SEAL

(IT)

पुस्तिका सं./Booklet No. : 301177

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

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 साईंस / इंजीनियरिंग भाग या सूचना प्रौद्योगिकी भाग या इलेक्ट्रॉनिक्स और कम्युनिकेशन / टेलीकम्यूनिकेशन 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 एम् आर उत्तर-शीट अलग से दी जाएगी। ओ एम् आर उत्तर-शीट में विवरण भरने से पहले, आपको ओ एम् आर उत्तर शीट पर मुद्रित अनुदेशों को सावधानीपूर्वक पढ़ना चाहिए। आपको ओ एम् 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 एम् आर उत्तर-पुस्तिका में निर्धारित स्थान पर अपने हस्ताक्षर करने चाहिए। इन अनुदेशों का पूर्ण अनुपालन किया जाना चाहिए, ऐसा न किये जाने पर आपकी ओ एम् 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 एम् 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 फ़ोन तथा बेतार संचार साधन पूरी तरह निषिद्ध हैं, उम्मीदवारों को उनके अपने हित में सलाह दी जाती है कि मोबाइल फ़ोन/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 उनकी 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।

Instructions to the Candidates

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 : .....

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SECTION - A

General Aptitude

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 :

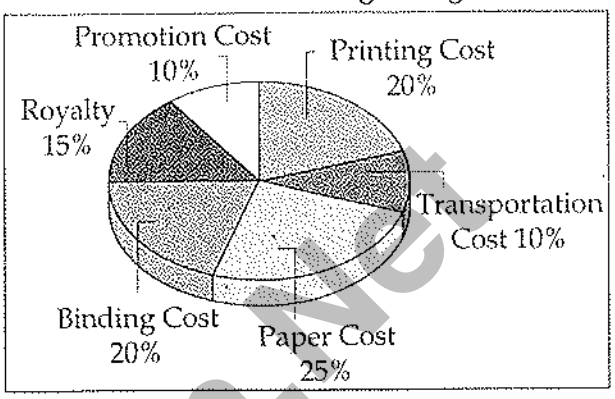
(A) Deny (B) Accept

(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

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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

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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

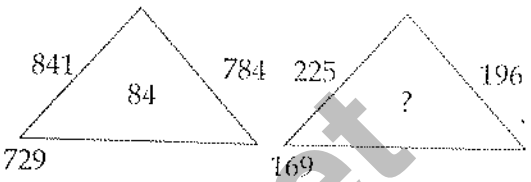
(C) DEF (D) AEF

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.



(A) 32 (B) 42

(C) 62 (D) 82

20. If ÷ means +, − means ÷, × means − and + means ×, 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

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Direction Q.No. 23 - 24 :

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

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Direction Q.No. 33 - 35 :

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

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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

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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

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SECTION - B

INFORMATION TECHNOLOGY

Choose the most appropriate option.

61. Given a class named student, which of the following is a valid constructor declaration for the class ?

(A) Student student ( ) { }

(B) Private final student ( ) { }

(C) Student (student s) { }

(D) Void student ( ) { }

62. Three or more devices share a link in _____ connection.

(A) Unipoint (B) Polarpoint

(C) Point to Point (D) Multipoint

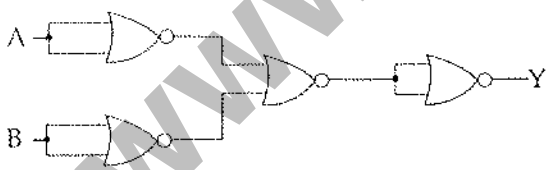
63. An object can have which of the following multiplicities ?

(A) Zero

(B) More than one

(C) One

(D) All of the above

64. 

The Circuit is equivalent to :

(A) EX-OR Gate (B) NAND Gate

(C) OR Gate (D) AND Gate

65. Two alternative packages A and B are available for processing a database having 10k records. Package A requires 0.0001n2 time units and package B requires 10nlog10n time units to process n records. What is the smallest value of k for which package B will be preferred over A ?

