strategic information is summarized.
S_3: Off-line data entry is preferable when the volume of data to be entered is large.
S_4: The memory size previsioned for each Spark executor.
(a) S_1,S_2,S_3 (b) S_2,S_3,S_4 (c) S_1,S_3,S_4 (d) None of these

30. Which three products are built on the IBM Rational Jazz platform?
i. Rational Team Concert
ii. Rational Clear Case
iii. Rational Quality Manager
iv. Rational Software Architect
v. Rational Requirements Composer
(a) i, ii, iii (b) i, iii,v (c) ii, iii,iv (d) None of these

31. Which web-technology is/are used by infrastructure service provider use to build an interface that user can leverage?
1. The company should provide an HTTP REST API.
2. The company should provide an XML RPC service.
3. The company should provide a command line interface.
4. The company should provide a proprietary remote API
(a) 1, 2, 3 (b) 2, 3, 4 (c) 1, 3, 4 (d) None of these

32. When building data center clouds, what is/ are network performance characteristics should be closely evaluated so that users are no negatively impacted?
1. security 2. packet loss rate
3. buffer overflow rate 4. latency
5. routing information loss
(a) 1, 2, 3 (b) 2, 3, 4 (c) 1, 3, 4 (d) None of these

33. What is/ are benefits to adopt a hybrid cloud for an enterprise?
1. It can reduce their infrastructure cost since all their data centers will be managed by using SVM.
2. It can pool their existing infrastructure by using present tool of dataware house.
3. It can reduce their cost drastically since they will be adopting a flexible pricing model by using k-nearest neighbour.
4. It can manage sensitive data in a compliant and secure manner, and benefit from flexible pricing models by using object orient DB.
5. It can have maximum control over aspects such as security and performance since the entire infrastructure will be managed within their datamart.
(a) 1, 2, 3 (b) 2, 3, 4 (c) 1, 3, 4 (d) None of these

34. Which of the following is/are all pair shortest path algorithm
I. Dynamic programming II. Back tracking
III. Greedy approach IV. Floyd-Warshall algorithm
(a) I and II (b) I and III (c) I and IV (d) None of these

35. Apply quick sort on the array :

25	10	30	15	20	28	32

Choose the pivot as index 0, after first pass the array look like.

(a)

20	10	15	25	30	28	32

(b)

20	15	10	25	30	32	28

(c)

15	20	10	25	32	28	30

(d)

20	10	15	25	28	30	32

36. Minimum number of nodes in an AVL tree of height 6 is ?
(a) 33 (b) 32 (c) 31 (d) 30

37. Who of the following is/are NOT usually present in a technical review
(I) User (II) Quality Engineer
(III) The programming tools supplier (IV) Specialist with knowledge of the application
(V) Branch and bound algorithm
(a) I only (b) II only (c) III, IV (d) All of these

38. Which of the following requires approval from IsP to obtain them
(I) 172.19.24.24 (II) 13.13.13.13
(III) 192.168.20.1 (IV) 192.167.0.1 (V) 172.168.24.38
(a) I, II, III (b) II, III, IV (c) I, III, IV (d) None of these

39. The maximum data rate of channel of 3000-Hz bandwidth and SNR of 30 dB is
(a) 15000 bps (b) 60,000 bps (c) 20, 000 bps (d) None of these

40. In time division switches if each memory access takes 1000 ns and one frame period is 1250 us, the maximum number of lines that can be supported is/are
(I) 625 lines (II) 1250 lines (III) 2300 lines (IV) 318 lines
(a) I only (b) II only (c) III only (d) All of these

41. Consider a system having 'm' resources of the same type. The resources are shared by 3 processes A, B, C, which have peak time demands of 3, 4, 6 respectively. The minimum value of 'm' that ensures that deadlock will never occur is
(a) 11 (b) 12 (c) 13 (d) 14

