

Sl. No. :

MB/MCET 2011

**MCA/MBA/EXECUTIVE M.B.A. (TWO YEARS)  
ENTRANCE TEST, OCTOBER 2011.**

HALL TICKET No. :

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Signature of the Candidate

Signature of the Invigilator

(Name of the Candidate)

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Time : 2½ hours

Max. Marks : 200

Min. Marks for Pass : 70

**INSTRUCTIONS TO CANDIDATES**

1. Separate Answer Sheet is supplied to you along with Question Paper Booklet to record your responses. Please read and follow the instructions for marking the responses.
2. Candidate should write the Hall Ticket Number only in the space provided on this page and Answer Sheet. **DO NOT WRITE HALL TICKET NUMBER ANYWHERE ELSE.**
3. Immediately on opening this Question Paper Booklet, please verify for (i) Serial number of the questions (1–200) (ii) The number of pages and (iii) Correct printing.  
**IN CASE OF ANY DEFECT, PLEASE REPORT TO THE INVIGILATOR AND ASK FOR REPLACEMENT WITH IN FIVE MINUTES FROM THE COMMENCEMENT OF THE TEST.**
4. Each correct answer will be awarded one mark.
5. Adoption of any kind of unfair means at the time of the test or any act of impersonation will result in invalidation of his/her claim for taking the test and will be subjected to prosecution under AP Public Examination (Prevention of Malpractice and Unfair Means) Rules, 1997.
6. Use of Calculators, Mathematical/Log tables, Pagers, any other electronic gadgets and loose sheets of paper is strictly prohibited.
7. **Darken the appropriate circles of 1, 2, 3 or 4 on the Answer Sheet** corresponding to correct answer to the concerned question number in the sheet. If you want to change the answer, erase the wrong answer completely and then darken the correct circle. **DARKENING OF MORE THAN ONE CIRCLE AGAINST ANY QUESTION AUTOMATICALLY GETS INVALIDATED.**
8. **Rough work should be done only in the space provided for this purpose in Question Paper Booklet.**
9. Once the candidate enters the Examination Hall, he/she shall not be permitted to leave the Hall till the END of the Examination.
10. Ensure that invigilator puts his/her signature in the space provided on Question Paper Booklet and the Answer Sheet. Candidate should sign in the space provided on the Answer Sheet.
11. The candidate should write the Question Paper Booklet number and sign in the space provided in the Nominal Rolls.
12. Return the Answer Sheet and Question Paper Booklet to the Invigilator before leaving the Examination Hall.

COMMON ENTRANCE TEST FOR MCA/MBA/EXECUTIVE MBA  
PROGRAMME : 2010-11

Time :  $2\frac{1}{2}$  hours

Maximum : 200 marks

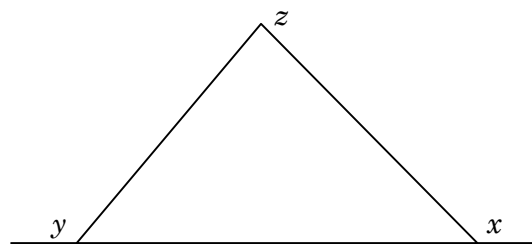
SECTION A  
ANALYTICAL ABILITY

75 Marks

**Directions (Q. No. 1-20):** A question is followed by data in the form of two statements labeled as I and II. You must decide whether the data given in the statements are sufficient to answer the questions. Using the data make the appropriate choice from (1) to (4) as per the following guidelines:

- (a) Mark choice (1) : if statement I alone is sufficient to answer the question;
  - (b) Mark choice (2) : if statement II alone is sufficient to answer the question;
  - (c) Mark choice (3) : if both statements I and II are sufficient to answer the question, but neither statement alone is not sufficient;
  - (d) Mark choice (4) : if both the statements I and II together are not sufficient to answer the questions and additional data is required.
1. What is the average mark of 10 students?
    - (I) The average mark of 9 of them is 60.
    - (II) The marks obtained by one of them is 52.
  2. If  $A$  is the matrix  $\begin{bmatrix} 5 & 6 \\ x & 4 \end{bmatrix}$ , then what is the value of  $x$ ?
    - (I)  $A$  is not a symmetric matrix.
    - (II)  $A$  is a singular matrix.
  3. What is the volume of the cone?
    - (I) The height of the cone is 10 cm.
    - (II) The area of its base is 126 sq.cm.
  4. What are the values of the real numbers  $a$  and  $b$ ?
    - (I) 2 is a root of  $x^a - b = 0$ .
    - (II) 2 is a root of  $a^4 - \sqrt{a^x} = 0$ .

5. What are the values of the real numbers  $a$  and  $b$ ?
- (I)  $a : b = 7 : 3, b > 0$ .
- (II)  $2a : b = 6 : 11, a > 0$ .
6. Is the positive integer  $a$  divisible by 42?
- (I)  $a$  is not divisible by 7.
- (II)  $a$  is divisible by 21.
7. Is  $(\log_{10} x)^2 = (\log_{10} y)^2$ ?
- (I)  $x = y = 10$
- (II)  $x^2 > y^2$
8. What is the area of the triangle formed by joining the points  $A, B$  and  $C$ ?
- (I)  $A = (2, 5), B = (3, 2)$ .
- (II)  $A, B$  and  $C$  lie on a straight line.
9. If  $x, y$  and  $n$  are positive integers, is  $x^n + y^n$  divisible by 2?
- (I)  $x = 21$
- (II)  $y = 1001$
10. Is  $ab = cd$ ?
- (I)  $a\%$  of  $c$  is equal to  $b\%$  of  $d$ .
- (II)  $b\%$  of  $c$  is equal to  $d\%$  of  $a$ .
11. How many degrees is the angle  $x$ ?



