AUAT — 2024
2-Year MCA (P26)
(TEST BASED ON MCQ)

Full Marks : 100   **Duration : 2 Hours**

IMPORTANT INSTRUCTIONS

Candidates should read the below instructions carefully and follow them accordingly.

1. The Question Booklet has paper seal pasted on it. Please do **NOT** open the Question Booklet until you are asked to do so by the Invigilator.

2. The candidates must check immediately after breaking the seal that the Question Booklet contains **100 Multiple Choice Questions** in two parts (Part—I and Part—II).

3. Answer of questions of Part—I and Part—II both will have to be given on the **OMR Answer Sheet** provided for this purpose. Fill up the necessary fields that are intended for you by writing and/or shading appropriately. Otherwise the **OMR Answer Sheet** *cannot* be evaluated and will liable to be rejected. Question numbers progress from **1** to **100** continuously with alternative answers being shown as [A], [B], [C] and [D] for each question. Record your response by completely darkening the corresponding bubble. While responding, you should consider the best alternative answer and shade only one bubble with **black/blue ball point pen only**. For each correct response you will be awarded **1** mark. There will be negative marking for wrong responses. For each wrong response, **–0·25** mark will be awarded. Multiple responses against one **MCQ** will be treated as a wrong response.

4. On leaving the examination hall, candidates must submit the **OMR Answer Sheet**. They are allowed to keep the Question Booklet with them.

5. **OMR Answer Sheet** will be processed by electronic means. Any untoward/irrelevant remarks, folding or putting stray notes on the answer sheet, any damage to the answer sheet will lead to the rejection of the same and the sole liability shall remain with the candidate.

6. Rough Work may be done at the end of the Question Booklet.

7. No candidate will be allowed to leave the examination hall before completion of the examination.

8. Use of any Electronic device like Mobile, Programmable Calculator etc. is strictly prohibited.

DO NOT OPEN THE SEAL UNTIL INSTRUCTED TO DO SO

PART—I

(Core Subject)

1. Which of the following is *not* an operating system?

[A] Windows

[B] Linux

[C] Python

[D] macOS

2. In a computer, most processing takes place in the

[A] Hard Drive

[B] Central Processing Unit (CPU)

[C] Random Access Memory (RAM)

[D] Graphics Processing Unit (GPU)

3. The first page of a website is commonly termed as

[A] Index Page

[B] Home Page

[C] Main Page

[D] Landing Page

4. Which component of a computer is responsible for producing output from the computer's processing?

[A] Input devices

[B] Output devices

[C] Memory

[D] Storage

5. Which is the most common tool used to restrict access to a computer system?

[A] Firewall

[B] Antivirus software

[C] Password

[D] Encryption

6. The minimum number of temporary variables needed to swap the contents of two variables is

[A] 0

[B] 1

[C] 2

[D] 3

7. If n has the value 3, then the output of the statement printf("%d %d", n++, ++n); is

[A] 3 5

[B] 4 5

[C] 4 4

[D] implementation dependent

8. printf("%c",100);

[A] prints 100

[B] prints the ASCII equivalent of 100

[C] prints garbage

[D] None of the above

9. print("%d", printf("tim"));

[A] results in a syntax error

[B] output tim3

[C] output garbage

[D] prints tim and terminated abruptly

10. Which of the following is not keywords in C?

[A] printf

[B] main

[C] IF

[D] None of the above

11. In a for loop, if the condition is missing, then

   [A] it is assumed to be present and taken to be false

   [B] it is assumed to be present and taken to be true

   [C] it results in a syntax error

   [D] execution will be terminated abruptly

12. Let x be array. Which expression gives the address of the second element of the array?

   [A] x

   [B] x + 1

   [C] x++

   [D] x * 2

13. Any C program

   [A] must contain at least one function

   [B] need not contain any function

   [C] needs input data

   [D] None of the above

14. The statement

   int **a;

   [A] is illegal

   [B] is legal but meaningless

   [C] is syntactically and semantically correct

   [D] None of the above

15. If x is any array of integer, then the value of &x[i] is same as that of

   [A] x + i

   [B] (&x[i])++

   [C] x[i]

   [D] ++(&x[i])