42. Consider the following statements
S1. DFS is always better than BFS
S2. Best first search is not a greedy search method
S3. A* is optimal if heuristics always underestimates
S4. Simple Minimax search and Minimax search with alpha beta pruning gives identical value of the game.
S5. Hidden Markov model has different hidden layers and used for classification of data.
Which of the above statement is/are correct?
(a) S1 and S2 only (b) S3, S4 only (c) S1, S3 and S4 only (d) All of these

43. Assuming that for a given network layer imple mentation, connection establishment overhead is 100 bytes and disconnection overhead is 28 bytes, what would be the minimum size of a packet the transport layer needs to keep up, if it wishes to implement a datagram service above the network layer to implement a datagram service above the network layer and needs to keep its overhead to a maximum of 12.5 % (Ignore transport layer overhead)
(a) 512 bytes (b) 768 bytes (c) 1152 bytes (d) 1024 bytes

44. Match the following :

1. Data link layer	(i) The lowest layer whose function is to activate, deactivate and maintain the circuit between DTE and DCE.
2. Physical layer	(ii) Performs routing and communication
3. Presentation layer	(iii) Detection and recovery from errors in the transmitted data
4. Network layer	(iv) Provides for the syntax of the data
5. Transport Layer	(v) Process to process delivery

(a) 1 – (iii), 2 – (i), 3 – (iv), 4 – (ii), 5 – v (b) 1 – (ii), 2 – (i), 3 – (iv), 4 – (iii), 5 – (v)
(c) 1 – (iv), 2 – (i), 3 – (ii), 4 – (iii), 5 – v (d) None of these

45. Which of the following symbol is used to create a link to a named anchor in HTML ?
(I) & (II) @ (III) # (IV) $
(a) I only (b) II only (c) III only (d) All of these

46. Which of the following are non polling systems?
(I) TDMA & XON/XOFF (II) Stop and Wait only
(III) Xon/Xoff only (IV) Continuous ARQ only
(a) I only (b) II only (c) III only (d) All of these

47. Which can't be the order of subgroup of a group of order 99 ?
(a) 33 (b) 3 (c) 9 (d) 18

48. Which of the following is/are not true for Genetic algorithms?
(1) It is a probabilistic search algorithm.
(2) It is guaranteed to give global optimum solutions.
(3) If an optimization problem has more than one solution, then it will return all the solutions.
(4) It is an iterative process suitable for parallel programming.
(5) Reproduction does not produce next generation
(a) (1), (3) (b) (3), (4) (c) (2), (5) (d) None of these

49. The purpose of the fitness evaluation operation is/are
(1) To check whether all individual satisfies the constraints given in the problem.
(2) To decide the termination point.
(3) To select the best individuals.
(4) To identify the individual with worst cost function.
(5) Fitness values are uniformly distributed.
(a) (1), (3) (b) (2), (4) (c) (3), (5) (d) None of these

50. Match the problem domains in GROUP-I with the solution technologies in GROUP-II ?

Group-I	**Group-II**
P. Transportation problems	**1.** If this is not the case, degeneracy occurs; place a 0 in an empty cell and treat it as a value.
Q. Degeneracy	**2.** Introduce dummy destination with shipping costs of 0.
R. Vogel's Method	**3.** Which are subject to one or more constraints.
S. PERT	**4.** A method in project management that overlooks resource allocation and resolves possible conflict.
T. CPM	**5.** To communicate what tasks need to get done and which organizational resources will be allocated to complete those tasks in what timeframe.

(a) P-2, Q-1, R-5, S-5, T-4 (b) P-3, Q-5, R-2, S-4, T-1
(c) P-2, Q-5, R-4, S-3, T-1 (d) None of these

51. Consider two fuzzy subsets of the set:
X, X = {a, b, c, d, e } , A = {1/a, 0.3/b, 0.2/c 0.8/d, 0/e} and B = {0.6/a, 0.9/b, 0.1/c, 0.3/d, 0.2/e}.
Then compute AUB.
(a) {1/a, 0.9/b, 0.2/c 0.8/d, 0.2/e} (b) {0.6/a, 0.9/b, 0.2/c 0.8/d, 0.2/e}
(c) {0.6/a, 0.3/b, 0.1/c, 0.3/d, 0/e} (d) None of these

