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TR/FDA/14

Test Booklet Series

**TEST BOOKLET
GENERAL STUDIES
AND ARITHMETIC**

Signature of the Candidate

B
28.06.201

Invigilator's Signature

Time allowed : 2 hours (Two hours)

Maximum Marks : 100

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE SCREENING TEST, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET BY BLACK BALL POINT PEN ONLY.
3. This Test Booklet contains 100 items (questions). Each question, carrying 1 (one) mark only, has four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the most appropriate. In any case, choose ONLY ONE response for each item.
4. You have to mark all your responses by Black Ball Point Pen only on the separate Answer Sheet provided. See directions in the Answer Sheet.
5. All items carry equal marks.
6. Before you proceed to mark in the Answer Sheet, the responses to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet.
7. After you have completed filling in responses on the Answer Sheet and the Screening Test is completed, you should hand over the Answer Sheet to the Invigilator only. You are permitted to take the Test Booklet with you.
8. Sheets for rough work are appended on the Test Booklet at the end.
9. **Penalty for wrong/multiple answers :**
 - (i) For each question for which a wrong answer / multiple answer has been given by the candidate, a $\frac{1}{2}$ (half) mark will be deducted as penalty.
 - (ii) If a question is left blank, i.e. no answer is given by the candidate ; there will be no penalty for that question.

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Four options are given against each of the following questions. Select the best / correct option from among the four options and encode in the answer sheet by using Black Ball Point Pen only as per example given below :

Example : The capital of India is :

- | | |
|------------------|--|
| (A) Delhi | <input checked="" type="radio"/> New Delhi |
| (C) Indraprastha | (D) None of these |

PART - I

1. In Tripura the sign of Buddhist culture is seen at

(A) Unokoti	(B) Pilak	(C) Jampui	(D) None of these
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2. The north flowing river of Tripura is

(A) Khowai	(B) Howrah	(C) Pheni	(D) Gomati
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3. The leader of the Reang Revolt was

(A) Dasharath Deb	(B) Kumari Madhuti	(C) Nripen Chakraborty	(D) Ratanmani Royja
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4. King of Tripura who helped scientist Jagadish Chandra Bose, providing financial help

(A) Maharaja Bir Chandra Manikya	(B) Maharaja Birendra Kishore Manikya	(C) Maharaja Radhakishore Manikya	(D) Maharaja Bir Bikram Kishore Manikya.
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5. The state where the famous Puskar fair is held every year

(A) Rajasthan	(B) Gujarat	(C) Karnataka	(D) Kashmir
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6. Corbett National Park is situated in
(A) Meghalaya
(B) Manipur
(C) Mizoram
(D) Uttarakhand
7. Who is the first woman Chief Minister of a state in India ?
(A) Sarojini Naidu
(B) Sucheta Kripalani
(C) Nandini Sathpathy
(D) Padmaja Naidu
8. Longest Glacier in India is
(A) Siachen
(B) Nurba
(C) Trango
(D) None of these
9. Capital of Australia is
(A) Copenhagen
(B) Ottawa
(C) Melbourne
(D) Canberra
10. The 'Land of Midnight Sun' is
(A) Japan
(B) Norway
(C) Scotland
(D) New Zealand
11. The hair and nails are made of
(A) Pectin
(B) Keratin
(C) Calcium
(D) Iron
12. There is no provision of awarding nobel prize in
(A) Mathematics
(B) Physics
(C) Chemistry
(D) Economics
13. The moon revolves around the earth approximately in every
(A) 365 days
(B) 24 hours
(C) 60 days
(D) 28 days

