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परीक्षा प्रश्न-पुस्तिका/ EXAMINATION QUESTION BOOKLET

परीक्षा पुस्तिका शृंखला / Test Booklet Series : **A**

निर्धारित समय : 3 घंटे (दृष्टिबाधित उम्मीदवारों के लिए : 4 घंटे)
Time Allowed : 3 Hours (For V.H. Candidates : 4 Hours)

अधिकतम अंक : 120
Maximum Marks : 120

रोल नं.
Roll No. :

उत्तरशीट सं.:
Answer Sheet No. :

प्रश्नों के उत्तर देने से पहले निम्नलिखित अनुदेशों को ध्यान से पढ़ लें, इस पुस्तिका में प्रश्न अंग्रेजी में दिए गए हैं।
Read the following instructions carefully before you begin to answer the questions. This booklet contains questions in English.

उम्मीदवारों के लिए अनुदेश

Instructions to the Candidates

1. प्रश्नों के उत्तर देने से पहले आप इस पुस्तिका की जाँच करके देख लें कि इसमें पूरे पृष्ठ (1-16) हैं तथा कोई पृष्ठ या उसका भाग कम या दुबारा तो नहीं आ गया है। उम्मीदवारों को यह भी जाँच करनी है कि उनको केवल उस स्ट्रीम की परीक्षा-पुस्तिका मिली है जिसके लिए उन्होंने आवेदन किया है अर्थात कंप्यूटर साइंस / इंजीनियरिंग भाग या सूचना प्रौद्योगिकी भाग या इलेक्ट्रॉनिक्स और कम्युनिकेशन / टेलीकम्युनिकेशन भाग या भौतिकी / इलेक्ट्रॉनिक्स / एप्लाइड इलेक्ट्रॉनिक्स भाग। यदि आप इस पुस्तिका में कोई त्रुटि पाएं, तो *तत्काल* इसके बदले दूसरी पुस्तिका ले लें।

2. निरीक्षक द्वारा आपको ओ एम आर उत्तर-शीट अलग से दी जाएगी। ओ एम आर उत्तर-शीट में विवरण भरने से पहले, आपको ओ एम आर उत्तर शीट पर मुद्रित अनुदेशों को सावधानीपूर्वक पढ़ना चाहिए। आपको ओ एम आर उत्तर-पुस्तिका में दिए गए अनुदेशों के अनुसार सावधानी पूर्वक उसमें विवरण और कोड लिखने चाहिए। प्रश्नों के उत्तर वास्तविक रूप में लिखना आरंभ करने से पहले आपको ओ एम आर उत्तर-पुस्तिका में निर्धारित स्थान पर अपने हस्ताक्षर करने चाहिए। इन अनुदेशों का पूर्ण अनुपालन किया जाना चाहिए, ऐसा न किये जाने पर आपको ओ एम आर उत्तर-शीट का मूल्यांकन नहीं किया जायेगा। (दृष्टिहीन उम्मीदवारों के लिए यह विवरण लेखक द्वारा भरे जायेंगे। फिर भी, सभी दृष्टिहीन उम्मीदवारों को ओ एम आर उत्तर-शीट में निर्धारित स्थान पर अपने बाएं हाथ के अंगूठे का निशान अवश्य लगाना चाहिए। इसके अतिरिक्त, जो दृष्टिहीन उम्मीदवार अपना हस्ताक्षर कर सकते हैं, वे अंगूठे के निशान के अलावा अपने हस्ताक्षर भी करें।)

3. इस प्रश्न-पुस्तिका में 120 बहुविकल्पीय प्रश्न हैं, प्रत्येक प्रश्न के 4 विकल्प दिए गए हैं (A), (B), (C) और (D) प्रत्येक प्रश्न का केवल एक विकल्प ही सही उत्तर है। यदि आपको एक से अधिक विकल्प सही लगें तो सबसे अधिक उचित विकल्प का चुनाव करें और उत्तर पुस्तिका में प्रश्न के सामने वाले उपयुक्त गोले को काला करें।

4. प्रत्येक सही उत्तर के लिए 1 अंक दिया जाएगा, गलत देने पर 0.25 अंक काट लिया जाएगा।