52. Consider two fuzzy subsets of the set:
X, X = {a, b, c, d, e } , A = {1/a, 0.3/b, 0.2/c 0.8/d, 0/e} and B = {0.6/a, 0.9/b, 0.1/c, 0.3/d, 0.2/e}.
Then compute A and B.
(a) {1/a, 0.9/b, 0.2/c 0.8/d, 0.2/e} (b) {0.6/a, 0.9/b, 0.2/c 0.8/d, 0.2/e}
(c) {0.6/a, 0.3/b, 0.1/c, 0.3/d, 0/e} (d) None of these

53. What will be the output of the following Java-script command ?
document.write (2 + 5 + "8");
(a) 258 (b) error (c) 78 (d) 7

54. Compute the disjoint sum of the sets:
A = {(x, 0.5), (y, 0.4), (z, 0.9), (w, 0.1)}, and B = {(x, 0.4), (y, 0.8), (z, 0.1), (w, 1)}?
(a) {(x, 0.4), (y, 0.6), (z, 0.8), (w, 0.9)} (b) {(x, 0.1), (y, 0.4), (z, 0.8), (w, 0.9)}
(c) {(x, 0.5), (y, 0.2), (z, 0.9), (w, 0)} (d) {(x, 0.1), (y, 0), (z, 0.8), (w, 0)}

55. For a maximization problem using a Simplex table, we know we have reached the optimal solution when the Cj – Zj row
(i) has no numbers in it. (ii) has no positive numbers in it.
(iii) has no negative numbers in it. (iv) has no nonzero numbers in it.
(v) has positive numbers in it.
(a) (i), (iii) (b) (iii), (iv) (c) (ii), (v) (d) None of these

56. In converting an equal constraint for use in a simplex table, we must add
(i) a surplus variable. (ii) a slack variable.
(iii) a surplus and a slack variable. (iv) an artificial variable.
(v) a surplus and an artificial variable.
(a) (i), (ii), (iii) (b) (i), (iii), (iv) (c) (ii), (iii), (v) (d) None of these

57. Maximize $Z = 6x + 5y$
subject to $2x - 3y \le 5$
$x + 3y \le 11$
$4x + y \le 15$
$x, y \ge 0$
What is optimal solution?
(a) 31.727 (b) 30.5 (c) 21.727 (d) None of these

58. Match the following in Lists:

List - I	**List - II**
A. Malware	1. Trojen Horse
B. TLS	2. which uses 128-bit keys
C. Steganography	3. Hiding text inside image
D. Parson window	4. This allows the quality of service (QoS)
E. Congestion Control	5. software delivery and licensing

(a) A-2, B-3, C-4, D-1, E-5 (b) A-5, B-3, C-1, D-4, E-2
(c) A-4, B-1, C-5, D-2, E-3 (d) None of these

59. An effective workshop facilitator will always ...
(1) Involve the whole project team in all project workshops.
(2) Agree the process and participants of the workshop with the workshop owner before the workshop.
(3) Involve only those team members who will commit to doing further work after the workshop.
(4) Act as a proxy for any invited participant who is unable to attend the workshop on the day.
(5) Design has no place in an Agile project.
(a) (1), (3) (b) (3), (4) (c) (2), (5) (d) None of these

60. Which of the following best represents the Agile approach to planning?
(1) Planning is not part of an Agile approach, because client-server db uses it
(2) Planning should be done in detail at the outset of a project and not revisited
(3) Planning should involve the whole team, not just the Project Manager
(4) Change version control uses audit and trial software.
(5) Genome db management uses Agile planning.
(a) (1), (3) (b) (3), (4) (c) (2), (5) (d) None of these