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14. Which one among the following is not air pollutant ?
- (A) N_2
 (B) N_2O
 (C) NO
 (D) CO
15. A radio is sold in ₹ 312 where the loss is $\frac{1}{3}$ of selling price. The cost price of the radio is
- (A) ₹ 416
 (B) ₹ 208
 (C) ₹ 104
 (D) None of these
16. 25 labours earn ₹ 3100 in 4 days. Earning of 12 labours in 20 days are
- (A) ₹ 7880
 (B) ₹ 9850
 (C) ₹ 7440
 (D) ₹ 8650
17. An article is marked at ₹ 10,00,000. The shopkeeper allows successive discount of $x\%$, $y\%$ and $z\%$ on it. The net selling price is
- (A) ₹ $(100-x)(100-y)(100-z)$
 (B) ₹ $(100-x)(100-y)(100-z) \times 10^6$
 (C) ₹ $(100-x)(100-y)(100-z)/10^6$
 (D) ₹ $(100-x)(100-y)(100+z)$
18. At what rate of simple interest will a sum be tripled itself in 16 years ?
- (A) $11\frac{1}{2}\%$ p.a.
 (B) $13\frac{1}{4}\%$ p.a.
 (C) $14\frac{1}{2}\%$ p.a.
 (D) $12\frac{1}{2}\%$ p.a.
19. The name of the author of the novel 'Darkness of Noon'
- (A) Arthur Koestler
 (B) James Joyce
 (C) John Steinbeck
 (D) F. Scott

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20. 'Meghadūtam' was written by
(A) Kalidasa
(B) Tulsi Das
(C) Banabhatta
(D) Abul Fazal
21. The first Cyber Forensic Laboratory (CFL) of India was established in
(A) Assam
(B) Andhra Pradesh
(C) Tripura
(D) None of these
22. The French Open Tennis Championship-2013 for women was won by
(A) Serena Williams
(B) Venus Williams
(C) Maria Sharapova
(D) Nadia Petrova
23. 14th Finance Commission was formed in 2013 with Chairman
(A) M. Gobinda Rao
(B) Y. Venugopal Reddy
(C) D. Subba Rao
(D) M. Singh Ahluwalia
24. Palatana Gas based power-plant was inaugurated by
(A) Sri Pranab Mukherjee
(B) Sir Manik Sarkar
(C) Dr. D.Y. Patil
(D) Sri Devanand Konwar
25. Malaysia Airlines flight MH-370 has been missing since 8th March, 2014 when it was going from
(A) Kualalumpur to Beijing
(B) Johar to Beijing
(C) Perak to Beijing
(D) Kelantan to Beijing
26. The submarine in which an accident took place in February, 2014 is
(A) INS Chakra
(B) INS Ashwini
(C) INS Sindhurakshak
(D) INS Sindhuratna
27. Who is the present Chief Justice of Supreme Court of India ?
(A) P. Sathasivam
(B) R. M. Lodha
(C) Vayalar Ravi
(D) Raghuram Rajan

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1. Who is the president of World Bank ?
(A) Peter Tomka
(B) Thomas Bach
(C) Jim Yong Kim
(D) None of them
29. Which one is the headquarter of Sipahijala district ?
(A) Bishramganj
(B) Bishalgarh
(C) Jampuijala
(D) Sonamura
30. Subdivisions of Dhalai district are
(A) Kamalpur, Ambassa, Longtarai Valley, Gandachera
(B) Kamalpur, Kumarghat, Longtarai Valley, Gandachera
(C) Kumarghat, Ambassa, Longtarai Valley, Gandachera
(D) Kalyanpur, Ambassa, Kumarghat, Longtarai Valley
31. Agartala Municipal Corporation has started its functioning with effect from
(A) 26th January, 2014
(B) 21st February, 2014
(C) 21st January, 2014
(D) 28th February, 2014
32. Total number of candidates contested for the two Loksabha seats of Tripura in recently concluded 16th Parliamentary election was
(A) 25
(B) 26
(C) 24
(D) 23
33. Which year was declared as National Year of Mathematics in our country ?
(A) 2005
(B) 2012
(C) 2011
(D) 2010
34. Which of the following countries will be the host of 2016 Summer Olympic Games ?
(A) South Africa
(B) Argentina
(C) Canada
(D) Brazil