5. उम्मीदवार को दोनों भाग अनिवार्य रूप में हल करने हैं।

6. गोले को काला करने के लिए केवल काले/नीले बॉल प्वाइंट पेन का प्रयोग करें। गोले को एक बार काला करने के बाद इसको मिटाने या बदलने की अनुमति नहीं है। यदि किसी प्रश्न के सामने एक से ज्यादा गोले काले किये गए हों तो मशीन द्वारा उसके लिए शून्य अंक दिया जाएगा।

7. किसी भी स्थिति में उत्तर शीट को न मोड़ें।

8. कोई रफ कार्य उत्तर-पुस्तिका पर नहीं करना है। रफ कार्य के लिए इस पुस्तिका में स्थान दिया गया है।

9. परीक्षा हॉल/कमरों में मोबाइल फोन तथा बेतार संचार साधन पूरी तरह निषिद्ध हैं, उम्मीदवारों को उनके अपने हित में सलाह दी जाती है कि मोबाइल फोन/किसी अन्य बेतार संचार साधन को स्विच ऑफ करके भी अपने पास न रखें। इस प्रावधान का अनुपालन न करने को परीक्षा में अनुचित उपायों का प्रयोग माना जायेगा और उनके विरुद्ध कार्यवाही की जाएगी, जिसमें उनको उम्मीदवारी रद्द करना भी शामिल है।

10. परीक्षार्थी को अपनी उत्तर-पुस्तिका शीट निरीक्षक को सौंपे बिना और उपस्थिति पत्रिका पर हस्ताक्षर किये बिना परीक्षा हॉल/कमरा नहीं छोड़ना चाहिए, ऐसा नहीं करने पर अयोग्य घोषित कर दिया जाएगा।

1. Before you start to answer the questions you must check up this booklet and ensure that it contains all the pages (1-16) and see that no page or portion thereof is missing or repeated. Candidates are also required to check that they have got the right question book strictly from the stream candidate has applied for i.e. Computer Science / Engineering Part OR Information Technology Part OR Electronics and Communication / Telecommunication Part OR Physics / Electronics / Applied Electronics Part. If you find any defect in this Booklet, you must get it replaced *immediately*.

2. You will be supplied the OMR Answer-Sheet separately by the Invigilator. Read the instructions printed on OMR Answersheet carefully before filling the information on the OMR Answer-sheet. You must complete and code the details as per the instructions given in the OMR answer sheet carefully. You must also put your signature on the OMR Answer-Sheet at the prescribed place before you actually start answering the questions. These instructions must be fully complied with, failing which, your Answer-Sheet will not be evaluated. (For V.H. candidates these details will be filled in by the scribe. However, all V.H. candidates must put their left-hand thumb impression at the space provided in the OMR Answer-Sheet. In addition, those V.H. candidates who can sign should also put their signatures in addition to thumb impression.)

3. This booklet consists of 120 Multiple choice questions. Each question has 4 (four) alternatives (A), (B), (C), and (D). In any case only one alternative will be the correct answer. In case if you find more than one correct answer, then choose the most appropriate single option and darken the appropriate circle in the answer sheet in front of the related question.

4. For each correct answer One mark will be given and for each incorrect answer 0.25 marks will be deducted.

5. Candidate has to attempt both parts compulsorily.

6. Use Black/Blue ball point Pen to darken the circle. Answer once darkened is not allowed to be erased or altered. Against any question if more than one circle is darkened, machine will allot zero mark for that question.

7. Do not fold answer sheet in any case.

8. No rough work is to be done on the Answer Sheet. Space for rough work has been provided in this booklet.

9. Mobile phones and wireless communication devices are completely banned in the examination hall/rooms. Candidates are advised not to keep mobile phones/any other wireless communication devices with them even switching it off, in their own interest. Failing to comply with this provision will be considered as using unfair means in the examination and action will be taken against them including cancellation of their candidature.

10. Candidate should not leave the examination hall/room without handing over his/her Answer sheet to the invigilator and without signing on the attendance sheet. Failing in doing so, will amount to disqualification.

जब तक आप से कहा न जाए तब तक प्रश्न-पुस्तिका न खोलें
DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

उम्मीदवार का नाम/Name of Candidate : _____

उम्मीदवार के हस्ताक्षर/Signature of Candidate : _____

Choose the most appropriate option.

Direction Q.No. 1 - 2 :

In the following questions choose the word opposite in meaning to the given word.