- (I)  $y = 120^\circ$
- (II)  $z = 87^\circ$
12. If  $b, c$  are positive integers, is  $b + c$ , a prime number?
- (I)  $b$  and  $c$  are odd
- (II)  $c = 5b$

13. Each student in a hostel speak Telugu or Kannada or both. What is the number of students who can speak Telugu only?
- (I) The total number of students in the hostel is 500 and the number of students who can speak both Telugu and Kannada is 156.
- (II) The number of students who can speak Kannada only is 124.
14. Is  $x$  the largest among the positive real numbers  $x, y$  and  $z$ ?
- (I)  $x - y > |z|$
- (II)  $x + z > 2|y|$
15. How many of  $A, B, C$  and  $D$  got selected into hockey team?
- (I) The statement 'Atleast one of  $A$  and  $B$  got selected into the team' is true.
- (II) The statement ' $C$  and  $D$  are selected into the team' is False.
16. Is the triangle  $ABC$  right angled?
- (I)  $\underline{A} = 2\underline{B}$
- (II)  $\underline{B} = \frac{2}{3}\underline{C}$
17. Four circles of equal radius are inscribed in a square touching each other. What is the area covered by the four circles?
- (I) The perimeter of the square is 32 cm.
- (II) The ratio of the sum of the areas of the four circles to that of the square is  $\pi : 4$ .
18. If  $x, y, z$  are distinct integers, is  $(x - y)^2 > 0$ ?
- (I)  $z = 2x$
- (II)  $y > x$
19. What is the cost of painting a room which is of the form of a cube?
- (I) The base area of the room is 144 sq. ft.
- (II) The room has one door of size  $6' \times 4'$  and has no windows.
20. If  $a, b, c$  are positive integers, is the product  $abc$  even?
- (I)  $a + b + c$  is odd.
- (II)  $a + c$  is odd.

## PROBLEM SOLVING

**Directions (Q.21 to Q.35) :** In each of the questions numbered 21 to 35 a sequence of numbers or letters that follow a difine pattern is given. Each question has a blank space. This has to be filled by the correct answer from the four given options to complete the sequence without breaking the pattern.

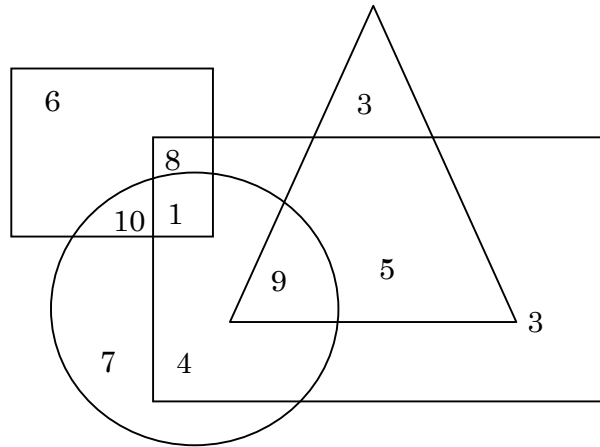
21. 6, 27, 128, \_\_\_\_\_, 3130  
(1) 209 (2) 369 (3) 629 (4) 1031
22. 7, 19, 37, 61, \_\_\_\_\_, 127  
(1) 91 (2) 101 (3) 111 (4) 121
23. 99, 9999, 999999, \_\_\_\_\_, 99999999999  
(1) 9999999 (2) 99999999  
(3) 999999999 (4) 99999999999
24.  $\frac{3}{4}, \frac{15}{16}, \frac{63}{64}, \text{_____}, \frac{1023}{1024}$   
(1)  $\frac{127}{128}$  (2)  $\frac{255}{256}$  (3)  $\frac{511}{512}$  (4)  $\frac{711}{712}$
25. 3, -1, 5, -7, \_\_\_\_\_, -31  
(1) 9 (2) 11 (3) 15 (4) 17
26. DFI, EGJ, FHK, \_\_\_\_\_, HJM.  
(1) GIM (2) GIL (3) HJN (4) HIM
27.  $4 + \sqrt{13}, 9 + \sqrt{10}, \text{_____}, 25 + \sqrt{4}$   
(1)  $14 + \sqrt{7}$  (2)  $15 + \sqrt{7}$  (3)  $16 + \sqrt{7}$  (4)  $19 + \sqrt{7}$
28. A9Z, B7Y, CSX, \_\_\_\_\_, EIV.  
(1) D2W (2) D4W (3) D3U (4) D3W
29. 8 : 81 :: 6 : \_\_\_\_\_  
(1) 25 (2) 36 (3) 49 (4) 64

30. 99 : 120 :: \_\_\_\_\_ : 63  
 (1) 48 (2) 42 (3) 36 (4) 24
31. 22 : 2222 :: 222 : \_\_\_\_\_  
 (1) 22222 (2) 2222 (3) 222222 (4) 2222222
32. LFHW, KEGV, JDFU, \_\_\_\_\_  
 (1) ITCE (2) ICET (3) IECT (4) ETCI
33. 11, 101, 1001, \_\_\_\_\_, 100001, 1000001  
 (1) 1001 (2) 10001 (3) 10000001 (4) 100000001
34. 2, 3, 5, 7, 11, 13, \_\_\_\_\_, 19, 23  
 (1) 14 (2) 15 (3) 16 (4) 17
35. T, W, Z, C, \_\_\_\_\_  
 (1) D (2) E (3) F (4) H

**Directions (Q.36 to 45) : Find the ODD MAN out.**

36. (1) 65 (2) 126 (3) 217 (4) 343
37. (1)  $\frac{15}{19}$  (2)  $\frac{11}{13}$  (3)  $\frac{3}{7}$  (4)  $\frac{2}{5}$
38. (1) 345 (2) 143 (3) 567 (4) 789
39. (1) 169 (2) 961 (3) 131 (4) 625
40. (1) 697 (2) 957 (3) 894 (4) 876
41. (1) 96 (2) 64 (3) 48 (4) 78
42. (1) DELM (2) BDIJ (3) GHRS (4) PQAB
43. (1) BFH (2) MQS (3) GJL (4) NRT
44. (1) Planet (2) Satellite (3) Sky (4) Star
45. (1) Bat (2) Eat (3) Fat (4) Pot

**Directions (Q.46 - 50) : These questions are based on diagram:**



Square represents the players who play “Playing Cards”. Rectangle represents the players who play “Chess”. Circle represents the players who play “Table Tennis” and Triangle represents the players who plays “Squash”.