16. UNIX was developed by

   [A] Bell Labs

   [B] Barclays Software Group

   [C] California University

   [D] American Defense Academy

17. What does the 'chmod' command do in Unix?

   [A] It changes the ownership of a file or directory

   [B] It changes the permissions of a file or directory

   [C] It displays the current directory

   [D] It copies files from one directory to another

18. Which command is used to list all files, including hidden files, in a directory in Unix?

   [A] Is -a

   [B] Is -l

   [C] Is -h

   [D] Is -r

19. The file that stores an integer as a sequence of characters is a

   [A] text file

   [B] data file

   [C] binary file

   [D] core file

20. What is the effect of the command cd ./../. in a Unix-like operating system?

   [A] It changes the current directory to the home directory

   [B] It changes the current directory to the root directory

   [C] It changes the current directory to the parent directory of the current directory

   [D] It changes the current directory to the current directory itself

21. The depth of a complete binary tree with n nodes is

[A] $\log_2(n+1)-1$

[B] $\log_{10}(n+1)-1$

[C] $\log_2(n-1)+1$

[D] $\log_{10}(n-1)+1$

22. Which of the following traversal techniques lists the nodes of a binary search tree in ascending order?

[A] Pre-order

[B] In-order

[C] Post-order

[D] None of the above

23. The way a card game player arranges his cards as he picks them one by one is an example of

[A] bubble sort

[B] selection sort

[C] insertion sort

[D] merge sort

24. Which of the following algorithms solves the all-pair shortest path problem?

[A] Dijkstra's algorithm

[B] Floyd's algorithm

[C] Prim's algorithm

[D] Warshall's algorithm

25. Which of the following algorithm design techniques is used in the quick sort algorithm?

[A] Dynamic Programming

[B] Backtracking

[C] Divide and conquer

[D] Greedy method

26. Which data structure uses LIFO (Last In, First Out) method?

[A] Queue

[B] Linked List

[C] Stack

[D] Tree

27. What is the time complexity of inserting an element at the front of a queue implemented using a linked list?

[A] O(l)

[B] O(n)

[C] O(logn)

[D] O(nlogn)