1. Antagonism :

    (A) Cordiality   (B) Animosity

    (C) Hostility   (D) Enmity

2. Hasten :

    (A) Dash   (B) Dawdle

    (C) Hurry   (D) Scurry
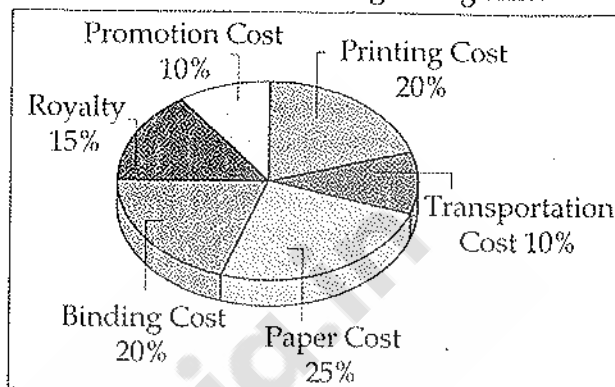
Direction Q.No. 3 - 4 :

In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

3. Camouflage :

    (A) Disguise   (B) Cover

    (C) Demonstrate   (D) Fabric

4. Yearn :

    (A) Deny   (B) Accept

    (C) Confront   (D) Crave

Direction 5 - 8 :

The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a magazine. Study the pie-chart and answer the questions based on it.

Various Expenditures (in percentage) Incurred in Publishing a Magazine

5. What is the central angle of the sector corresponding to the expenditure incurred on Royalty ?

    (A) 15°   (B) 24°

    (C) 54°   (D) 48°

6. The price of the magazine is marked 20% above the C.P. If the marked price of the magazine is ₹ 180, then what is the cost of the paper used in a single copy of the magazine ?

    (A) ₹ 36   (B) ₹ 37.50

    (C) ₹ 42   (D) ₹ 44.25

7. If for a certain quantity of magazine, the publisher has to pay ₹ 30,600 as printing cost, then what will be amount of royalty to be paid for these magazines ?

    (A) ₹ 19,450   (B) ₹ 21,200

    (C) ₹ 22,950   (D) ₹ 26,150

8. Royalty on the magazine is less than the printing cost by :

   (A) 5%   (B) $33\frac{1}{5}\%$

   (C) 20%   (D) 25%

Direction 9 - 11 :

The table given here shows production of five types of cars by a company in the year 2010 to 2015. Study the table and answer the questions.

Production of Cars by a Company

Year/Type	2010	2011	2012	2013	2014	2015	Total
P	8	20	16	17	21	6	88
Q	16	10	14	12	12	14	78
R	21	17	16	15	13	8	90
S	4	6	10	16	20	31	87
T	25	18	19	30	14	27	133
Total	74	71	75	90	80	86	476

9. In which year the total production of cars of types P and Q together was equal to the total production of cars of types R and S together ?

   (A) 2011
   (B) 2012
   (C) 2015
   (D) None of the above

10. In which year the production of cars of all types taken together was approximately equal to average during the period ?

   (A) 2010   (B) 2012
   (C) 2014   (D) 2015

11. The production of which type of cars was 25% of the total production of all types of cars during 2014 ?

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

Direction Q.No. 12 - 14 :

Read the following information carefully and answer the questions given below :

(i) P, Q, R, S, T and U six members of a family, each of them engaged in a different profession Doctor, Lawyer, Teacher, Engineer, Nurse and Manager.

(ii) Each of them remains at home on a different day of the week from Monday to Saturday.

(iii) The lawyer in the family remain at home on Thursday.

(iv) R remains at home on Tuesday.

(v) P, a Doctor, does not remain at home either on Saturday or on Wednesday.

(vi) S is neither the doctor nor the Teacher and remains at home on Friday.

(vii) Q is the Engineer and T is the Manager.

12. Which of the following combinations is correct ?

   (A) Lawyer - Tuesday
   (B) Nurse - Friday
   (C) Manager - Friday
   (D) Engineer - Thursday

13. Which of the following combinations is not correct ?

   (A) R - Teacher   (B) Q - Engineer
   (C) T - Manager   (D) S - Lawyer

14. Who is the Nurse ?

(A) S   (B) R

(C) U   (D) Data inadequate

Direction Q.No. 15 :

Three of the words will be in the same classification, the remaining one will not be. Your answer will be the one word that does NOT belong in the same classification as the others.