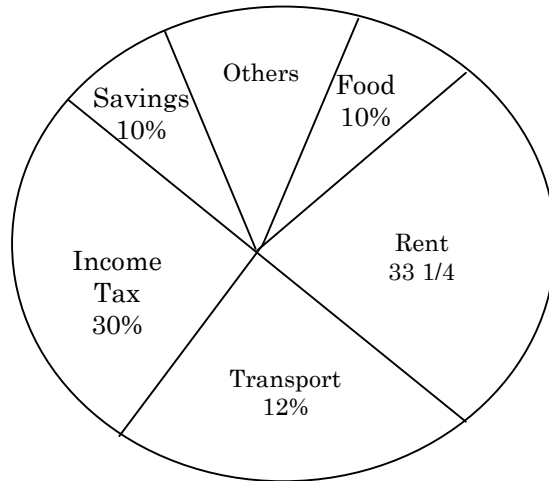
46. The players who plays chess is
- (1)  $8+1+7+5+3+4$  (2)  $8+1+9+5+3+4$   
 (3)  $8+1+9+2+6+4$  (4)  $8+1+3+4+5+2$
47. The players who play both chess and table tennis but not any other game is
- (1) 4 (2) 5 (3) 8 (4) 10
48. The players who play at-most two game is
- (1)  $1+2+3+4+5+6+9+7$  (2)  $2+3+4+5+6+7+8+9$   
 (3)  $2+3+4+5+7+10+8+9$  (4)  $2+3+6+7+5+8+10+4$
49. The players who play at least two games is
- (1)  $1+2+3+4+5+8+10+9$  (2)  $4+5+8+10+9+1$   
 (3)  $1+3+4+5+9+8+10$  (4)  $4+5+7+10+9+1$
50. The players who play exactly one game is
- (1)  $2+3+4+8$  (2)  $2+3+5+9$   
 (3)  $2+3+6+7$  (4)  $2+3+10+7$

**Directions (Q.No. 51 to 55):**

Study the following pie chart and answer the questions 51 to 55.

Expenditure pattern of Mr : Jaideep

Monthly salary of Mr. Jaideep is Rs.24,000 in 2006.



51. What is the ratio of the amount meant for others to that of food?  
(1) 7:15                      (2) 17:30                      (3) 15:7                      (4) 3:4
52. What is the amount of rent paid by Mr. Jaideep per month?  
(1) Rs. 7500                      (2) Rs. 8000                      (3) Rs. 8500                      (4) Rs. 9000
53. What is the angle made by the sector representing the transport expenditure?  
(1)  $41.8^\circ$                       (2)  $42.2^\circ$                       (3)  $43.2^\circ$                       (4)  $38.2^\circ$
54. If Mr. Jaideep's salary increases by 10% and income tax also increases by 10% over its existing rate then what will be his new savings, given that all other components have the same percentage as in 2006?  
(1) Rs. 1940                      (2) Rs. 2080                      (3) Rs. 2240                      (4) Rs. 1848
55. Mr. Jaideep could not go to work for six days in June 2006 due to ill health and it was a loss of pay during that period. At the end of that month, what was his net salary after payment of income tax?  
(1) Rs. 14800                      (2) Rs. 13440                      (3) Rs. 12880                      (4) Rs. 13220



## CODING AND DECODING

### Directions (Q.56 to 65) :

Note: If “BDCFMA” and “RSOQMR” coded as follows “STNOQP” and “DZEEFC” then what is the code follows:

56. IHBNJD =  
(1) AWQUVO    (2) AWQVUO    (3) WAQUVO    (4) WAUQUO
57. ZYTFKA =  
(1) MLGSTM    (2) MLGXSN    (3) MLGSXN    (4) NLGSXM
58. RLODQG =  
(1) QDTEYB    (2) QDYETB    (3) YETBCD    (4) YETCBD
59. RAINBW =  
(1) AOJNEW    (2) AJONEV    (3) JOAINV    (4) AOJENV
60. SMTWTS =  
(1) JGFFZG    (2) JGFZFG    (3) JFGZFG    (4) JZFGFG
61. HORMON =  
(1) ZABUBE    (2) ZBAUBE    (3) ZBAOEB    (4) ZUBABE
62. LOVING =  
(1) VYTABI    (2) VTABIY    (3) VATYBI    (4) VTBAYI
63. SITUAS =  
(1) HNFVFG    (2) HFFNVG    (3) HNFVFG    (4) HFNFVG
64. LDROLW =  
(1) BJYYQE    (2) EJYYQB    (3) BYJYQB    (4) BYJQYE
65. GOVMNT =  
(1) ZAGTBI    (2) ZGATBI    (3) ZTEABI    (4) ZBTGAI



**SECTION B**  
**MATHEMATICAL ABILITY**  
**75 Marks**

76. If  $n(A) = 3$  and  $n(B) = 6$  then the least possible elements in  $(A \cup B) =$  \_\_\_\_\_.

- (1) 6                      (2) 9                      (3) 3                      (4) 18

77. In the following which is null set?

- (1)  $\{x/x \in R, x^2 - 1 = 0\}$                       (2)  $\{x/x \in R, x^2 + 1 = 0\}$   
(3)  $\{x/x \in R, x^2 - 9 = 0\}$                       (4)  $\{x/x \in R, x^2 = x + 2\}$

78.  $A$  is a set of childrens which is not null set and  $R$  is a relation on  $A$  which is defined as  $(x, y) \in R \Leftrightarrow x$  is a brother of  $Y$  then  $R$  is \_\_\_\_\_.