61. Which one of the following statements is correct regarding acceptance of any deliverables on an Agile Project?
(1) The team should allow only senior managers to sign off deliverables.
(2) The team should get acceptance of project deliverables from the appropriate stakeholders at least at the end of every timebox / iteration.
(3) Mobile db are uses for deliverable of an Agile project.
(4) Acceptance of any particular deliverable on the project is gained from all stakeholders at the same time.
(5) Just enough design up front gives a good foundation to start from and helps to mitigate risk, without wasting unnecessarily time.
(a) (1), (2), (3) (b) (1), (3), (4) (c) (2), (3), (5) (d) None of these

62. What is/aree life cycle of Extreme programming (XP)?
1. Exploration
2. Planning
3. Iteration on releases
4. Productionizing
5. Maintainence
(a) 1, 2, 3 (b) 2, 3, 5 (c) 2, 3, 4 (d) All of these

63. Match the following Lists:

List-1	List-2
1. Incremental	P. Small releases with rapid iterations.
2. Cooperative	Q. Customer and developer relationships.
3. Straight	R. The method which is easy to learn and modify with documentation.
4. Adaptive	S. Able to embrace changes instantly.
5. Corrective	T. Remove residual Faults.

(a) 1-P, 2-Q, 3-R, 4-S, 5-T (b) 1-P, 2-Q, 3-R, 4-T, 5-S
(c) 1-P, 2-R, 3-S, 4-S, 5-T (d) None of these

64. What is/are the disadvantages of big-bang approach in the agile?
1. It is hard to debug.
2. It is not easy to isolate errors while testing.
3. In this approach it is not easy to validate test results.
4. After performing testing, it is impossible to form an integrated system.
5. It is adaptive software development method
(a) 1, 2, 3, 5 (b) 1, 2, 3, 4 (c) 1, 2, 4, 5 (d) All of these

65. Assertions are conditions which is/are _____true at the point of execution
(I) Always (II) sometimes (III) many times (IV) never
(a) I only (b) II only (c) III only (d) All of these

66. Assuming the existence of a start and end nodes for a program graph, the total number of paths in equivalent to the _____set of test data required to test the software.
(a) Minimum (b) Maximum (c) Optimum (d) Supremum

67. If x is a case statement in a program graph with n cases instead of an if-then-else statement in the previous question with each case leading to only one path to end node, total number of paths through X is
(a) x + x (b) x^n (c) x log (n) (d) None of these

68. Structured programming codes include
(I) sequencing (II) alteration (III) iteration
(a) I, II (b) II, III (c) I, III (d) All of these

69. Which of the following types of maintenance takes the maximum chunk of the total maintenance effort in a typical life cycle of a software product?
(I) Adaptive maintenance (II) Corrective maintenance
(III) Perfective maintenance (IV) Preventive maintenance
(a) I only (b) II only (c) III, IV (d) All of these

70. One way to improve readability in coding is to
(I) Avoid go to statements (II) Name variables and functions according to their use
(III) Modularize the program (IV) Distribute the program
(a) I only (b) II only (c) III, IV (d) All of these

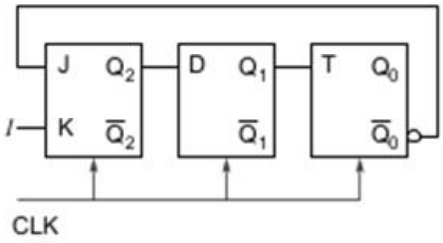
71. Find the output of the following : C++ code :
int * p, A[ ] = [20, 90, 70, 10];
p = A; A[2] + =10; p + = 2;
cout << * p << endl;
(a) 70 (b) 80 (c) 90 (d) 10

72. Names of the operating systems are given below ?
(1) Windows 2000 professional (2) Unix
(3) Linux (4) Mainframes
Following, operating system didn't provide multiuser facility ?
(a) (1) only (b) (1) and (4) (c) (4) only (d) All of these

73. Let A = $[F\ E\ 3\ 5]_{16}$; B = $[C\ B\ 1\ 5]_{16}$ Then A ⊕ B value in hexadecimal system is
(a) 3, 5, 2, 0 (b) 3, 4, 7, 0 (c) 5, 7, 9, 0 (d) None of these