15. Which word does NOT belong to the others ?

(A) Tape   (B) Twine

(C) Cord   (D) Yarn

Direction Q.No. 16 - 18 :

Study the following information's carefully and answer the questions given below :

(i) Six persons A, B, C, D, E and F are taking their breakfast in two groups facing one another.

(ii) D and A are not in the same row.

(iii) E is to the left of F and faces C.

(iv) B is in the middle of a group.

(v) D is to the left of B.

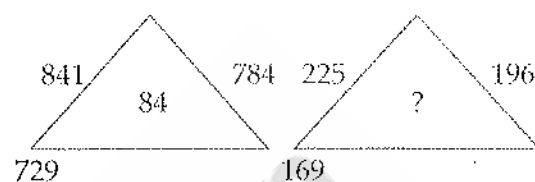16. Who faces B ?

(A) C   (B) A

(C) E   (D) F

17. Who of the following are sitting in the same row ?

(A) AEB   (B) EFB

(C) DEF   (D) AEF

18. Which of the following pairs are facing each other ?

(A) CA   (B) BA

(C) DA   (D) DE

19. Find the missing number in the following question.

841   84   784   225   ?   196

729   169

(A) 32   (B) 42

(C) 62   (D) 82

20. If $\div$ means $+$, $-$ means $\div$, $\times$ means $-$ and $+$ means $\times$, then

$$\frac{(3 \times 4) - 8 \times 4}{4 + 8 \times 2 + 16 \div 1} = ?$$

(A) 1   (B) -1

(C) 2   (D) 0

Direction Q.No. 21 - 22 :

In each of the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

21. aaa_bb_ aab_baaa_bb

(A) abab   (B) bbaa

(C) babb   (D) baab

22. abca_bcaab_aa_caa_c

(A) bbac   (B) bbaa

(C) acbb   (D) acac

In each of the following questions, one term in the number series is wrong. Find out the wrong term.

23. 125, 126, 124, 127, 123, 129

(A) 123 (B) 124

(C) 126 (D) 129

24. 52, 51, 48, 43, 34, 27, 16

(A) 51 (B) 48

(C) 34 (D) 43

Direction Q.No. 25 - 27 :

In each of the following questions, a series is given with one term missing. Choose the correct alternative that will continue the same pattern and fill in the blank space.

25. 6, 25, _____, 123, 214, 341.

(A) 65 (B) 70

(C) 72 (D) 62

26. 71, 76, 69, 74, 67, 72, _____.

(A) 65 (B) 76

(C) 77 (D) 80

27. 50, 49, 46, 41, 34, _____.

(A) 32 (B) 25

(C) 21 (D) 19

Direction Q.No. 28 - 29 :

In each of the following questions, find out the correct answer from the given alternatives.

28. If in a certain language MECHANICS is coded as HCEMASCIN, how is POSTER coded in that code ?

(A) OPTSRE (B) SOPRET

(C) RETSOP (D) TERPOS

29. If TABLE is coded as GZYOV, how is JUICE coded ?

(A) OZLFJ (B) QFRXV

(C) HOFAD (D) QZHMT

Direction Q.No. 30 - 32 :

In each of the following questions, there is a certain relation between two given words on one side of : : and one word is given on another side of : : while another word is to be found from the given alternatives, having the same relation with this word as the words of the given pair bear. Choose the best alternative.

30. Engineer : Map : : Bricklayer : ?

(A) Design (B) Templet

(C) Mould (D) Cement

31. Major : Battalion : : Colonel : ?

(A) Company (B) Regiment

(C) Army (D) Soldiers

32. Virology : Virus : : Semantics : ?

(A) Amoeba (B) Language

(C) Nature (D) Society

The following questions consist of two words each that have a certain relationship to each other, followed by four lettered pairs of words. Select the lettered pair that has the same relationship as the original pair of words.

33. Symphony : Music

   (A) Mural : Painting

   (B) Ode : Prose

   (C) Preface : Book

   (D) Editorial : Journal

34. Medicine : Capsule

   (A) Pearl : Shell

   (B) Passenger : Bus

   (C) Heart : Lungs

   (D) Car : Vehicle

35. Identity : Anonymity

   (A) Flow : Perfection

   (B) Careless : Mistake

   (C) Truth : Lie

   (D) Fear : Joy

Direction Q.No. 36 - 37 :

Each of the following questions the first two words have definite relationship. Choose one word out of the given four alternatives which will fill in the blank space and show the same relationship with the third word as between the first two.