28. What does HTML stand for?

[A] Hyper Text Markup Language

[B] Hyper Transfer Markup Language

[C] High Text Markup Language

[D] Hyper Text Modeling Language

29. What does CSS stand for?

[A] Computer Style Sheets

[B] Cascading Style Sheets

[C] Creative Style Sheets

[D] Colorful Style Sheets

30. Which of the following is the **correct** HTML tag for creating a hyperlink?

[A] <link>

[B] <a>

[C] <href>

[D] <hyperlink>

31. Page fault occurs

[A] the page is corrupted by application software

[B] the page is in main memory

[C] the page is not in main memory

[D] one tries to divide a number by 0

32. Semaphores are used to solve the problem of

[A] race condition

[B] process synchronization

[C] mutual exclusion

[D] None of the above

33. In which of the following scheduling processes does context switching never take place?

[A] Round Robin Scheduling

[B] Shortest Job First Scheduling

[C] Preemptive Scheduling

[D] Priority Scheduling

34. Which one of the following is a deadlock-avoidance algorithm?

[A] Banker's algorithm

[B] Round Robin algorithm

[C] Elevator algorithm

[D] Karn's algorithm

35. Disk scheduling involves

[A] which disk should be accessed next

[B] the order in which disk access request must be serviced

[C] the physical location where files should be accessed on the disk

[D] None of the above

36. Let A = {0, 1}. The number of possible strings of length 'n' that can be formed by the elements of the set A is

[A] $n!$

[B] n^2

[C] n^n

[D] 2^n

37. The language of all words (made up of a's and b's) with at least 2 a's can be described by the regular expression

[A] (a+b)*a(a+b)*a(a+b)*

[B] (a+b)*abab(a+b)*

[C] (a+b)*bb(a+b)*

[D] a(a+b)*a

38. Which of the following automata recognizes regular languages?

[A] Pushdown Automaton

[B] Finite Automaton

[C] Turing Machine

[D] Context-Free Grammar

39. What is the role of the stack in a pushdown automaton?

[A] To store the input string

[B] To keep track of symbols for managing context-free languages

[C] To count the number of states

[D] To store the output string

40. Which of the following automata is the most powerful in terms of language recognition?

[A] Finite Automaton

[B] Pushdown Automaton

[C] Linear Bounded Automaton

[D] Turing Machine

41. The binary equivalent of the decimal number 0·4375 is

[A] 0·0111

[B] 0·1011

[C] 0·1100

[D] 0·1010

42. The Boolean expression X+X′Y equals

[A] X + Y

[B] X + XY

[C] Y + YX

[D] X′Y + Y′X

43. What is the primary key in a database?

[A] A key that uniquely identifies a column

[B] A key that uniquely identifies a row

[C] A key that can have null values

[D] A key that is used to encrypt data

44. Which normal form is in relation if it has no transitive dependencies?

[A] First Normal Form (1NF)

[B] Second Normal Form (2NF)

[C] Third Normal Form (3NF)

[D] Boyce-Codd Normal Form (BCNF)

45. Which SQL statement is used to retrieve data from a database?

[A] RETRIEVE

[B] GET

[C] SELECT

[D] FETCH

46. The eigenvalues of a diagonal matrix are

[A] all zero

[B] the entries on the diagonal

[C] the sum of the diagonal entries

[D] the product of the diagonal entries

47. What is the determinant of the identity matrix of size n?

[A] n

[B] 1

[C] 0

[D] n!

48. If A and B are two matrices, under what condition is AB = BA?

[A] A and B are invertible

[B] A and B are of the same size

[C] A and B are orthogonal

[D] A and B commute

49. The set of all natural numbers is not closed with respect to

[A] addition

[B] subtraction

[C] multiplication

[D] exponentiation

50. If A and B are two given sets, then $A \cap (A \cap B)^c$ is equal to

[A] A

[B] B

[C] ϕ

[D] $A \cap B^c$

51. Today is Wednesday. What would be the day after 61 days?

[A] Tuesday

[B] Monday

[C] Sunday

[D] Saturday

52. Which of the following is the odd one from the given alternatives?

[A] Running

[B] Painting

[C] Cycling

[D] Jogging

53. A four digit number divisible by 7 becomes divisible by 3, when 10 is added to it. The largest such number is

[A] 9987

[B] 9989

[C] 9996

[D] 9947

54. The L.C.M of three different numbers is 120. Which of the following *cannot* be their H.C.F?

[A] 8

[B] 12

[C] 24

[D] 35

55. 0·393939... is equivalent to the fraction

[A] 39/100

[B] 39/99

[C] 40/100

[D] 40/99

56. The average of all odd numbers up to 100 is

[A] 51

[B] 50

[C] 49·5

[D] 49

57. Insert the missing number

8, 7, 11, 12, 14, 17, 17, 22, ?

[A] 27

[B] 20

[C] 22

[D] 24

58. Choose the number of pair or group that is different from others.

[A] 15 : 46

[B] 12 : 37

[C] 9 : 28

[D] 8 : 33

59. In a class of 50 students, Raghu's rank is twice that of Paul. There are 10 students who have ranked worse than that of Raghu. Paul's rank in the class is

[A] 5th

[B] 10th

[C] 15th

[D] 20th

60. The ratio of the ages of Meena and Mukta is in the ratio of 3 : 5. After 9 years, the ratio of their ages will becomes 3 : 4. The present age of Mukta (in years) is

[A] 9 years

[B] 15 years

[C] 18 years

[D] 24 years

Direction **(Q. Nos. 61–65) :** Study the following information carefully and answer the questions that follow :

Madhu and Shobha are good in Dramatics and Computer Science. Anjali and Madhu are good in Computer Science and Physics. Anjali, Poonam and Nisha are good in Physics and History. Nisha and Anjali are good in History and Mathematics. Poonam and Shobha are good in History and Dramatics.

61. Who is good in Computer Science, History and Dramatics?

[A] Anjali

[B] Madhu

[C] Shobha

[D] Nisha

62. Who is good in Physics, Dramatics and Computer Science?

[A] Shobha

[B] Poonam

[C] Madhu

[D] Anjali

63. Who is good in Physics, History and Dramatics?

[A] Poonam

[B] Shobha

[C] Madhu

[D] Anjali

64. Who is good in History, Physics, Computer Science and Mathematics?

[A] Poonam

[B] Nisha

[C] Madhu

[D] Anjali

65. Who is good in Physics, History and Mathematics but **not** in Computer Science?

[A] Madhu

[B] Poonam

[C] Nisha

[D] Anjali

Direction **(Q. Nos. 66–70) :** Study the following information carefully and answer the questions that follow :

8 persons E, F, G, H, I, J, K and L are seated around a square table-two on each side.