- (1) Reflexive      (2) Symmetric      (3) Antisymmetric      (4) Transitive

79. If  $f(1) = 1$   $m f(1+n) = 2f(n) + 1$  and  $n \in N$  then  $f(100) =$  \_\_\_\_\_.

- (1)  $2^{100}$                       (2)  $2^{99}$                       (3)  $2^{100} - 1$                       (4) None

80. If  $f\left(x + \frac{1}{x}\right) = x^2 + \frac{1}{x^2}$  then  $f(3) =$  \_\_\_\_\_.

- (1) 7                      (2) 10                      (3) -7                      (4) 0

81. If  $\alpha, \beta$  are the roots of the Q.E.  $9x^2 + 6x + 1 = 0$  then the Q.E. whose roots are  $\frac{1}{\alpha}, \frac{1}{\beta}$

- (1)  $x^2 + 6x + 9 = 0$                       (2)  $x^2 - 6x + 9 = 0$   
(3)  $x^2 + 63x - 27 = 0$                       (4) None

82. If the roots of the Q.E. are multiplied by 3 then the Q.E. is \_\_\_\_\_.

- (1)  $x^3 - 63x + 27 = 0$                       (2)  $x^3 + 63x + 27 = 0$   
(3)  $x^3 + 63x - 27 = 0$                       (4) None

83. Find the expression  $x^{30}$  in the expansion of  $\left(3x^2 - \frac{1}{x^2}\right)^{15}$
- (1)  $3^{-15}$                       (2)  $3^{15}$                       (3)  $3^{16}$                       (4) None
84. If the expression  $x^3 + 7x + 8$  is divided by  $x + 2$  find the remainder
- (1) 14                      (2) -14                      (3) 0                      (4) None
85. If  $A - 2B = \begin{pmatrix} 1 & 5 \\ 3 & 7 \end{pmatrix}$  and  $2A - 3B = \begin{pmatrix} -2 & 5 \\ 0 & 7 \end{pmatrix}$  then  $B =$  \_\_\_\_\_.
- (1)  $\begin{pmatrix} 4 & 5 \\ 6 & 7 \end{pmatrix}$                       (2)  $\begin{pmatrix} -4 & 5 \\ 6 & 7 \end{pmatrix}$                       (3)  $\begin{pmatrix} 4 & -5 \\ 6 & 7 \end{pmatrix}$                       (4) None
86. If  $A = \begin{pmatrix} 1 & 5 \\ 0 & 1 \end{pmatrix}$  then find  $A^{-1}$
- (1)  $\begin{pmatrix} 1 & -5 \\ 0 & 1 \end{pmatrix}$                       (2)  $\begin{pmatrix} 1 & 5 \\ 0 & -1 \end{pmatrix}$                       (3)  $\begin{pmatrix} -1 & 5 \\ 0 & -1 \end{pmatrix}$                       (4) None
87. The value of  $[(10)^{150} \div (10)^{146}]$  is \_\_\_\_\_.
- (1) 1000                      (2) 10000                      (3) 100000                      (4)  $10^6$
88. If  $(18)^{3.5} \div (27)^{3.5} \times 6^{3.5} = 2^x$  then the value of  $x$  is \_\_\_\_\_.
- (1) 3.4                      (2) 4.5                      (3) 6                      (4) 7
89. If  $2^{n+4} - 27^{n+2} = 3$  then  $n$  is equal to \_\_\_\_\_.
- (1) 0                      (2) 2                      (3) -1                      (4) -2
90.  $\frac{1}{1+a^{(n-m)}} + \frac{1}{1+a^{(m-n)}} =$  \_\_\_\_\_.
- (1) 0                      (2)  $1/2$                       (3) 1                      (4)  $a^{(m+n)}$
91. If  $2^x \times 8^{\frac{1}{5}} = 2^{\frac{1}{5}}$  then  $x =$  \_\_\_\_\_.
- (1)  $\frac{1}{5}$                       (2)  $-\frac{1}{5}$                       (3)  $\frac{2}{5}$                       (4)  $-\frac{2}{5}$

92.  $\lim_{x \rightarrow 0} \sin 5x \cdot \cot 3x = \text{_____}$ .
- (1)  $\frac{5}{3}$                       (2)  $\frac{3}{5}$                       (3) 0                      (4) None
93. Find the distance between the points (1, -3) and (2, 4)
- (1)  $\sqrt{2}$                       (2) 50                      (3)  $5\sqrt{2}$                       (4)  $2\sqrt{5}$
94. If (1, 2), (3, 5) and (2, 5) are the vertices of a triangle its centroid is
- (1) (3, 4)                      (2) (2, 4)                      (3) (4, 2)                      (4) (6, 3)
95. The equation of the line joining (3, 5) and (1, 1) is
- (1)  $x + y + 1 = 0$                       (2)  $x + 2y + 3 = 0$   
(3)  $x + y = 0$                       (4)  $2x - y - 1 = 0$
96. The intercepts of  $3x + 2y - 6 = 0$  on the  $x$  and  $y$  axis are respectively.
- (1) 2, 2                      (2) 3, 2                      (3) 2, 3                      (4) 3, 3
97. Express  $\frac{7\pi}{4}$  radians into degrees.
- (1)  $120^\circ$                       (2)  $135^\circ$                       (3)  $140^\circ$                       (4)  $160^\circ$
98. If  $(1 + \tan A)(1 + \tan B) = 2$  then  $(A + B) = \text{_____}$ .
- (1)  $30^\circ$                       (2)  $45^\circ$                       (3)  $60^\circ$                       (4)  $90^\circ$
99. If  $x = a \tan^n \theta$  and  $y = b \sec^n \theta$ , eliminate ' $\theta$ '
- (1)  $(x/a)^{2/n} + (y/b)^{2/n} = 1$                       (2)  $(y/b)^{2/n} - (x/a)^{2/n} = 1$   
(3)  $\frac{x}{a} + \frac{y}{b} = 1$                       (4) None
100. An observer on the top of a cliff 200 m above sea level observes the angles of depression to two ships at anchor to be  $45^\circ$  and  $30^\circ$  respectively. Find the distance between the ships.
- (1)  $100\sqrt{3}$  m                      (2)  $200(\sqrt{3} - 1)$  m  
(3) 100 m                      (4) None

101. In a simultaneous throw of two dice, what is the probability of getting a total off 7?

- (1)  $\frac{1}{6}$                       (2)  $\frac{1}{4}$                       (3)  $\frac{2}{3}$                       (4)  $\frac{3}{4}$

102. Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn bears a number which is a multiple of 3 ?