(A) 12 (B) 10

(C) 6 (D) 5

66. Earlier name of Java Programming language was :

(A) OAK (B) D

(C) Netbean (D) Eclipse

67. What is the type of the algorithm used in solving the 4 Queens problem ?

(A) Greedy

(B) Branch and Bound

(C) Dynamic

(D) Backtracking

68. Selection sort, quick sort is a stable sorting method.

(A) True, True (B) False, False

(C) True, False (D) False, True

69. Which of the following is a platform free language ?

(A) JAVA (B) C

(C) Assembly (D) Fortran

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70. The maximum combined length of the command-line arguments including the spaces between adjacent arguments is :

(A) 128 characters

(B) 256 characters

(C) 67 characters

(D) It may vary from one operating system to another

71. What is the meaning of following declaration?

int(*p[7])() ;

(A) p is pointer to function.

(B) p is pointer to such function which return type is array.

(C) p is array of pointer to function.

(D) p is pointer to array of function.

72. Which of the following sorting procedures is the slowest ?

(A) Quick Sort (B) Merge Sort

(C) Shell Sort (D) Bubble Sort

73. The number of unused pointers in a complete binary tree of depth 5 is :

(A) 4 (B) 8

(C) 16 (D) 32

74. Normalization form which is based on transitive dependency is classified as :

(A) first normal form

(B) second normal form

(C) fourth normal form

(D) third normal form

75. A _____ is a linear list in which insertions and deletions are made to from either end of the structure.

(A) Circular queue

(B) Priority queue

(C) Stack

(D) Dequeue

76. The recurrence relation capturing the optimal execution time of the Towers of Hanoi problem with n discs is :

(A) $T(n) = 2T(n-2) + 2$

(B) $T(n) = 2T(n/2) + 1$

(C) $T(n) = 2T(n-1) + n$

(D) $T(n) = 2T(n-1) + 1$

77. Which of the following is the correct order of evaluation for the below expression ?

$z = x + y * z / 4 \% 2 - 1$

(A) * / % + - = (B) = * / % + -

(C) / * % - + = (D) * % / - + =

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78. Which of the following is a fundamental operation in relational algebra ?

(A) Set intersection

(B) Assignment

(C) Natural join

(D) None of the above

79. Which protocol finds the MAC address from IP address ?

(A) SMTP (B) ICMP

(C) ARP (D) RARP

80. By which technology do we separate our business logic from the presentation logic ?

(A) Servlet

(B) JSP

(C) Both (A) & (B)

(D) None of the above

81. Consider the set $S = \{1, \omega, \omega^2\}$, where ω and ω^2 are cube roots of unity. If * denotes the multiplication operation, the structure (S, *) forms :

(A) A group

(B) A ring

(C) An integral domain

(D) A field

82. Bluetooth is an example of :

(A) local area network

(B) virtual private network

(C) personal area network

(D) none of the mentioned above

83. Which of the following is not an input device ?

(A) Mouse (B) Keyboard

(C) Light Pen (D) VDU

84. An operation can be described as :

(A) Object behavior

(B) Functions

(C) Class behavior

(D) (A), (B)

85. The keyword used to transfer control from a function back to the calling function is :

(A) switch (B) go to

(C) go back (D) return

86. Two eigen values of a 3×3 real matrix P are $(2 + \sqrt{-1})$ and 3. The determinant of P is _____.

(A) 0 (B) 1

(C) 15 (D) -1

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87. Complexity of Kruskal's algorithm for finding minimum spanning tree of an undirected graph containing n vertices and m edges if the edges are sorted is :

(A) O (mn) (B) O (m)

(C) O (m + n) (D) O (n)

88. What is the possible number of reflexive relations on a set of 5 elements ?

(A) 2^{10} (B) 2^{15}

(C) 2^{20} (D) 2^{25}

89. RAD Software process model stands for :

(A) Rapid Application Development.

(B) Rapid Application Design.

(C) Relative Application Development.

(D) Recent Application Development.

90. What data structure is used for depth first traversal of a graph ?

(A) Queue (B) Stack

(C) List (D) None of above

91. A set of rules that governs data communication :

(A) Rule (B) Medium

(C) Link (D) Protocol

92. Software project management comprises of a number of activities, which contains :

(A) Project planning

(B) Project estimation

(C) Scope management

(D) All mentioned above

93. How many Inputs are required in Full Adder Circuit ?

(A) 2

(B) 3

(C) More than two inputs

(D) None of the Above

94. Mala has a colouring book in which each English letter is drawn two times. She wants to paint each of these 52 prints with one of k colours, such that the colour-pairs used to colour any two letters are different. Both prints of a letter can also be coloured with the same colour. What is the minimum value of k that satisfies this requirement ?