36. Cobra is related to Snake in the same way as Leopard is related to _____ .

   (A) Tiger   (B) Lion

   (C) Cat   (D) Zebra

37. Memorise is to Amnesia as Movement is to _____ .

   (A) Lubrication

   (B) Lethargy

   (C) Paralysis

   (D) Hermit

Direction Q.No. 38 - 41 :

In each of the following questions, three out of four alternatives contain alphabet placed in a particular form. Find the one that does not belong to the group.

38. (A) BCDEI   (B) PQRSW

   (C) LMNOS   (D) HIKLO

39. (A) LNMO   (B) CRDT

   (C) EUFV   (D) GWHX

40. (A) CBAZ   (B) AZYX

   (C) AZBY   (D) PONM

41. (A) JMP   (B) RUX

   (C) UYB   (D) EHK

42. A train started from Mumbai at 6.00 A.M. On the next (second) station 1/3 passengers got down and 96 got in. On the next (third) station, ½ of the total passengers present in the train, got down and 12 came in. Now there were 248 passengers in the train, when the train started from Mumbai, the number of passengers was :

   (A) 435   (B) 564

   (C) 654   (D) 736

SPACE FOR ROUGH WORK

43. The LCM of two numbers is 45 times their HCF. If the sum of the LCM and the HCF of these two numbers is 1150 and one of the numbers is 125, then the other number is :

(A) 256   (B) 225

(C) 250   (D) 255

Direction Q.No. 44 - 45 :

Find out the wrong term from the following series and select the number from the alternatives which will replace the wrong term in the series.

44. 299, 178, 97, 48, 24, 14, 13 :

(A) 175   (B) 295

(C) 23   (D) 10

45. 2, 9, 28, 65, 126, 216, 344 :

(A) 38   (B) 217

(C) 356   (D) 66

46. The ratio between Sumit's and Prakash's age at present is 2 : 3. Sumit is 6 years younger than Prakash. The ratio of Sumit's age to Prakash's age after six years will be :

(A) 1 : 2   (B) 2 : 3

(C) 3 : 4   (D) 3 : 8

47. If the difference between a number and $1/5^{th}$ of it is 84, what is the number ?

(A) 115   (B) 95

(C) 105   (D) 125

48. The ratio of ages of the father and his son at present is 12 : 5, the difference of their age is 28 years. What will be the ratio of their Ages after eight years ?

(A) 2 : 2   (B) 3 : 1

(C) 2 : 1   (D) 3 : 2

49. Two pipes A and B can fill a water tank in 20 and 24 minutes respectively and third pipe C can empty at the rate of 3 gallons per minute. If A, B and C opened together filled the tank in 15 minutes, the capacity (in gallons) of the tank is :

(A) 60   (B) 120

(C) 150   (D) 180

50. A can run 200 m in 35 seconds and B in 38 seconds. By what distance A beats B ?

(A) 15 m   (B) $15\frac{2}{3}$ m

(C) $15\frac{15}{19}$ m   (D) $15\frac{4}{19}$ m

51. A train starts at 7 a.m. from A towards B with a speed of 50 km/hr. Another train from B starts at 8 a.m. with a speed of 60 km/hr towards A. Both of them meet at 10 a.m. at C. The ratio of the distances AC to BC is :

(A) 4 : 5   (B) 5 : 4

(C) 5 : 6   (D) 6 : 5

52. The average of the husband and his wife was 23 years at the time of their marriage. After five years they have a one year old child. The average age of the family now is :

(A) 29.3 years (B) 28.5 years

(C) 23 years (D) 19 years

53. $1/4^{th}$ of 60% of a number is equal to $2/5^{th}$ of 20% of another number. What is the respective ratio of the first number to that of second number ?

(A) 8 : 15 (B) 5 : 9

(C) 8 : 13 (D) 4 : 7

54. A&B together have ₹ 1210. If 4/15 of A's amount is equal to 2/5 of B's amount, how much amount does B have?

(A) ₹ 664 (B) ₹ 550

(C) ₹ 484 (D) ₹ 460

55. How many one rupee coins, 50 paise coins and 25 paise coins of which the numbers are proportional to 4, 5 and 6 are together worth ₹ 32 ?