- (1)  $\frac{3}{10}$                       (2)  $\frac{2}{20}$                       (3)  $\frac{2}{5}$                       (4)  $\frac{1}{2}$

103. One card is drawn from a pack of 52 cards. What is the probability that the card drawn is either a red card or a king?

- (1)  $\frac{1}{2}$                       (2)  $\frac{6}{13}$                       (3)  $\frac{7}{13}$                       (4)  $\frac{27}{52}$

104. Two cards are drawn from a pack of 52 cards. The probability that either both are red is both is kings, is \_\_\_\_\_.

- (1)  $\frac{7}{13}$                       (2)  $\frac{3}{26}$                       (3)  $\frac{63}{221}$                       (4)  $\frac{55}{221}$

105. A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

- (1)  $\frac{10}{21}$                       (2)  $\frac{11}{21}$                       (3)  $\frac{2}{7}$                       (4)  $\frac{5}{7}$

106. Find the derivative of  $\sqrt{5x+6}$

- (1)  $\frac{5}{\sqrt{5x+6}}$                       (2)  $\frac{5}{2\sqrt{5x+6}}$                       (3)  $\frac{5}{3\sqrt{5x+6}}$                       (4) None

107. If the mean of  $x-2$ ,  $x-3$  and  $x+5$  is 6 then the value of  $x$  is

- (1) 2                      (2) 4                      (3) 6                      (4) 8

108. The geometric mean of a natural number and its reciprocal is

- (1) Zero                      (2) One  
(3) The number itself                      (4) Can't say

109. For a symmetric distribution which of the following is true?

- (1) Mode  $\neq$  Median  $\neq$  Mean                      (2) Mode = Median = Mean  
(3) Mean = Median  $\neq$  Mode                      (4) None

110. The arithmetic mean of two numbers is 9 and their harmonic mean is 4. Their geometric mean is

- (1) 4                      (2) 6                      (3) 9                      (4) 36

111. 
$$\frac{\left(p + \frac{1}{q}\right)^p \left(p - \frac{1}{q}\right)^q}{\left(q + \frac{1}{p}\right)^p \left(q - \frac{1}{p}\right)^q} = \left(\frac{p}{q}\right)^x$$
 then  $x =$

- (1)  $p$                       (2)  $q$                       (3)  $p + q$                       (4)  $p - q$

112. 
$$\frac{(625)^{6.25} (25)^{2.6}}{(625)^{6.75} (5)^{1.2}} =$$

- (1) 45                      (2) 40                      (3) 35                      (4) 25

113. The least of the numbers  $\sqrt[3]{4}, \sqrt[4]{5}, \sqrt[4]{7}, \sqrt[3]{8}$

- (1)  $\sqrt[3]{8}$                       (2)  $\sqrt[4]{7}$                       (3)  $\sqrt[3]{4}$                       (4)  $\sqrt[4]{5}$

114.  $(2.7)^3 - (1.6)^3 - (1.1)^3 =$  \_\_\_\_\_.

- (1) 0                      (2) 4.572                      (3) 9.504                      (4) 14.256

115.  $\sqrt[3]{7} \times \sqrt{2} =$

- (1)  $\sqrt{14}$                       (2)  $\sqrt[3]{14}$                       (3)  $\sqrt[6]{181}$                       (4)  $\sqrt[6]{392}$

116.  $\sqrt{5 - 4\sqrt{14}}$  is

- (1)  $\sqrt{8} + \sqrt{7}$                       (2)  $\sqrt{8} - \sqrt{7}$                       (3)  $\sqrt{9} + \sqrt{6}$                       (4)  $\sqrt{9} - \sqrt{6}$

117. If  $x = \sqrt{23} - \sqrt{12}$ ,  $y = \sqrt{29} - \sqrt{7}$  then
- (1)  $2x = y$       (2)  $x > y$       (3)  $x < y$       (4)  $x = y$
118. The 15th term of the A.P. with 1st term  $-2$  and common difference  $2$  is
- (1)  $23$       (2)  $24$       (3)  $25$       (4)  $26$
119. If the 3rd and 5th terms of a G.P. are  $12$  and  $48$  respectively then the 2nd term in it is \_\_\_\_\_.
- (1)  $\frac{1}{2}$       (2)  $6$       (3)  $4$       (4)  $8$
120. If  $\sin \theta$  and  $\cos \theta$  are the roots of equation  $px^2 + qx + r = 0$ , then  $q^2 - p^2 =$
- (1)  $2pr$       (2)  $pr$       (3)  $2r$       (4)  $2p$
121.  $(x+1)^2 - (x-1)^2 = 3$ ;  $x =$
- (1)  $1/4$       (2)  $-1/4$       (3)  $3/4$       (4)  $-3/4$
122. The area of the triangle with vertices  $(-4, 2)$ ,  $(3, -1)$  and  $(2, 3)$  is
- (1)  $10$       (2)  $12$       (3)  $14.5$       (4)  $12.5$
123. The equation of the line making equal intercepts on coordinate axes and passing through  $(2, 3)$  is
- (1)  $x + y = 1$       (2)  $x + y = 5$       (3)  $x + y = 4$       (4)  $x + y + 1 = 0$
124. The equation of the perpendicular bisector of  $AB$  is  $x + 3y = 16$  if  $B = (3, 1)$  then  $A$  is \_\_\_\_\_.
- (1)  $(5, 6)$       (2)  $(5, 7)$       (3)  $(6, 5)$       (4)  $(7, 5)$
125.  $\cos 1^\circ \cos 2^\circ \cos 3^\circ \dots \cos 179^\circ =$  \_\_\_\_\_.
- (1)  $1/2$       (2)  $0$       (3)  $1$       (4)  $1/4$



