ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.

M.B.A. (BANKING TECHNOLOGY)

COURSE CODE : 381

Register Number :

Signature of the Invigilator
(with date)

COURSE CODE : 381

Time : 2 Hours Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each of the question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you –1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

ENGLISH

Directions (Qs. 1-5): Read the following passages carefully and answer the questions given below each passage. Certain words/phrases in the passages are given in bold to locate them while answering some of the questions.

PASSAGE

True, it is the function of the Police to maintain law and order in abnormal times. But in normal times there is another force that compels citizens to obey the law and to act with due regard to the rights of others. The force also protects the lives and the properties of law abiding men. Laws are made to secure the personal safety of its subjects and to prevent murder and crimes of violence. They are made to secure the property of the citizens against theft and damage to protect the rights of communities and castes to carry their customs and ceremonies, so long as they do not conflict with the rights of others. Now the good citizen, of his own free will obey these laws and he takes care that everything he does is done with due regard to the rights and well-being of others. But the bad citizen is only restrained from breaking these laws by fear of the consequence of his actions. And the necessary steps to compel the bad citizen too act as a good citizen is taken by this force. The supreme control of law and order in a state is in the hands of a minister who is responsible to the state Assembly and acts through the Inspector General of police

1. A suitable title for the passage would be

   (A) The function of the court

   (B) Laws and the people's rights

   (C) The fear of the law and citizen's security

   (D) The functions of the police

2. According to the writer, which one of the following is not the responsibility of the police?

   (A) To protect the privileges of all citizens

   (B) To check violent activities of citizens

   (C) To ensure peace among citizens by safeguarding individual rights

   (D) To maintain peace during extra ordinary circumstances

3. Which of the following reflects the main thrust of the passage?

(A) It deals with the importance of the army in maintaining law and order

(B) It highlights role of the police as superior to that of the army

(C) It discusses the roles of the army and the police in different circumstances

(D) It points to the responsibility of the minister and the Inspector General of Police

4. The expression" customs and ceremonies" means

(A) fairs and festivals (B) habits and traditions

(C) usual practices and religious rites (D) superstitions and formalities

5. They are made to secure the property of citizens against theft and damage"- means that the law

(A) Helps in recovering the stolen property of the citizens.

(B) Assist the citizens whose property has been stolen or lost

(C) Initiate process against offenders of law

(D) Safeguard people's possessions against being stolen or lost

Directions (Qs. 6-10) pick out the most effective pair of words from the given pair of words to make the sentence/sentences meaningfully complete

6. Tea prices in the domestie ————continue to rule high in the current year despite the expectation of a———— production as compared to the previous year.

(A) Circle————Market

(B) Current ———— Higher

(C) Market ———— Higher

(D) Country ————Rainfall

7. Nothing in the life is considered to be more worthy than being ———— and Nothing in life holds more power than your ————.

(A) Formal———— Smile (B) Educated———— Dishonest

(C) Smile———— Education (D) Honest————Smile

8. The science have made modern life————and comfortable. But science has ————the same time created new problems.

(A) Marvelous————Expensive (B) Expensive————At

(C) Exciting———— Expensive (D) Marvelous————At

9. The fundamental———— of journalism is reporting news and to make people ————and to keep them well informed about their surroundings and real world

(A) Duty————Aim (B) Aim———— Aware

(C) Concept ———— Educated (D) Duty———— concept

10. The death penalty is a prickly subject to————in India. Those who want to retain the death penalty claim that it is————against heinous crimes

(A) Debate———— Deterrence (B) Controversy————Stop

(C) Talk————Deterrence (D) Review————Debate

Directions (Qs. 11-15) Read the list of words given below in CAPITALS and choose from the option the word with SIMILAR or NEARSET meaning to the given word.

11. NOISY

(A) Disturbed (B) Break Silence (C) Rowdy (D) Sound

12. EATABLE

(A) Edible (B) Healthy (C) Fit (D) Delicious

13. HEINOUS

(A) Most (B) Good (C) Magnificent (D) Awful

14. TREASURE

(A) Fortune (B) Mystery (C) Abhor (D) Luck

15. SPREE

(A) Shopping (B) Jolly (C) Celebration (D) Carny

Directions (Qs. 16-20) Read the list of words given below in CAPITALS and choose from the option the word with most OPPOSITE meaning to he given word.