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35. Who will take over the charge of the Chief of Army Staff of India after retirement of General Bikram Singh, the present Chief of Indian Army ?
- (A) General V. K. Singh
(B) General J. J. Singh
(C) General S. K. Singh
(D) General Dalbir Singh Suhag
36. As per 2011 Census, the population density of India is
- (A) 305 persons/sq km
(B) 325 persons / sq km
(C) 340 persons/sq km
(D) 382 persons/sq km
37. Mary Kom who won a Bronze Medal in the London Olympic Games-2012 belongs to
- (A) Meghalaya
(B) Manipur
(C) Mizoram
(D) Nagaland
38. In 2015 Indian Science Congress will be held in
- (A) Chennai
(B) Mumbai
(C) Delhi
(D) Kolkata
39. RUSA means
- (A) Rashtriya Ucchatara Shiksha Abhiyan
(B) Rashtriya Unnatatara Shiksha Abhiyan
(C) Rashtriya Ucchatara Shiksha Academy
(D) Rashtriya Ucchatara Sanskrit Academy
40. Dipa Karmakar, a renowned sports personnel of Tripura, is associated with the field
- (A) Lawn Tennis
(B) Gymnastics
(C) Badminton
(D) Table Tennis

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PART - II

41. Which of the following statements does NOT describe an advantage of digital technology?
- The values may vary over a continuous range.
 - The circuits are less affected by noise.
 - The operation can be programmed.
 - Information storage is easy.
42. If the binary equivalent of 5.375 in normalized form is 0100 0000 1010 1100 0000 0000 0000 0000, what will be the output of the program (on Intel machine)?
- ```
#include<stdio.h>
#include<math.h>
int main()
{
 float a=5.375;
 char *p;
 int i;
 p = (char*)&a;
 for(i=0; i<=3; i++)
 printf("%02x\n",
 (unsigned char)p[i]);
 return 0;
}
```
- 40 AC 00 00
  - 04 CA 00 00
  - 00 00 AC 40
  - 00 00 CA 04
43. You have 10 users plugged into a hub running 10Mbps half-duplex. There is a server connected to the switch running 10Mbps half-duplex as well. How much bandwidth does each host have to the server?
- 100 kbps
  - 1 Mbps
  - 2 Mbps
  - 10 Mbps
44. One solution to the multivalued dependency constraint problem is to:
- split the relation into two relations, each with a single theme.
  - change the theme.
  - create a new theme.
  - add a composite key.
45. The memory address range to which RAM will respond
- 0000 H to 1 FFF H
  - 0000 H to 5 FFFF H
  - 4000 H to 5 FFFF H
  - 3000 H to FFFF H

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46. Let R is a relation schema,  $R(A, B, C, D)$  and  $F = \{A \rightarrow B, B \rightarrow C, C \rightarrow A\}$  is the set of functional dependency. Determine the key of relation.
- (A) A      (B) B  
(C) C      (D) D
47. An intermediate code form is
- (A) postfix notation  
(B) syntax trees  
(C) three address codes  
(D) all of these
48. Running time of a program depends on
- (A) the way the registers and addressing modes are used  
(B) the order in which computations are performed  
(C) the usage of machine idioms  
(D) all of these
49. Which two are valid constructors for Thread ?
1. Thread (Runnable r, String name)
  2. Thread ( )
  3. Thread (int priority)
  4. Thread(Runnable r, Thread Group g)
  5. Thread (Runnable r, int priority)
- (A) 1 and 3      (B) 2 and 4  
(C) 1 and 2      (D) 2 and 5
50. Identify the valid conclusion from the premises  $P \vee Q, Q \rightarrow R, P \rightarrow M \square M$
- (A)  $P \wedge (R \vee R)$   
(B)  $P \wedge (P \wedge R)$   
(C)  $R \wedge (P \vee Q)$   
(D)  $Q \wedge (P \vee R)$
51. Lint should be used
- (A) before compilation  
(B) to analyze a C code  
(C) after compilation  
(D) Both (A) and (B)
52. Which of the following CFG's can't be simulated by an FSM ?
- (A)  $S \rightarrow Sa \mid b$   
(B)  $S \rightarrow aSb \mid ab$   
(C)  $S \rightarrow abX, X \rightarrow cY, Y \rightarrow d \mid aX$   
(D) None of these
53. In a virtual memory system the address space specified by the address lines of the CPU must be \_\_\_\_\_ than the physical memory size and \_\_\_\_\_ than the secondary storage size.
- (A) smaller, smaller  
(B) smaller, larger  
(C) larger, smaller  
(D) larger, larger