126.  $\sin \theta + \sin^2 \theta = 1$ ,  $\cos^2 \theta + \cos^4 \theta =$ \_\_\_\_\_.
- (1) 0                      (2) 1/2                      (3) 1                      (4) 2
127. If  $\sec \theta + \tan \theta = 4$  then  $\sec \theta - \tan \theta =$ \_\_\_\_\_.
- (1) -4                      (2) +1/4                      (3) 4                      (4) -1/4
128. A tower is of height 100 feet. If 2 boys standing on both sides of the tower observes the top with angles of elevation  $30^\circ$  and  $45^\circ$ , the distance between them (in feet) is
- (1) 100                      (2)  $100\sqrt{3}$                       (3)  $100(\sqrt{3} + 1)$                       (4)  $100\sqrt{2}$
129. If  $A$  and  $B$  are matrices such that  $AB = B$ ,  $BA = A$ , then  $A^2 + B^2 =$ \_\_\_\_\_.
- (1)  $A - B$                       (2)  $A + B$                       (3)  $A^2 - B^2$                       (4) Null matrix
130. If the coefficient of  $x^7$  and  $x^8$  in the expansion of  $\left(3 + \frac{x}{2}\right)^n$  are equal then  $n =$
- (1) 56                      (2) 52                      (3) 48                      (4) 44
131. If the term independent of  $x$  in  $\left(\sqrt{x} + \frac{k}{x^2}\right)^{10}$  is 405 then  $k =$ \_\_\_\_\_.
- (1) 2                      (2)  $\pm 3$                       (3)  $\pm 4$                       (4) 5
132.  $A$ ,  $B$  and  $C$  respectively denotes the set of the letters in the word "FOLLOW", "WOLF" and "FLOW" then
- (1)  $B = C, A \neq B$                       (2)  $A = B, B \neq C$   
(3)  $A = B = C$                       (4)  $A \neq B$  and  $B \neq C$
133. If  $n(s)$  denotes then number of elements in  $s$ ,  $n(A) = 20$ ,  $n(B) = 40$ , and  $n(A \cup B) = 50$  then  $n(A \cap B) = ?$
- (1) 30                      (2) 20                      (3) 10                      (4) 8

134. Let  $N$  denote the set of positive integers the relation  $\leq_n$  on  $N$  is
- (1) an equivalence relation                      (2) reflexive but not symmetric  
(3) symmetric but not reflexive                (4) neither reflexive nor symmetric
135. If  $P$  and  $Q$  are two statements then the symbolic form of “ $p$ ” and not “ $q$ ” is
- (1)  $p \wedge q$                       (2)  $p \vee q$                       (3)  $p \wedge \neg q$                       (4)  $p \vee \neg q$
136. If  $p$  and  $q$  are two statements a tautology among the following is
- (1)  $p \vee (\neg q)$                       (2)  $p \wedge (\neg q)$                       (3)  $(p) \wedge \neg q$                       (4)  $p \wedge \neg q$
137.  $\{x \in R : |x - 1| = 3\} =$  \_\_\_\_\_.
- (1)  $\{x \in R : -2 < x < y\}$                       (2)  $\{x \in R : -2 \leq x \leq y\}$   
(3)  $\{-2, 4\}$                       (4)  $\{-1, 0, 1, 2, 3\}$
138. The number of solutions of  $x^2 - 7|x| + 12 = 0$  is
- (1) 1                      (2) 2                      (3) 3                      (4) 4
139.  $\lim_{x \rightarrow 0} \frac{x}{\sqrt{1+x} - \sqrt{1-x}} =$
- (1) 1/2                      (2) 1                      (3) 2                      (4) 0
140.  $\frac{d}{dx} \{x^3 + \sin x\} =$
- (1)  $3x^2 + \sin x$                       (2)  $3x + \cos x$                       (3)  $3x^2 + \cos x$                       (4)  $x^2 + \cos x$
141. In a distribution of 6, 4, 8, 3 occur with frequencies 4, 2, 5, 7 respectively then the arithmetic mean is
- (1) 5                      (2) 5.25                      (3) 6                      (4) 6.25
142. The mean and median of a unimodal grouped data are 72.5 and 73.9 respectively. The mode is
- (1) 66.7                      (2) 77.6                      (3) 67.6                      (4) 76.7

143. The standard deviation of  $-3, -2, -1, 0, 1, 2, 3$  is  
 (1) 2                      (2) 4                      (3) 6                      (4) 8
144. If  $a, g$  and  $h$  respectively denote the Arithmetic Mean, Geometric Mean and Harmonic Mean of data then  
 (1)  $a = g = h$       (2)  $a \geq g \geq h$       (3)  $g \geq h \geq a$       (4)  $g = ah$
145. If the average of  $1, 4, 9, x, 25, 36$  and  $49$  is  $20$  then  $x =$  \_\_\_\_\_.  
 (1) 40                      (2) 25                      (3) 16                      (4) 9
146. The probability of getting at least two heads when an unbiased coin is tossed thrice is  
 (1)  $\frac{1}{8}$                       (2)  $\frac{1}{4}$                       (3)  $\frac{1}{2}$                       (4)  $\frac{7}{8}$
147. A natural number is chosen at random from  $1$  to  $50$ . The probability of getting a prime number is  
 (1)  $0.1$                       (2)  $0.2$                       (3)  $0.3$                       (4)  $0.7$
148. The probability of drawing a card which is a spade or king from a well shuffled pack of cards is  
 (1)  $\frac{36}{52}$                       (2)  $\frac{35}{52}$                       (3)  $\frac{17}{52}$                       (4)  $\frac{16}{52}$
149. The probability of getting at least one 6 when two unbiased dice are thrown together.  
 (1)  $\frac{10}{36}$                       (2)  $\frac{11}{36}$                       (3)  $\frac{12}{36}$                       (4)  $\frac{13}{36}$
150. If  $A$  and  $B$  are events such that  $P(A) = 0.3, P(B) = 0.2$  and  $P(A \cap B) = 0.1$  then  $P(A \cup B) =$  \_\_\_\_\_.  
 (1)  $0.6$                       (2)  $0.4$                       (3)  $0.2$                       (4)  $0$