16. ABDUCT

(A) Release (B) Custody (C) Grab (D) Snatch

17. BASHFUL

(A) Chary (B) Coy (C) Confident (D) Pressure

18. MISERLY

(A) Liberal (B) Lax (C) Skinflint (D) Mean

19. MALICE

(A) Animus (B) Benevolence (C) Enmity (D) Beloved

20. SELDOM

(A) Often (B) Interval (C) Now and then (D) Whimsically

Directions (Qs.21-25) Out of the four alternatives, choose the APPROPRIATE word which can substitute the Given word/Sentence

21. A book published after the death of its author

(A) Biography (B) Autobiography (C) Posthumous (D) Post Mortem

22. A Government by one

(A) Administrator (B) President (C) Autocracy (D) Barbarian

23. A loss of damage that cannot be compensated

(A) Recoverable (B) Return (C) Broken (D) Irreparable

24. Belonging to Middle Ages

(A) Medieval (B) Middle (C) Center (D) Century

25. The period between Childhood and Adulthood

(A) Adult (B) Adolescence (C) Young (D) Infancy

MATHEMATICS

26. The equations of the latus rectum of $\frac{x^2}{16}+\frac{y^2}{16}=1$, are

(A) $Y=\pm\sqrt{7}$ (B) $X=\pm 7$ (C) $Y=\pm 7$ (D) $X=\pm\sqrt{7}$

27. The eccentricity of the hyperbola $12y^2-4x^2-24x+48y-127=0$ is

(A) 4 (B) 3 (C) 2 (D) 6

28. The surface area of a sphere when the volume is increasing at the same rate as its radius, is

(A) 1 (B) $\frac{4\pi}{3}$ (C) 2 (D) 5

29. The area of the region bounded by the graph of $y = \sin x$ and $y = \cos x$ between $x = 0$ and $x = \frac{\pi}{4}$ is

(A) $\sqrt{2+1}$ (B) $\sqrt{2-1}$ (C) $2\sqrt{2-2}$ (D) $2\sqrt{2+2}$

30. In the set of integers under the operation * defined by a*b = a+b–1, the identity element is

(A) 0 (B) 1 (C) a (D) b

31. A discrete random variable X has probability mass function p(x), then

(A) $0 \le p(x) \le 1$ (B) $p(x) \ge 0$ (C) $p(x) \le 1$ (D) $0 < p(x) < 1$

32. In 16 throws of a die, getting an even number is considered a success. Then the variance of the successes is

(A) 4 (B) 6 (C) 2 (D) 256

33. The rank of the diagonal matrix

$$\begin{bmatrix} -1 & & & \\ & 2 & & \\ & & 0 & \\ & & & -4 \\ & & & & 0 \end{bmatrix}$$ is

(A) 0 (B) 2 (C) 3 (D) 5

34. Which of the following is not a binary operation on R?

(A) $a * b = ab$ (B) $a * b = a - b$ (C) $a * b = \sqrt{ab}$ (D) $(a * b) = \sqrt{a+b}$

35. The value of C of Lagrange's mean value theorem for $f(x) = \sqrt{x}$ when a=1 and b=4 is

(A) $\frac{9}{4}$ (B) $\frac{3}{2}$ (C) $\frac{1}{2}$ (D) $\frac{1}{4}$

36. A random variable X has the following probability distribution

X	0	1	2	3	4	5
$P(X=x)$	$\frac{1}{4}$	2a	3a	4a	5a	$\frac{1}{4}$

Then $P(1 \le x \le 4)$ is

(A) $\frac{10}{21}$ (B) $\frac{2}{7}$ (C) $\frac{1}{14}$ (D) $\frac{1}{2}$

37. A bag contains 6 red and 4 white balls if 3 balls are drawn at random, probability of getting 2 white balls, without replacement is

(A) $\frac{1}{20}$ (B) $\frac{18}{25}$ (C) $\frac{4}{25}$ (D) $\frac{3}{10}$

38. The marks secured by 400 students in a mathematically test were normally distributed with mean 65. If 120 students got marks above 85, the number of students securing marks between 45 and 65 is