(A) 16, 20, 24 (B) 12, 16, 20

(C) 20, 24, 28 (D) 24, 28, 32

56. Two dice are thrown simultaneously. The probability of obtaining a total score of 5 is :

(A) 1/18 (B) 1/12

(C) 1/9 (D) None of these

57. A tradesman marks his goods at such a price that after allowing a discount of 15%, he earns a profit of 20%. Find the marked price of an article which costs him ₹ 850.

(A) ₹ 1200 (B) ₹ 1300

(C) ₹ 1250 (D) ₹ 1350

58. In a camp, there are meals for 120 men or 200 children. If 150 children have taken their meals, how many men will be catered to with the remaining meal ?

(A) 50 (B) 40

(C) 30 (D) 20

59. 56 men can complete a piece of work in 24 days. In how many days can 42 men complete the same piece of work ?

(A) 48 (B) 32

(C) 20 (D) 16

60. A boat travels upstream from P to Q and downstream from Q to P in 4 hours. If the speed of the boat in still water is 12 km/hr and the speed of the current is 4 km/hr, then what is the distance from P to Q ?

(A) $31\frac{1}{3}$ km (B) $41\frac{1}{3}$ km

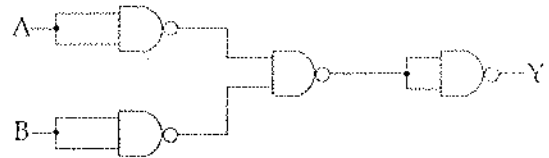(C) $21\frac{1}{3}$ km (D) $11\frac{1}{3}$ km

COMPUTER SCIENCE/ENGINEERING

Choose the most appropriate option.

61. Palindromes can't be recognized by any Finite State Automata because :

   (A) FSA cannot remember arbitrarily large amount of information

   (B) FSA cannot deterministically fix the midpoint

   (C) Even if the mid-point is known an FSA cannot find whether the second half of the string matches the first half

   (D) All of the above

62. Process of analyzing relation schemas to achieve minimal redundancy and insertion or update anomalies is classified as :

   (A) normalization of data

   (B) denomination of data

   (C) isolation of data

   (D) de-normalization of data

63. If L1 is CFL and L2 is regular language which of the following is false ?

   (A) L1-L2 is not Context free

   (B) L1 intersection L2 is Context free

   (C) ~L1 is Context free

   (D) Both (A) and (C)

64.

The Circuit is equivalent to :

   (A) OR Gate   (B) NOR Gate

   (C) AND Gate   (D) EX-OR Gate

65. Let G be a simple undirected planar graph on 10 vertices with 15 edges. If G is a connected graph, then the number of bounded faces in any embedding of G on the plane is equal to :

   (A) 3   (B) 4

   (C) 5   (D) 6

66. Which of the following is **wrong** ?

   (A) Turing machine is a simple mathematical model of general purpose computer

   (B) Turing machine is more powerful than finite Automata

   (C) Turing machine can be simulated by a general purpose computer

   (D) All of these

67. The Knapsack problem belongs to which domain of problems ?

   (A) Optimization

   (B) NP Complete

   (C) Linear Solution

   (D) Sorting

SPACE FOR ROUGH WORK

68. What will be output if you will compile and execute the following c code ?

```
void main( ) {
char c = 125;
    c = c + 10;
    printf("%d", c);
}
```

(A) 135

(B) 115

(C) −121

(D) −8

69. The first Network :

(A) ARPANET

(B) NFSNET

(C) CNNET

(D) ASAPNET

70. The noise due to random behavior of charge carriers is :

(A) Partition noise

(B) Industrial noise

(C) Shot noise

(D) Flicker noise

71. A sinusoidal signal is analog signal, because :

(A) it can have a number of values between the negative and positive peaks

(B) it is negative for one half cycle

(C) it is positive for one half cycle

(D) it has positive as well as negative values

72. The running time of Quick sort algorithm depends heavily on the selection of :

(A) No. of inputs

(B) Arrangement of elements in an array

(C) Size of elements

(D) Pivot Element

73. What will be output if you will compile and execute the following c code ?

```
void main( ) {
printf("%d",sizeof(5.2));
}
```

(A) 4

(B) 8

(C) 2

(D) 16

74. The identification of common sub-expression and replacement of run-time computations by compile-time computations is :

