

Signature and Name of Invigilator

1. (Signature) \_\_\_\_\_

(Name) \_\_\_\_\_

2. (Signature) \_\_\_\_\_

(Name) \_\_\_\_\_

**J-8706**

**PAPER – II**

**Time : 1¼ hours] COMPUTER APPLICATIONS [Maximum Marks : 100**

**Number of Pages in this Booklet : 8**

**Number of Questions in this Booklet : 50**

**Instructions for the Candidates**

- Write your roll number in the space provided on the top of this page.
- This paper consists of fifty multiple-choice type of questions.
- At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
  - To have access to the Question Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
  - Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the question booklet will be replaced nor any extra time will be given.**
  - After this verification is over, the Serial No. of the booklet should be entered in the Answer-sheets and the Serial No. of Answer Sheet should be entered on this Booklet.
- Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the oval as indicated below on the correct response against each item.

**Example :** (A) (B) (C) (D)

where (C) is the correct response.
- Your responses to the items are to be indicated in the Answer Sheet given **inside the Paper I booklet only**. If you mark at any place other than in the ovals in the Answer Sheet, it will not be evaluated.
- Read instructions given inside carefully.
- Rough Work is to be done in the end of this booklet.
- If you write your name or put any mark on any part of the test booklet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
- You have to return the test question booklet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall.
- Use only Blue/Black Ball point pen.
- Use of any calculator or log table etc., is prohibited.
- There is NO negative marking.

Answer Sheet No. : .....

(To be filled by the Candidate)

Roll No.

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(In figures as per admission card)

Roll No. \_\_\_\_\_

(In words)

Test Booklet No.

**परीक्षार्थियों के लिए निर्देश**

- पहले पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए।
- इस प्रश्न-पत्र में पचास बहुविकल्पीय प्रश्न हैं।
- परीक्षा प्रारम्भ होने पर, प्रश्न-पुस्तिका आपको दे दी जायेगी। पहले पाँच मिनट आपको प्रश्न-पुस्तिका खोलने तथा उसकी निम्नलिखित जाँच के लिए दिये जायेंगे जिसकी जाँच आपको अवश्य करनी है :
  - प्रश्न-पुस्तिका खोलने के लिए उसके कवर पेज पर लगी कागज की सील को फाड़ लें। खुली हुई या बिना स्टीकर-सील की पुस्तिका स्वीकार न करें।
  - कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चेक कर लें कि ये पूरे हैं। दोषपूर्ण पुस्तिका जिनमें पृष्ठ/प्रश्न कम हों या दुबारा आ गये हों या सीरियल में न हों अर्थात् किसी भी प्रकार की त्रुटिपूर्ण पुस्तिका स्वीकार न करें तथा उसी समय उसे लौटाकर उसके स्थान पर दूसरी सही प्रश्न-पुस्तिका ले लें। इसके लिए आपको पाँच मिनट दिये जायेंगे। उसके बाद न तो आपकी प्रश्न-पुस्तिका वापस ली जायेगी और न ही आपको अतिरिक्त समय दिया जायेगा।
  - इस जाँच के बाद प्रश्न-पुस्तिका की क्रम संख्या उत्तर-पत्रक पर अंकित करें और उत्तर-पत्रक की क्रम संख्या इस प्रश्न-पुस्तिका पर अंकित कर दें।
- प्रत्येक प्रश्न के लिए चार उत्तर विकल्प (A), (B), (C) तथा (D) दिये गये हैं। आपको सही उत्तर के दीर्घवृत्त को पेन से भरकर काला करना है जैसा कि नीचे दिखाया गया है।