(A) 120 (B) 20 (C) 80 (D) 160

39. If a $\begin{bmatrix} 0 & 0 \\ 0 & 5 \end{bmatrix}$ then A^{12} is

(A) $\begin{bmatrix} 0 & 0 \\ 0 & 60 \end{bmatrix}$ (B) $\begin{bmatrix} 0 & 0 \\ 0 & 5^{12} \end{bmatrix}$ (C) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ (D) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

40. If $\vec{a}$ and $\vec{b}$ are two unit vectors and θ is the angle between them, then $(\vec{a}+\vec{b})$ is a unit vector if $\theta =$

(A) $\frac{\pi}{3}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{2}$ (D) $\frac{2\pi}{3}$

41. The quadratic equation whose roots are $\pm i\sqrt{7}$ is

(A) $x^2+7=0$ (B) $x^2-7=0$

(C) $x^2+x+7=0$ (D) $x^2-x+7=0$

42. The directrix of the parabola $y^2 = x+4$ is

(A) $x=\frac{15}{4}$ (B) $x=-\frac{15}{4}$ (C) $x=-\frac{17}{4}$ (D) $x=\frac{17}{4}$

43. The curve $y = ax^3 + bx^2 + cx + d$ has a point of inflexion at $x = 1$ then

(A) $a + b = 0$ (B) $a + 3b = 0$

(C) $3a + b = 0$ (D) $3a + b = 1$

44. Which of the following statements is incorrect?

(A) Initial velocity means velocity at t =0

(B) Initial acceleration means acceleration at t = 0

(C) If the motion is upward, at the maximum height, the velocity is not zero

(D) If the motion is horizontal, v 0 when the particle comes to rest

45. In which region does the curve $y^2(a + x) = x^2(3a - x)$not lie?

(A) $x > 0$ (B) $0 < x < 3a$

(C) $x \leq -a$ and $x > 3a$ (D) $-a < x < 3a$

46. The value of $\int_0^1 x(1 - x^4)\, dx$ is

(A) $\frac{1}{12}$ (B) $\frac{1}{30}$ (C) $\frac{1}{24}$ (D) $\frac{1}{20}$

47. Which of the following is not a group?

(A) $(Z_n, +_n)$ (B) $(Z, +)$ (C) $(Z, \cdot)$ (D) $(R, +)$

48. The order of [7] in $(Z_9, +_9)$ is

(A) 9 (B) 6 (C) 3 (D) 1

49. Which of the following is an expression for $g'(x)$ when $g(x) = \int_2^x (5t^2 - 2t)\, dt$?

(A) $5x - 2x$ (B) $5x^2 - 3y$

(C) $5x^2 - 2x$ (D) None of these

50. The least possible perimeter (n metres) of a rectangle of area 100 sq.m is

(A) 10 (B) 20 (C) 40 (D) 60

51. In the batch processing environment, data is

(A) Entered directly into the computer

(B) Held in a temporary computer file

(C) Processed immediately

(D) Collected over a period of time

52. The first task in the System Analysis is

(A) Programming

(B) Orientation and fact finding

(C) The study of the processing operation

(D) Environmentally dependent

53. The Central Processing Unit consists of

(A) Input, output and processing control unit, primary storage and secondary storage

(B) Control unit, arithmetic logic unit, primary storage

(C) Control unit, processing, primary storage

(D) All of the above

54. ENIAC belongs to the

(A) First generation computers

(B) Second generation computers

(C) Third generation computer

(D) Fourth generation computer

55. Auxiliary memory is

(A) Memory slot

(B) Extended memory

(C) Secondary memory

(D) Cache memory

56. Consider the following function.

```
double p(double b, unsigned int e)
{
 if (e= =0)
    return 1.0;
 else
    if (even(e))
      return p(b*b, e/2);
 else
      return p(b*b, e/2)*b;
}
```

How many multiplications are executed as a result of the call p(5.0, 12)?