(A) 9 (B) 8

(C) 7 (D) 6

95. What will be the final output of D Flip-Flop, if the input string is 0010011100 ?

(A) 1

(B) 0

(C) Don't Care

(D) None of the Above

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96. The primary key is selected from the :

(A) Composite keys.

(B) Determinants.

(C) Candidate keys.

(D) Foreign keys.

97. How many address lines are needed to address each memory location in a 2048×4 memory chip ?

(A) 10 (B) 11

(C) 8 (D) 12

98. What are the characteristics of software ?

(A) Software is developed or engineered; it is not manufactured in the classical sense.

(B) Software can be custom built or custom build.

(C) Software doesn't " wear out "

(D) All mentioned above

99. MIMD stands for :

(A) Multiple Instruction Multiple Data

(B) Multiple Instruction Memory Data

(C) Memory Instruction Multiple Data

(D) Multiple Information Memory Data

100. In functional dependency between two sets of attributes A and B then set of attributes A of database is classified as :

(A) top right side

(B) down left side

(C) left hand side

(D) right hand side

101. Which type of Statement can execute parameterized queries ?

(A) PreparedStatement

(B) ParameterizedStatement

(C) ParameterizedStatement and CallableStatement

(D) All kinds of Statements

102. In the _____ traversal we process all of a vertex's descendants before we move to an adjacent vertex.

(A) Depth First

(B) Breadth First

(C) Width First

(D) Depth Limited

103. Which of the following is a fundamental operation in relational algebra ?

(A) Set intersection

(B) Natural join

(C) Assignment

(D) None of the above

104. Which-one of the following statements about normal forms is **FALSE** ?

(A) BCNF is stricter than 3 NF

(B) Lossless, dependency - preserving decomposition into BCNF is always possible

(C) Lossless, dependency - preserving decomposition into 3 NF is always possible

(D) Any relation with two attributes is BCNF

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105.

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

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

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

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

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

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

106. Object oriented inheritance models :

(A) "is a kind of" relationship

(B) "has a" relationship

(C) "want to be" relationship

(D) "contains" of relationship.

107. The _____ is the physical path over which a message travels.

(A) Path (B) Protocol

(C) Route (D) Medium

108. The Banker's algorithm is used :

(A) to rectify deadlock

(B) to prevent deadlock

(C) to detect deadlock

(D) to detect and solve deadlock

109. Application layer protocol defines :

(A) types of messages exchanged

(B) rules for when and how processes send and respond to messages

(C) message format, syntax and semantics

(D) all of above

110. Which of the following statements about semaphores is **true** ?

(A) P and V operations should be indivisible operations

(B) A semaphore implementation should guarantee that threads do not suffer indefinite postponement

(C) If several threads attempt a P(S) operation simultaneously, only one thread should be allowed to proceed.

(D) All of the above

111. Copying a process from memory to disk to allow space for other processes is called :

(A) Swapping

(B) Demand Paging

(C) Deadlock

(D) Page Fault

112. Find the odd one out.

(A) Merge Sort

(B) TVSP Problem

(C) Knapsack Problem

(D) OBST Problem

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113. What is 2's complement of $(101)_3$?

(A) $(010)_3$ (B) $(011)_3$

(C) $(121)_3$ (D) $(121)_2$

114. Which of this is not a network edge device ?

(A) PC (B) Server

(C) Smartphone (D) Switch

115. The example of implied addressing is :

(A) Stack addressing

(B) Indirect addressing

(C) Immediate addressing

(D) None of the above

116. The degree of Multiprogramming is controlled by :

(A) CPU Scheduler

(B) Long-term Scheduler

(C) Context Switching

(D) Medium term Scheduler

117. If attribute of relation schema R is member of some candidate key then this type of attributes are classified as :

(A) atomic attribute

(B) candidate attribute

(C) nonprime attribute

(D) prime attribute

118. How many Addition and Subtraction are required if you perform multiplication of 5 (Multiplicand) and −30 (Multiplier) using Booth Algorithm ?

(A) 2, 1 (B) 1, 2

(C) 1, 1 (D) 2, 2

119. The Decimal equivalent of the Hexadecimal number (AC7B)16 is :

(A) 32564 (B) 44155

(C) 50215 (D) 43562

120. How will you free the allocated memory ?

(A) remove(var-name)

(B) free(var-name)

(C) delete(var-name)

(D) dalloc(var-name)

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