**SECTION C**  
**COMMUNICATION ABILITY**

**50 Marks**

**PART I**

**Directions (151 to 155) : Read the following passages and answer the questions that follow:**

The perpetuation of the status hierarchy based on the concept of men as 'superior' and women as 'inferior' has made many women subservient, self-effacing and fatalist. This hierarchy is still being maintained in our male-dominated society. Even now a woman is defined not in terms of her performance but in relation to man. She is projected as weak, passive, home-oriented woman, less intelligent and less capable than man, and thus enshrined in mythology, symbolism and stereotype ideals. Because of such discrimination in treatment from childhood, women develop a deep seated tendency to under-estimate their own talents and powers and this complex has become a stumbling block in their aspiring for the economic emancipation and equal social status alongside men.

One of the basic requirements for entrepreneurship is self-confidence. Although women are as qualified as men to succeed as entrepreneurs, they suffer from two distinct disadvantages. The first is the initial lack of confidence in their own abilities. The second disadvantage is society's lack of confidence in women's ability.

151. The hierarchical order of a male-dominated society leads to
- (1) the promotion of a feeling of inferiority in men and women.
  - (2) the lack of confidence in their abilities as built up in women by themselves and by society.
  - (3) the lack of confidence in women's abilities as developed by women, as against society's confidence in them.
  - (4) Society's lack of confidence in women as against women's self-confidence.
152. Women's diffidence and inferiority, as the passage cites, have resulted in
- (1) their gaining of equal social status with men.
  - (2) their seeking of economic emancipation.
  - (3) their under-estimation of their talents.
  - (4) their entrepreneurial ability.

153. According to this passage, even now a woman is considered
- |                           |                 |
|---------------------------|-----------------|
| (1) strong                | (2) active      |
| (3) less capable than men | (4) intelligent |
154. A quality necessary for entrepreneurship is
- |                         |                           |
|-------------------------|---------------------------|
| (1) superiority complex | (2) self-confidence       |
| (3) inferiority complex | (4) stereotypical ideals. |
155. A women is defined
- |                        |                             |
|------------------------|-----------------------------|
| (1) in relation to man | (2) in terms of performance |
| (3) as superior        | (4) in terms of efficiency  |

**Read the passage and answer questions (156 to 160):**

Genetics is a science about to become a technology. In this century, developments in genetics will be accelerating. This technology will lead to the ability to design plants and animals to perform human functions. In agriculture, scientists will be able to produce plants which have improved photosynthetic efficiency, minimum water requirements, self-fertilising characteristics and a desired spectrum of nutrient qualities. In mining, organisms will metabolize desired metals and thus concentrate them for later 'harvesting'. The production of pharmaceuticals, micro-organisms will be used as factory workers to produce chemicals normally found only in natural body and plant processes.

Finally, in medicine, scientists will intervene in the process by which genetic disease - such as sickle cell anaemia. Tay Sachs diseases, and mongolism - are passed from parents to progeny, to cure these diseases before conception. Ultimately this science of genetics, which will prove so important, will give us the ability to design animals, including ourselves.

156. In the Pharmaceutical industry
- (1) factory workers use micro-organisms
  - (2) micro organisms use factory workers
  - (3) micro-organisms are used as factory workers
  - (4) factory workers produce chemicals
157. One of the uses of genetics is that it
- (1) helps in the cure of genetic diseases
  - (2) helps in accelerating technology to grow into a science
  - (3) helps in the mining of metals
  - (4) converts metals into manures

158. In the field of agriculture, genetics performs the function of
- (1) reducing photosynthetic activity
  - (2) increasing water requirements
  - (3) promoting self-fertilizing characteristics
  - (4) reducing the nutritional quality of the product harvested
159. Genetics will help man by
- (1) replacing robots with animals
  - (2) designing healthier people
  - (3) designing technologies to take over man's work
  - (4) making man's future safe
160. Genetically designed animals will be able to
- (1) outperform man
  - (2) takeover human functions
  - (3) reduce man's dependence on technology
  - (4) provide the desired spectrum of nutrient qualities

**Read the passage and answer questions (161 to 165):**

There is a great scope for educating people to maximize efficient use of resources. For instance, 5 per cent of fuel used for vehicles can be saved if drivers are given proper training in correct and energy efficient driving habits : don't press the accelerator unnecessarily, avoid braking suddenly, slow down earlier, etc. But does a normal driver know that these factors are connected with the thermodynamics of engines and fuel burning? Similarly, if the Stove's flame is kept at a level that will prevent it lapping around the sides of the vessel and just be under the pot, though it may take a few minutes more to cook food, there will be a considerable saving of precious gas. Such wastage exacts' heavy price on the economy. Marketing communication skills can be deployed very effectively to impart continual training to our workforce and curb such wastage. That will be an excellent service industry itself.