(A) 6 (B) 8 (C) 9 (D) 12

57. The minimum time delay required between the initiation of two successive memory operations is known as

(A) Memory cycle time (B) Memory access time

(C) Transmission time (D) Waiting time

58. Which of the following is widely used in Bank Cheque?

(A) MICR (B) POS (C) OCR (D) OMR

59. Spooling is most beneficial in multiprogramming environment where

(A) Most jobs are CPU bound

(B) Most jobs are I/O bound

(C) Jobs are evenly divided as I/O bound and CPU bound

(D) There is limited primary memory and need for secondary memory

60. Object program is

(A) A program written in machine language

(B) A program to be translated into machine language

(C) The translation of high level language into machine language

(D) None of the above

61. Which of the following sorting procedure is the slowest?

(A) Quick tree (B) Heap sort (C) Shell sort (D) Bubble sort

62. A complete binary tree with the property that the value of each node is atleast as large as the values at its children is known as

(A) Binary search tree (B) AVL—tree

(C) Completely balanced tree (D) Heap

63. A trigger is

(A) A statement that enables to start any DBMS

(B) A statement that is executed by the user when debugging an application program

(C) A condition the system tests for the validity of the database user

(D) A statement that is executed automatically by the system as a side effect of a modification to the database

64. Entity Relationship model comes under

(A) Object based logical model (B) Record based logical model

(C) Physical data model (D) None of the above

65. The action of parsing the source program into the proper syntactic classes is known as

(A) Syntax analysis (B) Lexical analysis

(C) Interpretation analysis (D) General syntax analysis

66. A top-down parser generates

(A) Right-most derivation

(B) Right-most derivation in reverse

(C) Left-most derivation

(D) Left-most derivation in reverse

67. The main advantage of interrupt concept is elimination of

(A) Spooling

(B) Polling

(C) Job scheduling

(D) Blocking the currently running process

68. Round robin is a

(A) Kind of magnetic dram
(B) Process scheduling policy
(C) Process synchronization policy
(D) Memory allocation policy

69. Thrashing

(A) Reduces page I/O
(B) Decreases the degree of multiprogramming
(C) Implies excessive page I/O
(D) Improve the system performance

70. Banker's algorithm for resource allocation deals with

(A) Deadlock prevention
(B) Deadlock avoidance
(C) Deadlock recovery
(D) Mutual exclusion

71. ICMP is

(A) A protocol used to dynamically bind IP address to a low level physical hardware address
(B) A high level protocol for transferring files from one machine toanother
(C) A protocol used to monitor computers
(D) A protocol that handles error and control messages

72. Which of the following protocol is used for remote terminal connection service?

(A) TELNET (B) FTP (C) RARP (D) UDP

73. The logic of Pumping lemma is a good example of

(A) The pigeon-hole principle
(B) The divide-and-conquer technique
(C) Recursion
(D) Iteration

74. In which model advantage of better testing in software development is available?

(A) Waterfall model
(B) Prototyping
(C) Iterative
(D) All of the above

75. Which of the following methods can be executed more than once on the same Applet object by the applet context?

(A) destroy( ) (B) init() (C) main( ) (D) star ( )

ELECTRICAL, ELECTRONICS AND COMMUNICATION

76. Two coils in differential connection have self inductance of 2mH and 4mH and a mutual inductance of 0.I5mH. The equivalent inductance of the combination is

(A) 5.7 mH (B) 5.85 mH (C) 6 mH (D) 6.15 mH

77. A connected network of N > 2 nodes has at most one branch directly connecting any pair of nodes. The graph of the network

(A) must have at least N branches for one or more closed paths to exist

(B) can have an unlimited number of branches

(C) can only have at most N branches

(D) can have a minimum number of branches not decided by N

78. A two-port device is defined by the following pair of equations:

$i_1 = 2v_1 + v_2$ and $i_2 = 2v_1 + v_2$ Its impedance parameters (z11,z12, z21,z22) are given by

(A) $(2,1,1,1)$ (B) $(1,-1,-1,2)$ (C) $(1,1,1,2)$ (D) $(2,-1,-1,1)$

79. The electron and hole concentrations in a intrinsic semiconductor are n_i and p_i respectively. When doped with a p-type material, these change to n and p respectively, then

(A) $n + p = n_i + p_i$ (B) $n + n_i = p + p_i$ (C) $np_i = n_i p$ (D) $np = n_i p_i$

80. Isolation in ICs is required

(A) to make it simpler to test circuits

(B) to protect transistor from possible "thermal run away"