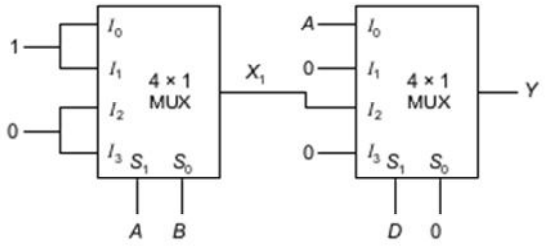
74. X = 0 1 1 1 0 and Y = 1 1 0 0 1 are two 5-bit Binary Numbers represented in two's Complement format. The sum of X and Y represented in two's Complement format using 6-bits is
(a) 1 0 0 1 1 1 (b) 0 0 1 0 0 0 (c) 0 0 0 1 1 1 (d) 1 0 1 0 0 1

75. Consider the following synchronous counter made up of J, K, D, T Flip-Flops.



The modulus value of the counter is
(a) 5 (b) 8 (c) 7 (d) 4

76. What will be the output of multiplexer shown below -



(a) $A \oplus D$ (b) A Θ D Θ B (c) $A + D + \overline{B}$ (d) $A \oplus B$

77. An instruction is stored at location 300 with its address field at location 301. The address part of instruction contains 400, so the computed effective address, if the instruction uses relative addressing mode is
(a) 705 (b) 702 (c) 706 (d) None of these

78. Match **List-I** with **List-II** and select the correct answer using the codes given below the lists :

List-I

A. Programmed IO
B. Interrupt driven IO
C. Direct memory access
D. Distributed memory access
E. UMA

List-II

1. On I/O command issued by the processor, the process busy-waits for the operation to be complete.
2. After issuing an I/O command, processor continues to execute subsequent instructions, and is intrupted by the concerned module, when later has completed its work.
3. Processor send a request for the transfer of a block of data to the concerned module and is interupted when the entire block has been transferred.
4. Each processor equally access the common memory
5. Each processor has its own memory for the access

Which of the following code is correct?

Codes :

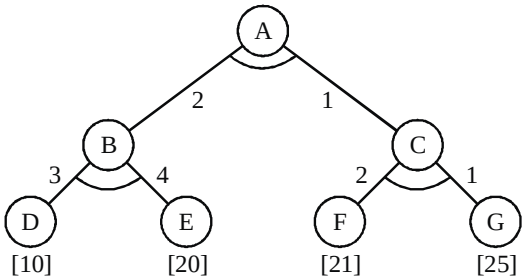
	A	B	C	D	E
(a)	1	3	2	4	5
(b)	1	2	3	5	4
(c)	2	1	3	4	5
(d)	1	3	2	5	4

79. A 64 KB 4-way set associate cache has 8 byte blocks. If address is 32 bits then the tag field has
(a) 18 bits (b) 12 bits (c) 10 bits (d) 9 bits

80. S_1: The CPU has a wire called the interrupt request line that the CPU senses after executing every instruction.
S_2: A buffering is to support copy semantics for application I/O.
S_3: A spool is a buffer that holds output for a device, such as a printer, that cannot accept interleaved data streams.
S_4: Unix has a mount table that associates prefixes of path names with specific device names.
Which statements is/are TRUE ?
(a) S_1, S_2 (b) S_3, S_4 (c) S_1, S_2, S_3 (d) All of these

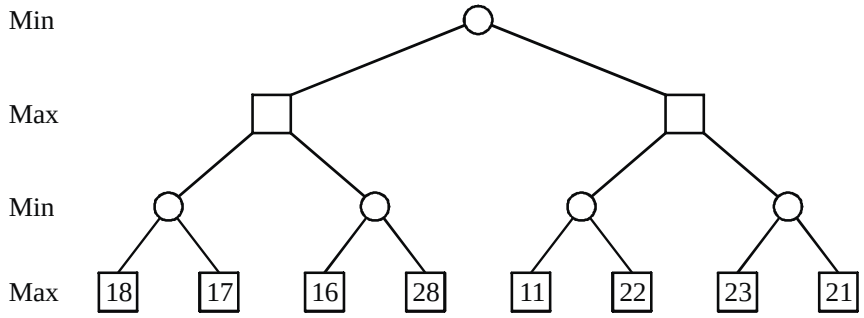
81. How many cylinder movement addition of the C-SCAN scheduling and look-scheduling. If the disk has total cylinder 0 to 199 (i.e., 200).
Given: Request queue : 98, 183, 37, 122, 14, 124, 65, 67, and head start at 53.
(a) 708 (b) 709 (c) 710 (d) None of these