**उदाहरण :** (A) (B) (C) (D)

जबकि (C) सही उत्तर है।
- प्रश्नों के उत्तर केवल प्रश्न पत्र I के अन्दर दिये गये उत्तर-पत्रक पर ही अंकित करने हैं। यदि आप उत्तर पत्रक पर दिये गये दीर्घवृत्त के अलावा किसी अन्य स्थान पर उत्तर चिन्हंकित करते हैं, तो उसका मूल्यांकन नहीं होगा।
- अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें।
- कच्चा काम (Rough Work) इस पुस्तिका के अन्तिम पृष्ठ पर करें।
- यदि आप उत्तर-पुस्तिका पर अपना नाम या ऐसा कोई भी निशान जिससे आपकी पहचान हो सके, किसी भी भाग पर दर्शाते या अंकित करते हैं तो परीक्षा के लिये अयोग्य घोषित कर दिये जायेंगे।
- आपको परीक्षा समाप्त होने पर उत्तर-पुस्तिका निरीक्षक महोदय को लौटाना आवश्यक है और परीक्षा समाप्ति के बाद अपने साथ परीक्षा भवन से बाहर न लेकर जायें।
- केवल नीले/ काले बाल प्वाइंट पेन का ही इस्तेमाल करें।
- किसी भी प्रकार का संगणक (कैलकुलेटर) या लाग टेबल आदि का प्रयोग वर्जित है।
- गलत उत्तर के लिए अंक नहीं काटे जायेंगे।

**Computer Science and Applications**  
**PAPER – II**

**Note :** This paper contains **fifty** (50) objective-type questions, each question carrying **two** (2) marks. Attempt **all** of them.

1. Which of the following strings is in the language defined by grammar  $S \rightarrow OA, A \rightarrow 1A/0A/1$   
(A) 01100                      (B) 00101                      (C) 10011                      (D) 11111
2. For a complete graph with N vertices, the total number of spanning trees is given by :  
(A)  $2N - 1$                       (B)  $N^{N-1}$                       (C)  $N^{N-2}$                       (D)  $2N + 1$
3. The preposition  $(p \rightarrow q) \wedge (\sim q \vee p)$  is equivalent to :  
(A)  $q \rightarrow p$                       (B)  $p \rightarrow q$   
(C)  $(q \rightarrow p) \vee (p \rightarrow q)$                       (D)  $(p \rightarrow q) \vee (q \rightarrow p)$
4. The logic of pumping lemma is a good example of :  
(A) pigeon hole principle                      (B) recursion  
(C) divide and conquer technique                      (D) iteration
5. Let  $A = \{ x \mid -1 < x < 1 \} = B$ . The function  $f(x) = \frac{x}{2}$  from A to B is :  
(A) injective                      (B) surjective  
(C) both injective and surjective                      (D) neither injective nor surjective
6. The number of 1's present in the binary representation of  $(3 \times 512 + 7 \times 64 + 5 \times 8 + 3)_{10}$  is :  
(A) 8                      (B) 9                      (C) 10                      (D) 11
7. Which of the following expression removes static hazard from a two level AND - OR gate implementation of  $xy + z\bar{x}$   
(A)  $xy + z\bar{x}$                       (B)  $xy + z\bar{x} + wyz$   
(C)  $xy + z\bar{x} + yz$                       (D)  $xy + z\bar{x} + wz$
8. Which of the following logic has the maximum fan out ?  
(A) RTL                      (B) ECL                      (C) NMOS                      (D) CMOS
9. In a weighted code with weight 6, 4, 2, -3 the decimal 5 is represented by :  
(A) 0101                      (B) 0111                      (C) 1011                      (D) 1000