(C) to protect the components mechanical damage

(D) to minimize electrical interaction between circuit components

81. A two stage amplifier with negative feedback has an overshoot when damping factor k is

(A) less than unity (B) greater than unity

(C) zero (D) negative

82. Min-terms corresponding to decimal number 15 is

(A) ABCD (B) $\overline{A}\,\overline{B}\,\overline{C}\,\overline{D}$ (C) A+B+C+D (D) $\overline{A}+\overline{B}+\overline{C}+\overline{D}$

83. A full-adder can be implemented with half-adders and OR gates. A 4-bit parallel full adder without any initial carry requires

(A) 8 half-adders, 4-OR gates (B) 8 half-adders, 3-OR gates

(C) 7 half-adders, 4-OR gates (D) 7 half-adders, 3-OR gates

84. The Q output of a J-K flip-flop is "1" The output does not change when a clock-pulse is applied. The inputs J and K will be respectively (X denotes don't care state)

(A) 0 and X (B) X and 0 (C) 1 and 0 (D) 0 and 1

85. If a counter having 10 FFs is initially at 0, what count will if hold after 2060 pulses?

(A) 000 000 1100 (B) 000 001 1100 (C) 000 001 1000 (D) 000 000 1110

86. The data-bus width of a 204 X 8 bits is

(A) 8 (B) 10 (C) 12 (D) 16

87. When HLT instruction of a 8085 microprocessor is executed, the microprocessor

(A) is disconnected from the system bus till the reset is pressed

(B) halts execution of the program and returns to monitor

(C) enters into a halt stale and the buses are tri-stated

(D) reloads the program from the locations 0024 and 0025H

88. The address range to which I/O chip will respond, is

(A) 0000H to 1FFFH (B) 0000H to 5FFF H

(C) 4000H to 5FFF H (D) 3000H to FFFF H

89. Double integration of a unit step function would lead to

(A) an impulse (B) a parabola (C) a ramp (D) a doublet

90. The trigonometric Fourier series of aperiodic function can have only

(A) Cosine term (B) Sine term

(C) Cosine and sine term (D) None of the above

91. The transfer function of a linear system is the

(A) ratio of the output, $v_0(t)$, and the input $v_1(t)$

(B) ratio of the derivatives of the output and the input

(C) ratio of the Laplace transform of the output and that of the input with all initial conditions zeros

(D) none of these

92. The transfer function of a system is 10/(1+s). When operated as a unity feedback system, the steady state error to a unit step input will be

(A) zero (B) 1/11 (C) 10 (D) infinity

93. Noise figure of an RF amplifier when operated at RF with noise temperature 150K will be

(A) 1.42 (B) 1.52 (C) 1.62 (D) 1.72

94. In FM sound broadcasting system, the maximum frequency deviation is usually

(A) 15 kHz (B) 75 kHz (C) 200 kHz (D) 5.2 MHz

95. The difference between a DSB and SSB transmission is

(A) DSB has two sidebands and SSB one sideband

(B) DSB has a carrier and two sidebands and SSB, a carrier and a sideband

(C) DSB may or may not have a carrier with two side band and SSB either of the two sidebands without carrier

(D) DSB has a carrier and two side bands and SSB without carrier and two different sideband

96. Which of the following sets of equations is independent in Maxwell's equations?

(A) the two curl equations

(B) the two divergence equations

(C) both the curl and divergence auditions

(D) the two curl equations combined with the continuity equations

97. A 220/440 V, 50Hz, 5kVA single phase transformer operates on 220V, 40Hz supply with secondary winding. Then

(A) the eddy current loss and hysteresis loss of the transformer decrease

(B) the eddy current loss and hysteresis loss of the transformer increase

(C) the hysteresis loss of the transformer increases while eddy current loss remains the same

(D) the hysteresis Loss remains the same whereas eddy current loss decreases

98. Open slots are used in DC machine armature because

(A) of the ease with which the winding can be placed inside the slots

(B) it increases the induced emf per coil

(C) it reduces the armature voltage drop

(D) it reduces the coil reactance emf and hence aids in commutation

99. Corona loss can be reduced by the use of hollow conductors because

(A) the current density is reduced

(B) the eddy current in the conductor is eliminated

(C) for a given cross-section the radius of the conductor is increased

(D) of better ventilation in the conductor

100. Rectifier moving coil instruments respond to

(A) peak value, irrespective of the nature of the wave form

(B) average value for all wave forms

(C) rms value for all wave forms

(D) rms value for symmetrical square waveform