There are 3 ladies who are not seated next to each other.

J is between L and F.

G is between I and F.

H, a lady member is second to the left J.

F, a male member is seated opposite to E, a lady member.

There is a lady member between F and I.

66. Who among the following is seated between E and H?

[A] F

[B] I

[C] K

[D] Can not be determined

67. Who among the following are three lady members?

[A] E, H and J

[B] E, F and G

[C] E, H and G

[D] C, H and J

68. How many persons are seated between K and F?

[A] 1

[B] 2

[C] 3

[D] 4

69. What is **true** about J and K?

[A] J is male, K is female

[B] J is female, K is male

[C] Both are females

[D] Both are males

70. Who among the following is to the immediate left of F?

[A] G

[B] I

[C] J

[D] H

PART—II

(Islamic History and Culture, General English & General Knowledge)

71. Islamic way of thanksgiving is to say

ইসলামী পদ্ধতিতে ধন্যবাদ জ্ঞাপনের জন্য বলতে হয়

[A] Rasulullah

[B] Mashaallah

[C] Jazakallah

[D] Allahu Akbar

72. God almighty can understand supplications made in

মহান আল্লাহর কাছে যে ভাষায় দুয়া করলে তিনি বুঝতে পারেন তা হল

[A] Arabic only

[B] Urdu only

[C] Mother tongue only

[D] any language

73. Which of the following statements is *true* about human dignity?

মানবিক মর্যাদার ব্যাপারে নিচের কোন্ বক্তব্যটি **সঠিক**?

[A] All are equal

[B] Men's dignity is higher than women

[C] Women's dignity is higher than men

[D] Dignity depends on money

74. For believers, daily prayers are

বিশ্বাসীদের জন্য প্রাত্যহিক নামায হল

[A] obligatory if time permits

[B] obligatory in all situations

[C] optional outside home

[D] optional in all situations

75. Which of the following statements is *true*?

নিচের কোন্ বক্তব্যটি **সঠিক**?

[A] All messengers are prophets but all prophets are not messengers

[B] All prophets are messengers but all messengers are not prophets

[C] Prophet and messenger are synonymous

[D] There is no relation between prophet and messenger

76. Prophet Muhammad (PBUH) was born in the month of

নবী মুহাম্মদ (সা.) কোন্ মাসে জন্মগ্রহণ করেন?

[A] Rabi as-Sani

[B] Jumada al-Ula

[C] Rabi al-Awwal

[D] Jumada as-Saniah

77. Who was the youngest daughter of Prophet Muhammad (PBUH)?

নবী মুহাম্মদ (সা.)এর কনিষ্ঠতম কন্যা কে ছিলেন?

[A] Zainab

[B] Ruqayya

[C] Umm Kulthum

[D] Fatima

78. Who was initially a staunch enemy of Islam and later became a strong supporter of Islam?

কে প্রথমদিকে ইসলামের ঘোর শত্রু ছিলেন এবং পরবর্তীতে ইসলামের ঘোর সমর্থক হয়েছিলেন?

[A] Hazrat Ali

[B] Hazrat Umar

[C] Hazrat Usman

[D] Abdur Rahaman

79. In Hijri calendar, a year is of _____ months.

হিজরী ক্যালেন্ডার অনুযায়ী _____ মাসে এক বৎসর হয়।

[A] 10

[B] 11

[C] 12

[D] 13

80. Maintaining greenery is _____ in Islam.

সবুজায়ন ইসলামে

[A] encouraged

[B] marginally discouraged

[C] discouraged

[D] marginally forbidden

81. Is it permitted to drink water while Fasting (Sawm)?

রোযা (সাওম) অবস্থায় পানি পান করা কি জায়েজ?