82. What will be the solution of this graph using AO*Algo ?



(a) 86 (b) 87 (c) 89 (d) None of these

83. What is the solution of the using max-min algo ?



(a) 17 (b) 23 (c) 16 (d) 11

84. S_1: A multiagent is network of loosely coupled software agents that interact to solve problems.
S_2: The task of coming up with a sequence of actions that will achieve a goal is called planning.
S_3: Planners decompose the world into logical conditions and represent a state as a conjugation of positive literals.
Which statement is/are TRUE ?
(a) S_1, S_2 (b) S_2, S_3 (c) S_1, S_3 (d) All of these

85. Match the following Lists:

List-1	**List-2**
P. Privilized instructions	1. Set the time of a clock
Q. Non-privilized instruction	2. Disabling the interrupts
R. Privilized instruction	3. Reading the status of the processor
S. Non-privilized instruction	4. Reading the time of a clock
T. HDFS instruction	5. Reading data with high performance access rates

(a) P-1, Q-2, R-3, S-5, T-4 (b) P-1, Q-3, R-2, S-4, T-5
(c) P-3, Q-1, R-2, S-5, T-4 (d) None of these

86. Match the following Lists:

List-1	**List-2**
P. LTS	1. Responsible for selecting one of the process in the ready state for scheduling onto running state.
Q. STS	2. Creating and bringing the new process into the system.
R. MTS	3. Loading the selected job onto CPU.
S. Dispatcher	4. It is responsible of suspending and resuming process.
T. XP	5. It is used improve quality and responsivelly

(a) P-1, Q-2, R-3, S-5, T-4 (b) P-2, Q-1, R-4, S-3, T-5
(c) P-3, Q-1, R-2, S-4, T-5 (d) P-1, Q-2, R-4, S-3, T-5

87. Consider the process instance of a CPU having priority algo with pre-emptive algo. What will be the ratio of Avg W.T. to Avg T.A.T ?

Priority	Process_No	A.T.	B.T.
4	1	1	4
5	2	2	2
7	3	2	3
8	4	3	5
5	5	3	1
6	6	4	2

(a) 45 : 62 (b) 40 : 65 (c) 43 : 63 (d) None of these

88. What will be the complement of

$$F(A, B, C) = \sum(1, 2, 3, 4, 5, 6, 7)$$

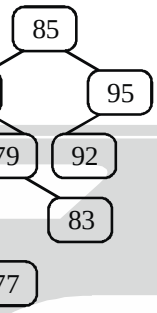
(a) $A + B + C$ (b) $\bar{A}\bar{B}\bar{C}$ (c) $\bar{A}B + C$ (d) None of these

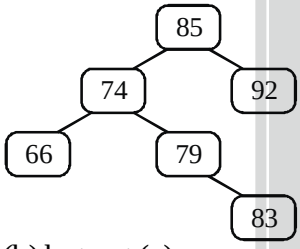
89. Match the following Lists:

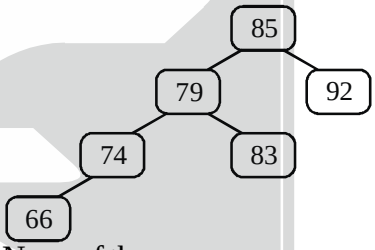
List-1	List-2
P. Horn clause	1. $P \vee Q' \vee R' \vee S'$
Q. Contrapositive	2. $\neg Q \rightarrow \neg P = P \rightarrow Q$
R. Absorption law	3. $P \vee (P \wedge Q) \Leftrightarrow P$
S. Implication law	4. $\neg P \vee Q$
T. Converse	5. $Q \rightarrow P$