(A) Local optimization

(B) Constant folding

(C) Loop optimization

(D) Data flow analysis

75. Which of the following need not be a binary tree ?

(A) Search tree

(B) Heap

(C) AVL tree

(D) B tree

76. Two main measures for the efficiency of an algorithm are :

(A) Processor and Memory

(B) Complexity and Capacity

(C) Time and Space

(D) Data and Space

77. T1 carrier system is used :
   (A) For delta modulation
   (B) Industrial noise
   (C) For frequency modulated signals
   (D) None of the above

78. Which of the following is not defined in a good Software Requirement Specification (SRS) document ?
   (A) Functional Requirement.
   (B) Goals of implementation.
   (C) Nonfunctional Requirement.
   (D) Algorithm for software implementation

79. Communication between a computer and a keyboard involves _____ transmission.
   (A) Simplex   (B) Half-Duplex
   (C) Automatic   (D) Full-Duplex

80. Bluetooth is an example of :
   (A) personal area network
   (B) virtual private network
   (C) local area network
   (D) none of the above

81. Let A, B, C, D be $n \times n$ matrices, each with non-zero determinant. If $ABCD = 1$, then B^{-1} is :
   (A) $D^{-1}C^{-1}A^{-1}$
   (B) CDA
   (C) ADC
   (D) Does not necessarily exist

82. The structure or format of data is called :
   (A) Syntax   (B) Struct
   (C) Semantic   (D) none of the above

83. A nonpipeline system takes 50 ns to process a task. The same task can be processed in a six-segment pipeline with a clock cycle of 10 ns. Determine the speedup ration of the pipeline for 100 tasks. What is the maximum speedup that can be achieved ?
   (A) 4.90, 5   (B) 4.76, 5
   (C) 3.90, 5   (D) 4.30, 5

84. Given two DFA's M1 and M2. They are equivalent if :
   (A) M1 and M2 has the same number of states
   (B) M1 and M2 accepts the same language i.e. L(M1) = L(M2)
   (C) M1 and M2 has the same number of final states
   (D) None of the above

85. A low pass filter is :
   (A) Passes the frequencies lower than the specified cut off frequency
   (B) Used to recover signal from sampled signal
   (C) Rejects higher frequencies
   (D) All of the above

86. Consider the function $f(x) = \sin(x)$ in the interval $\left[\dfrac{\pi}{4}, 7\dfrac{\pi}{4}\right]$. The number and location(s) of the local minima of this function are :

(A) One, at $\dfrac{\pi}{2}$

(B) One, at $3\dfrac{\pi}{2}$

(C) Two, at $\dfrac{\pi}{2}$ and $3\dfrac{\pi}{2}$

(D) Two, at $\dfrac{\pi}{4}$ and $3\dfrac{\pi}{2}$

87. What is the solution to the recurrence $T(n) = T\left(\dfrac{n}{2}\right) + n$?

(A) O (log n)

(B) O (n)

(C) O (n logn)

(D) None of these

88. Which one of the following is NOT necessarily a property of a Group ?

(A) Commutativity

(B) Associativity

(C) Existence of inverse for every element

(D) Existence of identity

89. Software Requirement Specification (SRS) is also known as specification of :

(A) White box testing

(B) Integrated testing

(C) Acceptance testing

(D) Black box testing

90. The IOS class member function used for formatting IO is :

(A) width(), precision(), read()

(B) width(), precision(), setf()

(C) getch(), width(), Io()

(D) unsetf(), setf(), write()

91. Rule which states that addition of same attributes to right side and left side will result in other valid dependency is classified as :