10. Upto how many variables, can the Karnaugh map be used ?  
(A) 3 (B) 4 (C) 5 (D) 6
11. What is the output of the following program segment ?  
main ()  
{  
int count, digit=0;  
count=1;  
while (digit <=9) {  
printf ("%d/n", ++count); ++digit;}  
}
- (A) 10 (B) 9 (C) 12 (D) 11
12. A static variable is one :  
(A) Which cannot be initialized  
(B) Which is initialized once at the commencement of execution and cannot be changed at runtime  
(C) Which retains its value throughout the life of the program  
(D) Which is the same as an automatic variable but is placed at the head of a program
13. If the following loop is implemented  
{  
int num=0;  
do { -- num; printf ("%d", num); num++;}  
while (num >=0)  
}
- (A) the loop will run infinitely many times  
(B) the program will not enter the loop  
(C) there will be compilation error reported  
(D) a run time error will be reported
14. # define max (x, y) x = (x > y) ? x : y is a macro definition, which can find the maximum of two numbers x and y if :  
(A) x and y are both integers only  
(B) x and y are both declared as float only  
(C) x and y are both declared as double only  
(D) x and y are both integers, float or double
15. The function sprintf ( ) works like printf ( ), but operates on :  
(A) Data in a file (B) stderr (C) stdin (D) string

16. A relation  $R = \{A, B, C, D, E, F\}$  is given with following set of functional dependencies :

$$F = \{A \rightarrow B, AD \rightarrow C, B \rightarrow F, A \rightarrow E\}$$

Which of the following is candidate key ?

- (A) A                                      (B) AC                                      (C) AD                                      (D) None of these

17. Immediate updates as a recovery protocol is preferable, when :

- (A) Database reads more than writes  
 (B) Writes are more than reads  
 (C) It does not matter as it is good in both the situations  
 (D) There are only writes

18. Which of the following statement is wrong ?

- (A) 2 - phase locking protocol suffers from dead locks  
 (B) Time - Stamp protocol suffers from more abort  
 (C) Time stamp protocol suffers from cascading rollbacks where as 2 - phase locking protocol do not  
 (D) None of these

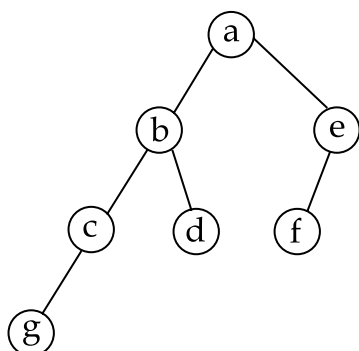
19. Which data management language component enabled the DBA to define the schema components ?

- (A) DML                                      (B) Subschema DLL  
 (C) Schema DLL                              (D) All of these

20. A subclass having more than one super class is called \_\_\_\_\_ .

- (A) Category                                      (B) Classification  
 (C) Combination                                      (D) Partial participation

21. In the balanced binary tree given below, how many nodes will become unbalanced when a node is inserted as a child of the node "g".



- (A) 1                                      (B) 3                                      (C) 7                                      (D) 8

22. Preorder is also known as :

- (A) Depth first order                                      (B) Breadth first order  
 (C) Topological order                                      (D) Linear order

23. Which of the following statement is false ?  
 (A) Every tree is a bipartite graph  
 (B) A tree contains a cycle  
 (C) A tree with  $n$  nodes contains  $(n - 1)$  edges  
 (D) A tree is connected graph
24. If the post fix form of a string is  $ABC + - D^*$ , The actual string is :  
 (A)  $(A - (B + C)) * D$  (B)  $((A - B) + C) * D$   
 (C)  $((A + B) - C) * D$  (D)  $(A + (B - C)) * D$
25. Application of data structure queue is :  
 (A) Levelwise printing of tree (B) Implementation of priority queues  
 (C) Function call implementation (D) Depth first search in a graph
26. What is the transmission signal coding method for a T1 carrier called ?  
 (A) Binary (B) NRZ (C) Bipolar (D) Manchester
27. How much bandwidth is required to send 132 voice - grade channels by FDM on an international satellite system ?  
 (A) 500 MHz (B) 10 MHz (C) 1320 MHz (D) 50 MHz
28. What is the difference between the Ethernet frame preamble field and the IEEE 802.3 preamble and start of frame Delimiter fields ?  
 (A) 1 byte (B) 1 bit (C) 4 bits (D) 16 bits
29. What is the function of a translating bridge ?  
 (A) Connect similar remote LANs  
 (B) Connect similar local LANs  
 (C) Connect different types of LANs  
 (D) Translate the network addresses into a layer 2 address
30. The program used to determine the round - trip delay between a workstation and a destination address is :  
 (A) Tracert (B) Traceroute (C) Ping (D) Pop
31. Which statement is wrong ?  
 (A) If linked origin  $\neq$  translated origin, relocation must be performed by the linker  
 (B) If load  $\neq$  linked origin, the loader must perform relocation  
 (C) A linker always perform relocation, whereas some loaders do not  
 (D) None of these