161. An excellent service industry can grow out of
- (1) motor vehicle industry
  - (2) regular training to workforce
  - (3) our economy
  - (4) a study of the wastage phenomenon

162. The thermodynamics of engine and fuel burning is
- (1) common knowledge among drivers
  - (2) not normally known to drivers
  - (3) entirely unknown to drivers
  - (4) well known to drivers
163. A level flame
- (1) cooks food faster
  - (2) wastes gas
  - (3) saves gas
  - (4) hardly cooks food
164. Energy efficient driving habits result in
- (1) increased life of vehicles
  - (2) less repairs
  - (3) high speed driving
  - (4) fuel efficiency
165. Education people is essential for
- (1) making them efficient
  - (2) increasing their efficiency
  - (3) mobilization of resources
  - (4) increasing their efficiency in using resources

## PART II

**Choose the correct meaning for the word (Q.166 to 170):**

166. CELIBATE
- (1) Unmarried
  - (2) Leafy
  - (3) Heavenly
  - (4) Joyous
167. PENDULOUS
- (1) Heavy
  - (2) Hanging down loosely
  - (3) Tawdry
  - (4) Contrite
168. BIBULOUS
- (1) Addicted to drink
  - (2) talkative
  - (3) well-dressed
  - (4) frothy

169. NOMADIC

- (1) Wandering (2) Fierce  
(3) Equestrian (4) Lawless

170. LEVITY

- (1) Frivolity (2) Increase  
(3) Fermentation (4) Forgetfulness

**Directions (Q.171 to 175) : Fill in the blank choosing correct answer:**

171. The magistrate ————— every word she said.

- (1) got on (2) got in  
(3) got over (4) got down

172. The epidemic ————— whose families.

- (1) wiped off (2) wiped out  
(3) wiped up (4) wiped over

173. ————— time, he came to know his mistake.

- (1) on account of (2) in course of  
(3) in the event of (4) during

174. ————— her sincere efforts, she could not get through the examination.

- (1) despite (2) inspite  
(3) owing to (4) due to

175. Sindhu was greatly amused ————— the performance.

- (1) by (2) on (3) at (4) in

### PART III

**Directions (Q.176 to 180) : Fill in the blanks with the appropriate phrase/verb/preposition.**

176. Employees who have twenty-five of service become entitled ————— a person.

- (1) of (2) on (3) from (4) to

177. I ————— some old friends when I was in Acharya Nagarjuna University last year.

- (1) comes across (2) come across  
(3) comes out (4) came out



178. I have some letters which I must \_\_\_\_\_ before I leave to night.  
(1) clear away (2) clear off  
(3) clear up (4) clear out
179. The Hindustan times aspires to have a million readers \_\_\_\_\_ next year.  
(1) by (2) till (3) until (4) through
180. How are you \_\_\_\_\_ with your work?  
(1) get alone (2) getting alone  
(3) get off (4) getting in

**Directions (Q.181 to 190) : Fill in the blank choosing the correct word:**

181. I am grateful \_\_\_\_\_ my grand father for teaching me mathematics.  
(1) to (2) off (3) for (4) by
182. The writer accuses national government \_\_\_\_\_ resorting to violence.  
(1) of (2) for (3) with (4) on
183. Don't \_\_\_\_\_ when somebody else is talking.  
(1) cut out (2) cut off (3) cut on (4) cut in
184. He talks as though he \_\_\_\_\_ where she was.  
(1) knows (2) has known  
(3) knew (4) had known
185. Hardly had the performance began \_\_\_\_\_ the lights went out.  
(1) before (2) than (3) when (4) none
186. She filed a lawsuit to stop the \_\_\_\_\_ of child labour.  
(1) expertise (2) extinction  
(3) exploitation (4) extravagance
187. In order to \_\_\_\_\_ natural gas they installed extra insulation.  
(1) consent (2) constant (3) contract (4) conserve

188. Monks and nuns are supposed to lead a \_\_\_\_\_ life.  
(1) austere (2) prodigal  
(3) gratuitous (4) presumptuous
189. Several \_\_\_\_\_ for global warming have been recently suggested.  
(1) principal (2) priorities (3) privileges (4) hypotheses
190. He is \_\_\_\_\_ of her victory in the elocution contest.  
(1) zealous (2) envy (3) pride (4) jealous

#### **PART IV**

**Directions (Q. 191 to 200) : Choose the correct answer.**

191. An Actuary is  
(1) One who presents himself  
(2) One who projects himself  
(3) One who works in a sanctuary  
(4) One who makes calculations connected with insurance
192. CRR stands for  
(1) Cash Reserve Ratio  
(2) Cumulative Reserve Ratio  
(3) Credit Requirement Ratio  
(4) Compulsory Reserve Ratio
193. MOU is the abbreviation of  
(1) Management of undertaking  
(2) Monetary output unit  
(3) Memorandum of understanding  
(4) Marketing of unsaleables
194. MS-Excel is used for  
(1) Word processing  
(2) Tabulation and number crunching  
(3) Spell check  
(4) Website creation

195. GUI is the abbreviation of
- (1) Groupware User Interface
  - (2) Graphic User Interface
  - (3) Graphics User Identification
  - (4) Graphic Universal Imaging
196. An Icon is
- (1) A small picture on a display screen
  - (2) An application software
  - (3) A back up system
  - (4) A computer designed car
197. IPO is the abbreviation of
- (1) Initial Private Offering
  - (2) Important Public Organisation
  - (3) Initial Public Offering
  - (4) Important Public Offering
198. Patent means
- (1) The sole right to manufacture and sell product
  - (2) A negotiable instrument
  - (3) An exclusive trade right
  - (4) A design
199. A commonly accepted proper behaviour in the Net is called
- |                   |                 |
|-------------------|-----------------|
| (1) Net manners   | (2) Web manners |
| (3) Net Protocols | (4) Netiquette  |
200. CAD stands for
- (1) Computer Aided Design
  - (2) Computer Arithmetic Design
  - (3) Computer Analogue Design
  - (4) Computer Architecture Development

ROUGH WORK

**ROUGH WORK**