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54. The time complexity of the shortest path algorithm can be bounded by :
- $O(n^2)$
  - $O(n^4)$
  - $O(n^3)$
  - $O(n)$
55. Interleaving the audio and video segments of a video clip together in a data file is :
- Flare
  - Flattening
  - Hot Spot
  - Helical Scan
56. Floating point is always interpreted to represent a number in the following form
- $m \times r^e$
  - $m^e \times r$
  - $e^r \times m$
  - $m \times e$
57. Consider a problem of preparing a schedule for a class of student. This problem is a type of :
- Search problem
  - Backtrack problem
  - CSP
  - Planning problem
58. The order of Newton-Raphson method is \_\_\_\_\_.
- 1
  - 2
  - 3
  - 4
59. Acronym for VRML :
- Virtual Reality Modeling Level
  - Virtual Reality Modulation Language
  - Virtual Rate Modeling Language
  - Virtual Reality Modeling Language
60. Which cohesion determines the elements are all executed at the same time ?
- Functional cohesion
  - Sequential cohesion
  - Temporal cohesion
  - Logical cohesion
61. From which tag descriptive list starts ?
- < LL >
  - < DD >
  - < DL >
  - < DS >

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62. Consider the grammar : (NOTE: ^ means NULL)  $S \rightarrow Xa \quad X \rightarrow aX \mid bX$  | ^ above given CFG can be represented by RE \_\_\_\_\_

Select correct option :

- (A)  $a^*b^*$
- (B)  $a^*b^*a$
- (C)  $(a+b)^*a$
- (D)  $a(a+b)^*a$

63. Which of the proposition is  $p \wedge (\neg p \vee q)$  is

- (A) A tautology
- (B) A contradiction
- (C) Logically equivalent to  $p \wedge q$
- (D) All of above

64. In a system, if 5 people are currently using the vi editor, then the number of corresponding processes will be

- (A) 1
- (B) 5
- (C) 2
- (D) 0

65. What is the output of the following program segment ?

```
main() {int i = ++2; printf("%d\n", i);}
```

- (A) 3
- (B) 2
- (C) 0
- (D) -1

66. What is the frequency range of the IEEE 802.11b standard ?

- (A) 2.4 Gbps
- (B) 5 Gbps
- (C) 2.4 GHz
- (D) 5 GHz

67. Which of the following statements is correct ?

- (A) Base class pointer cannot point to derived class.
- (B) Derived class pointer cannot point to base class.
- (C) Pointer to derived class cannot be created.
- (D) Pointer to base class cannot be created.