(a) P-1, Q-2, R-3, S-4, T-5 (b) P-1, Q-3, R-2, S-5, T-4
(c) P-1, Q-4, R-2, S-5, T-3 (d) None of these

90. What will be the B.S.T. after deletion of 77, 95 and 70 one after another, from the given B.S.T.



(a)


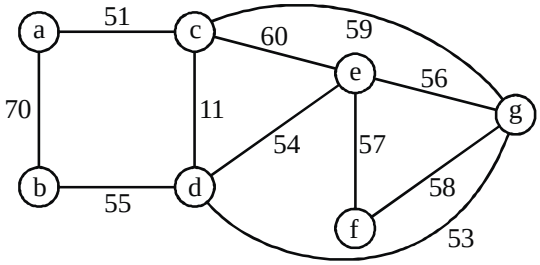
(b)


(c) (b) but not (a) (d) None of these

91. We have array, which is storing the address of next element, in each cell. Find out how many linked list are in the given array [5, 4, 3, 4, 2, 0, 1, 5]

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

92. Assume the following graph:



By using Kruskal's algo, which one may be the sequence of edges picked ?

(a) a-c, c-d, d-e, e-g, e-f, g-d (b) a-c, c-d, e-g, d-e, e-f, g-d
(c) a-c, d-g, d-e, b-d, e-g, e-f (d) None of these

93. S_1: An approximate algorithm is a way of approach NP-completeness for the optimization problem. It does not guarantee the best solution. We can use it for
(i) Travelling salesman problem.
(ii) Vertex cover problem.

S_2: An algorithm that uses random numbers to decide what to do next anywhere in its logic is called randomized algorithm. For example:
(i) Quick sort

(ii) Karger's algorithm

Which statement is/are TRUE ?

(a) S_1 only (b) S_2 only (c) Both S_1 and S_2 (d) None of these

94. What is remainder when $22(22^{96} - 1)$ divide by 97 ?

(a) 0 (b) 1 (c) 96 (d) 2

95. Match the following lists:

List-1	**List-2**
P. Final	1. Its class can't be inherited.
Q. Finaly	2. Its method can be overrider.
R. Finalize	3. It is used to perform clean-up processing just before object is garbage collected.
	4. Its code will be executed, whether exception is handled or not.

(a) P-1, Q-3, R-4 (b) P-1, Q-4, R-3 (c) Q-2, P-1, R-3 (d) P-1, Q-2, R-4

96. Construct a B^+-tree for the following set of key values : (2, 3, 5, 7, 11, 17, 19, 23, 29, 31).
Assume that the tree is initially empty and values are added in ascending order. Construct B^+-tree for the cases where the number of pointers is 4 and tell which elements is root node of the tree ?

(a) 19 (b) 29 (c) 11 (d) None of these

97. The redundant logic expression corresponding to the K-map shown below is

WX \ YZ	00	01	11	10
00			1	
01	1	1	1	
11		1	1	1
10		1		

(a) XZ (b) $\overline{W}\overline{X}\overline{Y} + \overline{W}YZ + W\overline{Y}Z + WXY$

(c) $\overline{W}\overline{X}\overline{Y} + \overline{W}YZ + W\overline{Y}Z + WX\overline{Y}$ (d) $XZ + \overline{W}YZ + \overline{W}\overline{X}\overline{Y} + WXY + W\overline{Y}Z$

98. Assume that a main memory with only 4 pages, each of 8 bytes, is initially empty. The CPU generates the following sequence of virtual addresses and uses the least recently used (LRU) page replacement policy.

0, 4, 8, 20, 24, 26, 44, 12, 68, 71

How many page fault occur, and what is the sequence of pages respectively ?