(A) referential rule

(B) inferential rule

(C) augmentation rule

(D) reflexive rule

92. Line of code (LOC) of the product comes under which type of measures ?

(A) Indirect measures

(B) Coding

(C) Direct measures

(D) None of the above

93. What will be the Excess-3 code for 1001 ?

(A) 1001   (B) 1010

(C) 1011   (D) 1100

94. How many onto (or surjective) functions are there from an n-element (n >= 2) set to a 2-element set ?

(A) 2^n

(B) $2^n - 1$

(C) $2^n - 2$

(D) $2(2^n - 2)$

95. What will be the final output of D Flip-Flop, if the input string is 11010011 ?

(A) 1

(B) 0

(C) Don't Care

(D) None of Above

96. The graph that shows basic blocks and their successor relationship is called :

(A) DAG

(B) Control graph

(C) Flow graph

(D) Hamiltonion graph

97. The principal of locality of reference justifies the use of :

(A) Non reusable

(B) Cache memory

(C) Virtual memory

(D) None of the above

98. What is the testing to ensure the WebApp properly interfaces with other applications or databases ?

(A) Compatibility

(B) Interoperability

(C) Performance

(D) Security

99. External Interrupt may not arise because of :

(A) Illegal or erroneous use of an instruction

(B) a timing device

(C) external source

(D) I/O devices

100. A top down parser generates :

(A) Left most derivation

(B) Right most derivation

(C) Left most derivation in reverse

(D) Right most derivation in reverse

101. The IETF standard documents are called :

(A) RFC

(B) RCF

(C) ID

(D) none of the above

102. The maximum number of nodes in a binary tree of level k, k $\geq$ 1 is :

(A) $2^k + 1$

(B) 2^{k-1}

(C) $2^k - 1$

(D) $2^{k-1} - 1$

103. Syntax directed translation scheme is desirable because :

(A) It is based on the syntax

(B) It is easy to modify

(C) Its description is independent of any implementation

(D) All of these

104. What is described by means of DFDs as studied earlier and represented in algebraic form ?

    (A)   Data flow

    (B)   Data storage

    (C)   Data Structures

    (D)   Data elements

105.

AB \ CD	00	01	11	10
00	X	X		1
01		1		
11		X		
10	X	1		X

What will be the equation of simplification of the given K-Map ?

    (A) $A' B' D' + C' D + A B' C'$

    (B) $B' C D' + A B' C' + A' C'$

    (C) $B' D' + C' D$

    (D) $C' D + B' C D'$

106. $(00 + 01 + 10)(0 + 1)^*$ represents :

    (A)   Strings not starting with 11

    (B)   Strings of odd length

    (C)   Strings starting with 00

    (D)   Strings of even length

107. If every functional dependency in set E is also in closure of F then this is classified as :

    (A)   FD is covered by E

    (B)   E is covered by F

    (C)   F is covered by E

    (D)   F plus is covered by E

108. In which one of the following pages replacement policies, Belady's anomaly may occur ?

    (A)   FIFO   (B)   LRU

    (C)   Optimal   (D)   MRU

109. Considering relational database, functional dependency between two attributes A and B is denoted by :

    (A) $A \rightarrow B$ (B) $B \leftarrow A$

    (C) $AB \rightarrow R$ (D) $R \leftarrow AB$

110. Where does the swap space reside ?

    (A)   RAM   (B)   ROM

    (C)   DISK   (D)   On-chip cache

111. A process that is based on IPC mechanism which executes on different systems and can communicate with other processes using message based communication is called _____.

    (A)   Local Procedure Call

    (B)   Remote Procedure Call

    (C)   Inter Process Communication

    (D)   Remote Machine Invocation

112. The concept of order Big O is important because :

    (A)   It can be used to decide the best algorithm that solves a given problem

    (B)   It is the lower bound of the growth rate of algorithm

    (C)   It determines the maximum size of a problem that can be solved in a given amount of time

    (D)   Both (A) and (B)

113. The addressing mode used in an instruction of the form ADD X Y, is _____.

(A) Direct   (B) Absolute

(C) Indirect   (D) Indexed

114. If there is more than one key for relation schema in DBMS then each key in relation schema is classified as :

(A) prime key

(B) super key

(C) candidate key

(D) primary key

115. Process that periodically checks status of an I/O devices, is known as :

(A) Cold swapping

(B) I/O instructions

(C) Polling

(D) Dealing

116. Consider a system with m resources of same type being shared by n processes. Resources can be requested and released by processes only one at a time. The system is deadlock free if and only if :

(A) The sum of all max needs is < m + n

(B) Both of above

(C) The sum of all max needs is > m + n

(D) None

117. The output of lexical analyzer is :

(A) A set of regular expressions

(B) Strings of character

(C) Syntax tree

(D) Set of tokens

118. CPU consist of _____.

(A) ALU and Control Unit

(B) ALU, Control Unit and Monitor

(C) ALU, Control Unit and Hard Disk

(D) ALU, Control Unit and Register

119. The Decimal equivalent of the Hexadecimal number (A09D)16 is :

(A) 31845   (B) 41117

(C) 41052   (D) 32546

120. The sequence of operations in which PCM is done is :

(A) Sampling, quantizing, encoding

(B) Quantizing, sampling, encoding

(C) Quantizing, encoding, sampling

(D) None of the above

- o 0 o -