- Doping of a semiconductor increases \_\_\_\_\_.
- (A) Resistivity  
(B) Inductance  
(C) Conductivity  
(D) None of these
71. In parallel run of s/w testing
- (A) Both physical system and computerized system work simultaneously  
(B) Only physical system runs  
(C) Only computerized system runs
69. Which of the following services use TCP ?
1. DHCP  
2. SMTP  
3. HTTP  
4. TFTP  
5. FTP
- (A) 1 and 2 only  
(B) 2, 3 and 5 only  
(C) 1, 2 and 4 only  
(D) 1, 3 and 4 only
72. Minority carriers in P-type semiconductor are
- (A) Electrons  
(B) Holes  
(C) Both  
(D) None
70. Which of the following data structure is used to represent relationship between pairs, where relationship is not hierarchical ?
- (A) Graph  
(B) Tree  
(C) Hash Table  
(D) Queue
73. The internal RAM memory of the 8051 is :
- (A) 32 bytes  
(B) 64 bytes  
(C) 128 bytes  
(D) 256 bytes

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74. Which of the following describe the DHCP Discover message ?
- (A) It uses FF:FF:FF:FF:FF:FF as a layer 2 broadcast.
  - (B) It uses UDP as the Transport layer protocol.
  - (C) It uses TCP as the Transport layer protocol.
  - (D) It does not use a layer 2 destination address.
75. What happens when a class with parameterized constructors and having no default constructor is used in a program and we create an object that needs a zero-argument constructor ?
- (A) Compile-time error
  - (B) Preprocessing error
  - (C) Runtime error
  - (D) Runtime exception
76. Propagation delay time,  $t_{PLH}$ , is measured from the \_\_\_\_\_. .
- (A) triggering edge of the clock pulse to the LOW-to-HIGH transition of the output
  - (B) triggering edge of the clock pulse to the HIGH-to-LOW transition of the output
  - (C) preset input to the LOW-to-HIGH transition of the output
  - (D) clear input to the HIGH-to-LOW transition of the output
77. The graph that shows basic blocks and their successor relationship is called
- (A) DAG
  - (B) Flow graph
  - (C) Control graph
  - (D) Hamiltonian graph
78. Cost savings and additional profits will exceed the investment required. Select the best it for this statement
- (A) Economic feasibility
  - (B) Technical feasibility
  - (C) Operational feasibility
  - (D) Organizational feasibility
79. Which of the following CFG's can't be simulated by an FSM ?
- (A)  $S \rightarrow Sa \mid b$
  - (B)  $S \rightarrow aSb \mid ab$
  - (C)  $S \rightarrow abX, X \rightarrow cY, Y \rightarrow d \mid aX$
  - (D) None of these

80. Software entity running on one or more machines and providing a particular type of function to a priori unknown clients is called \_\_\_\_\_.  
(A) Client  
(B) Server  
(C) Service  
(D) Process
81. Newton-Raphson method is applicable to the solution of \_\_\_\_\_.  
(A) both algebraic and transcendental equations  
(B) both algebraic and transcendental and also used when the roots are complex  
(C) algebraic equations only  
(D) transcendental equations only
82. The difference between two decimal numbers 5250 and 4995 in binary system is  
(A)  $(1111\ 1111)_2$   
(B)  $(10101010)_2$   
(C)  $(11110111)_2$   
(D) None of these
83. Suppose requests have recently arrived for data on cylinders 25, 46, 12, and 3, in that order, and that the read-write head is currently at cylinder 20. If the disk scheduling policy is SSTF, the outstanding requests will be serviced in the order  
(A) 25, 46, 12, 3  
(B) 25, 46, 3, 12  
(C) 3, 12, 25, 46  
(D) 25, 12, 3, 46
84. A zero level DFD describes  
(A) That the system design cannot be split further  
(B) Fully bottom up system design  
(C) Overview of processes input and output  
(D) None of the above
85. An on-line commercial site such as Amazon.com is an example of a(n) \_\_\_\_\_.  
(A) single-user database application  
(B) multiuser database application  
(C) e-commerce database application  
(D) data mining database application