[A] It is permitted to drink little water while fasting

[B] No, it is not permitted to eat or drink anything while fasting

[C] It is permitted to drink juice while fasting

[D] It is permitted to eat dates while fasting

82. What does 'hijab' refer to?

'হিজাব' বলতে কী বোঝায়?

[A] Islamic dress for men

[B] Islamic dress for women

[C] Islamic prayer

[D] Islamic dietary guidelines

83. What is the Arabic word for Angels?

ফেরেশতাদের আরবি শব্দ কী?

[A] Messengers

[B] Arat

[C] Malaikah

[D] Jinnat

84. Prophet Muhammad was born in the year 570 CE. What does CE stand for?

নবী মুহাম্মদ 570 CE তে জন্মগ্রহণ করেন। CE মানে কী?

[A] Christianity Era

[B] Circular Era

[C] Common Era

[D] Cultural Era

85. What are the fundamental characteristics of a Muslim?

একজন মুসলমানের মৌলিক বৈশিষ্ট্য কি কি?

[A] Pride and arrogance

[B] Boastfulness and superiority

[C] Piety and humility

[D] None of the above

86. The Islamic financial system works on the basis of

ইসলামিক আর্থিক ব্যবস্থা কিসের ভিত্তিতে কাজ করে?

[A] sharing return

[B] sharing risk

[C] sharing return and risk

[D] predetermined risk and return

87. It is Sunnah to wear slippers with

_____ এর সাথে চপ্পল পরা সুন্নত।

[A] left leg first

[B] right leg first

[C] any leg

[D] None of the above

88. When we do a good deed, we should expect

যখন আমরা একটি ভাল কাজ করি, তখন আমাদের আশা করা উচিত _____।

[A] praise and thanks from people

[B] reward from Allah (swt)

[C] money from people

[D] All of the above

89. What does Zam Zam mean in the Qur'an?

কুরআনে জমজম বলতে কী বোঝানো হয়েছে?

[A] Open

[B] Flow

[C] Run-Run

[D] Stop-Stop

90. Name the two prayers which have no Azan.

আযানে নেই এমন দু'টি নামাজের নাম বল।

[A] Zhur and Asar

[B] Jumma and Fajr

[C] Eid-ul-Adha and Janaza

[D] Fajr and Isha

91. Overcome by _____, he determined to _____ for his crime by liberality to the church.

Fill in the blanks with the most appropriate alternatives.

[A] remorse, atone

[B] faith, repent

[C] regret, pay

[D] sinfulness, lament

92. The remote regions of a country far away from rivers are known as

[A] hinterland

[B] suburb

[C] rural

[D] backwater

93. A person who drives a car is called

[A] orderly

[B] chauffeur

[C] janitor

[D] amateur

94. No doubt she has achieved much, I cannot give her credit _____ all that she boasts _____.

Fill in the blanks with the correct alternatives.

[A] for, of

[B] to, for

[C] in, of

[D] for, at

95. When she entered her grandmother's house everything was at <u>sixes and sevens</u>.

Choose the meaning of the underlined expression from the given alternatives.

[A] well resolved

[B] in disorder or confusion

[C] changed for the better

[D] without any provisions for the future

96. In the Constitution of India, How many Fundamental Duties are there?

ভারতের সংবিধানে কয়টি মৌলিক কর্তব্য রয়েছে?

[A] 10

[B] 12

[C] 8

[D] 6

97. The SI unit of Mechanical Power is

যান্ত্রিক শক্তির SI একক হল

[A] Joule

[B] Watt

[C] Newton-second

[D] Joule-second

98. Which one of the following Vitamins is responsible for blood clotting?

নিচের কোন্ ভিটামিন রক্ত জমাট বাঁধার জন্য দায়ী?

[A] Vitamin–A

[B] Vitamin–E

[C] Vitamin–C

[D] Vitamin–K

99. What chemical element is designated as 'Cu'?

কোন্ রাসায়নিক উপাদানকে 'Cu' বলা হয়?

[A] Zinc

[B] Copper

[C] Cobalt

[D] Kurtz

100. What ocean is between Africa and Australia?

আফ্রিকা ও অস্ট্রেলিয়ার মধ্যে কোন্ মহাসাগর অবস্থিত?

[A] Pacific

[B] Indian

[C] Atlantic

[D] Arctic

11

SPACE FOR ROUGH WORK