32. Tasks done in parsing are :
- (A) Check the validity of a source string
  - (B) Determine the syntactic structure of a source string
  - (C) Both (A) and (B)
  - (D) None of these
33. YACC builds up \_\_\_\_\_ parsing table.
- (A) LALR
  - (B) LR
  - (C) SLR
  - (D) LLR
34. The action of passing the source program into the proper syntactic class is known as :
- (A) Syntax analysis
  - (B) Lexical analysis
  - (C) Interpretation analysis
  - (D) Uniform symbol generation
35. The dynamic binding occurs during the :
- (A) Compile time
  - (B) Run time
  - (C) Linking time
  - (D) Pre - processing time
36. The first operating system of Microprocessor is \_\_\_\_\_ .
- (A) ATLAS
  - (B) CP/M
  - (C) SAGE
  - (D) T.H.E.
37. In processor management, round robin method essentially uses the preemptive version of \_\_\_\_\_ .
- (A) FILO
  - (B) FIFO
  - (C) SJF
  - (D) Longest time first
38. A page fault \_\_\_\_\_ .
- (A) is an error in specific page
  - (B) is an access to the page not currently in main memory
  - (C) occurs when a page program accesses a page of memory
  - (D) is reference to the page which belongs to another program
39. \_\_\_\_\_ synchronize critical resources to prevent deadlock.
- (A) P - operator
  - (B) V - operator
  - (C) Semaphores
  - (D) Hard disk
40. The memory allocation scheme subjected to "external" fragmentation is :
- (A) Segmentation
  - (B) Swapping
  - (C) Demand paging
  - (D) Multiple contiguous fixed partitions
41. In software project planning, work Breakdown structure must be \_\_\_\_\_ .
- (A) A graph
  - (B) A tree
  - (C) A Euler's graph
  - (D) None of the above

42. In Software Metrics, McCabe'S cyclomatic number is given by following formula :
- (A)  $c = e - n + 2p$  (B)  $c = e - n - 2p$   
 (C)  $c = e + n + 2p$  (D)  $c = e - n * 2p$
43. In a good software design, \_\_\_\_\_ coupling is desirable between modules.  
 (A) Highest (B) Lowest (C) Internal (D) External
44. System study yields the following :
- (A) Requirement specifications (B) Prevailing process description  
 (C) Data source identification (D) All the above
45. The COCOMO model is used for \_\_\_\_\_ .
- (A) software design (B) software cost estimation  
 (C) software cost approximation (D) software analysis
46. MMS (Multimedia Messaging Service) uses \_\_\_\_\_ types of messages to perform messaging transactions.  
 (A) 4 (B) 6 (C) 8 (D) 10
47. Bluetooth technology uses the transmission media.  
 (A) Radio links (B) Microwave links  
 (C) VSAT communication (D) Optical fiber links
48. Downflow is the process associated with \_\_\_\_\_ and back up of data in a warehouse.  
 (A) packaging (B) archiving (C) extraction (D) loading
49. Predictive modeling in data mining uses \_\_\_\_\_ technique.  
 (A) Statistical (B) Association Discovery  
 (C) Value prediction (D) None of these
50. The use of a smart card represents a form of :  
 (A) password encryption (B) user - ID encryption  
 (C) authorization (D) authentication

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Space For Rough Work

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