(a) 6 and 3, 5, 2, 8 (b) 5 and 4, 3, 5, 2 (c) 6 and 4, 3, 5, 2 (d) 5 and 3, 5, 2, 8

99. An application loads 100 libraries at start up. Loading each library requires exactly one disk access. The seek time of the disk to a random location is given as 10 ms. Rotational speed of a disk is 6000 r.p.m. If all 100 libraries are loaded from random locations on the disk, how long does it take to load all libraries?
(The time of transfer data from the disk block once the head has been positioned at the start of the block may be neglected).

(a) 0.50 sec (b) 1.50 sec (c) 1.25 sec (d) 1.00 sec

100. S_1: Context switch time is longer for kernel level threads than for user level threads.
S_2: Blocking are kernel level thread blocks all related thread.
S_3: In both synchronous and asynchronous I/O and ISR(Interrupt Service Routine) is invoked after completion of the I/O.
S_4: In the case of synchronous I/O, the process waiting for the completion of I/O is woken up by the ISR that is invoked after the completion of I/O.
S_5. Synchronized in Java is used to provide concurrent access to the shared resources.
Which statements is/are TRUE ?

(a) S_1 and S_5 (b) S_2 and S_3 only (c) S_1 and S_4 only (d) All of these

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Test Series-D

ANSWER KEY

PAPER – I

1. (c)	**2.** (d)	**3.** (d)	**4.** (b)	**5.** (b)
6. (c)	**7.** (d)	**8.** (a)	**9.** (d)	**10.** (b)
11. (b)	**12.** (b)	**13.** (d)	**14.** (d)	**15.** (a)
16. (a)	**17.** (b)	**18.** (b)	**19.** (a)	**20.** (b)
21. (b)	**22.** (c)	**23.** (b)	**24.** (c)	**25.** (b)
26. (b)	**27.** (a)	**28.** (c)	**29.** (b)	**30.** (a)
31. (a)	**32.** (d)	**33.** (b)	**34.** (b)	**35.** (c)
36. (b)	**37.** (a)	**38.** (b)	**39.** (c)	**40.** (b)
41. (c)	**42.** (d)	**43.** (a)	**44.** (c)	**45.** (c)
46. (c)	**47.** (b)	**48.** (d)	**49.** (a)	**50.** (b)

PAPER – II

1. (a)	**2.** (c)	**3.** (c)	**4.** (b)	**5.** (d)
6. (a)	**7.** (a)	**8.** (b)	**9.** (a)	**10.** (c)
11. (c)	**12.** (a)	**13.** (d)	**14.** (c)	**15.** (c)
16. (b)	**17.** (b)	**18.** (a)	**19.** (d)	**20.** (c)
21. (d)	**22.** (c)	**23.** (a)	**24.** (d)	**25.** (c)
26. (b)	**27.** (a)	**28.** (d)	**29.** (d)	**30.** (b)
31. (d)	**32.** (d)	**33.** (d)	**34.** (c)	**35.** (a)
36. (a)	**37.** (a)	**38.** (b)	**39.** (b)	**40.** (a)
41. (a)	**42.** (b)	**43.** (d)	**44.** (a)	**45.** (c)
46. (b)	**47.** (d)	**48.** (c)	**49.** (c)	**50.** (d)
51. (a)	**52.** (c)	**53.** (c)	**54.** (b)	**55.** (d)
56. (d)	**57.** (a)	**58.** (d)	**59.** (d)	**60.** (d)
61. (d)	**62.** (d)	**63.** (a)	**64.** (b)	**65.** (c)
66. (a)	**67.** (d)	**68.** (d)	**69.** (c)	**70.** (a)
71. (b)	**72.** (a)	**73.** (a)	**74.** (c)	**75.** (a)
76. (d)	**77.** (d)	**78.** (b)	**79.** (a)	**80.** (d)
81. (d)	**82.** (c)	**83.** (a)	**84.** (d)	**85.** (b)
86. (b)	**87.** (d)	**88.** (b)	**89.** (a)	**90.** (a)
91. (a)	**92.** (d)	**93.** (c)	**94.** (a)	**95.** (b)
96. (a)	**97.** (d)	**98.** (a)	**99.** (b)	**100.** (c)