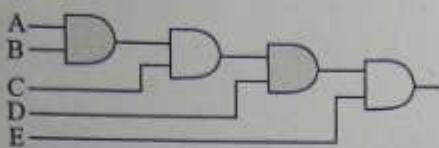
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86. Which of the following statements is/ are correct ?
1. Once a reference variable has been defined to refer to a particular variable it can refer to any other variable.
  2. A reference is not a constant pointer.
    - (A) Only 1 is correct.
    - (B) Only 2 is correct.
    - (C) Both 1 and 2 are correct.
    - (D) Both 1 and 2 are incorrect.
87. What function should be used to free the memory allocated by calloc( ) ?
- (A) dealloc( );
  - (B) malloc(variable\_name, 0)
  - (C) free( );
  - (D) memalloc(variable\_name, 0)
88. Which term applies to the maintaining of a given signal level until the next sampling ?
- (A) Holding
  - (B) Aliasing
  - (C) Shannon frequency sampling
  - (D) "Stair-stepping"
89. If a 3-input NOR gate has eight input possibilities, how many of these possibilities will result in a HIGH output ?
- (A) 1
  - (B) 2
  - (C) 7
  - (D) 8
90. How many buses are connected as part of the 8085A microprocessor ?
- (A) 2
  - (B) 3
  - (C) 5
  - (D) 8
91. What would be the equivalent pointer expression for referring the array element ?  
a[i] [j] [k] [l]
- (A) (((((a+i)+j)+k)+l))
  - (B) \*(\*(\*((a+i)+j)+k)+l))
  - (C) (((a+i)+j)+k+l)
  - (D) ((a+i)+j+k+1))

92. Which statement(s) about IPv6 addresses are true?
1. Leading zeros are required.
  2. Two colons (:) are used to represent successive hexadecimal fields of zeros.
  3. Two colons (:) are used to separate fields.
  4. A single interface will have multiple IPv6 addresses of different types.
- (A) 1 and 3 only  
(B) 2 and 4 only  
(C) 1, 3 and 4 only  
(D) All of these
93. Software maintenance includes
- (A) Bug fixing
  - (B) Setting preventing maintenance policy for servers
  - (C) Installation of software at site
  - (D) Designing of software for maintenance purposes
94. PALs tend to execute \_\_\_\_\_ logic.
- (A) SAP  
(B) SOP  
(C) PLA  
(D) SPD
95. A message descriptor in a sequence diagram includes which of the following components?
- (A) True/false condition, return-value, and activities  
(B) Return-value, message-name, and parameter-list  
(C) Message-name, parameter-list, and sequence number  
(D) Action-expression, message-name, and parameter-list
96. The terminal count of a modulus-11 binary counter is \_\_\_\_\_.
- (A) 1010  
(B) 1000  
(C) 1001  
(D) 1100

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97. Choose the correct option for the Boolean expression for the logic circuit shown below :



- (A)  $C(A + B)DE$
- (B)  $[C(A + B)D + \bar{E}]$
- (C)  $[(C(A + B)D)\bar{E}]$
- (D) ABCDE

98. Consider a system having 'm' resources of the same type. These resources are shared by 3 processes A, B, C, which have peak time demands of 3, 4, 6 respectively. The minimum value of 'm' that ensures that deadlock will never occur is

- (A) 11
- (B) 12
- (C) 13
- (D) 14

99. On the fifth clock pulse, a 4-bit Johnson sequence is  $Q_0 = 0, Q_1 = 1, Q_2 = 1$ , and  $Q_3 = 1$ . On the sixth clock pulse, the sequence is \_\_\_\_\_.

- (A)  $Q_0 = 1, Q_1 = 0, Q_2 = 0, Q_3 = 0$
- (B)  $Q_0 = 1, Q_1 = 1, Q_2 = 1, Q_3 = 0$
- (C)  $Q_0 = 0, Q_1 = 0, Q_2 = 1, Q_3 = 1$
- (D)  $Q_0 = 0, Q_1 = 0, Q_2 = 0, Q_3 = 1$

100. Which of the following is record based logical model ?

- (A) Network model
- (B) Object oriented model
- (C) E-R model
- (D) None of these.