NATIONAL TALENT SEARCH EXAMINATION, 2015-16
(STATE LEVEL)
(FOR STUDENTS STUDYING IN CLASS X)

MENTAL ABILITY TEST (MAT)

Answers key

1.	C	2.	D	3.	A	4.	C
5.	D	6.	B	7.	C	8.	D
9.	D	10.	B	11.	D	12.	B
13.	A	14.	D	15.	B	16.	C
17.	B	18.	A	19.	B	20.	B
21.	D	22.	C	23.	A	24.	C
25.	B	26.	C	27.	A	28.	D
29.	B	30.	D	31.	C	32.	A
33.	A	34.	D	35.	C	36.	A
37.	C	38.	A	39.	D	40.	B
41.	D	42.	C	43.	C	44.	Question not clear
45.	B	46.	C	47.	D	48.	B
49.	C	50.	A				

HINTS & SOLUTIONS

01. $f(a)=0$

$f(-a)=-a^2+a^3+2a+a+4=0$

$a=-4/3$

02. $C_1+.....C_5=45$

$C_1+.....C_5+M+M+5=140$

$\Rightarrow M=45$

03. If $a^2+b^2+c^2=ab+bc+ca$

$\Rightarrow (a-b)^2+(b-c)^2+(c-a)^2=0$

$\Rightarrow a=b=c$

$\therefore \dfrac{a+c}{b}=\dfrac{2b}{b}=2$

04. Arghya was born in 2002 —— A

Grandfather ……2002 —— 2A

$\Rightarrow (2002-A)+(2002-2A)=3854$

A = 50

$\Rightarrow (C)$ 51 years in 2003

05. $\{12\%\ of\ x\}\times\{20\%\ of\ (x+1)\}=61.2$

$x(x+1)=50\times 51$

or -50×-51

$\therefore\ d)\ Both\ \ a\ \&\ b$

06. $V_C=\dfrac{1}{3}\pi r^2L_1$

$V_H=\dfrac{2}{3}\pi r^3=\dfrac{2}{3}\pi r^2\times h_2$

$\Rightarrow \dfrac{1}{3}\pi r^2h_1=\dfrac{2}{3}\pi r^2h_2$

$\dfrac{h_1}{h_2}=\dfrac{2}{1}$

07. C

08. $(x-10\%\ of\ x) + 10\%\ of\ (x-10\%\ of\ x) = \frac{99x}{100}$

% Change $\frac{x-\frac{99x}{100}}{x}\times 100 = 1\%$

$\therefore\ d)\ 1\%$ decrease

09. d)

10. b)

$A = P\left(1+\frac{r}{n}\right)^{nt}$ taking interest is being compounded yearly.

11. $1^2+1=2$

$2^2+2=6$

$3^2+6=15$

$4^2+15=31$

$5^2+31=56 \quad (d)$

12. $11\times 2+1=23$

$\therefore\ 99\times 2+4=202 \qquad (b)$

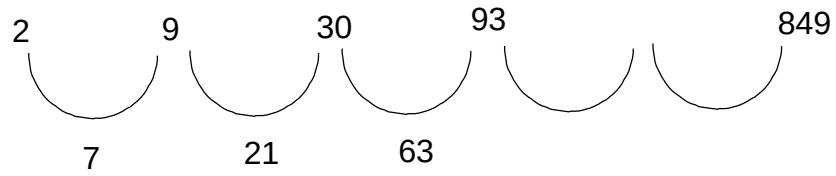
13. (a)

$\frac{54}{2}=27$

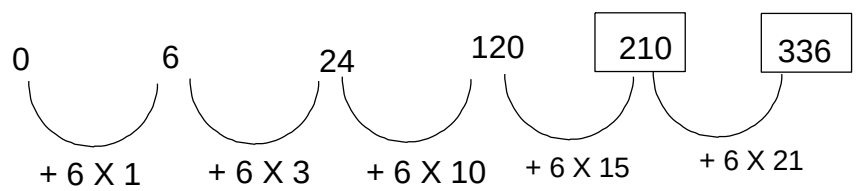
14. (d)

$11^2+1=122$

15. (b)

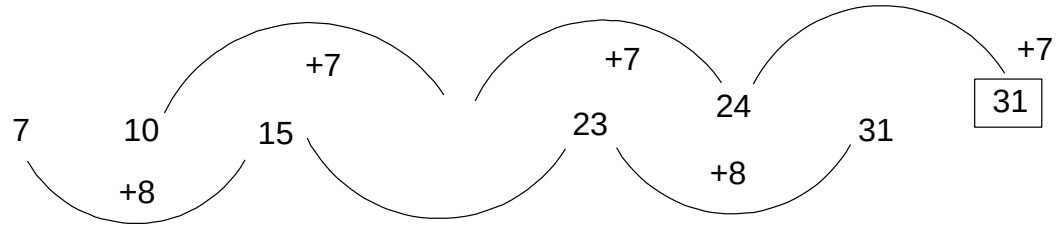


16. (c) 336

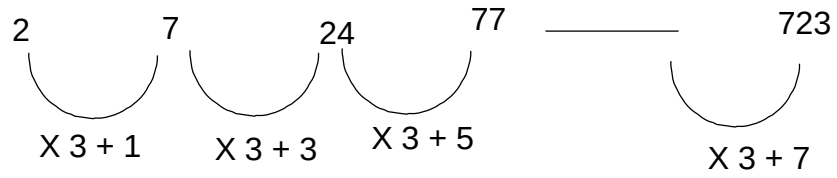


17. (b) 5^3

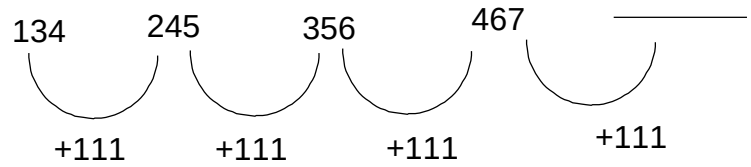
18. (a) 31



19. (b)



20. (c)



21. D
22. C
23. A
24. C
25. B
26. C
27. A
28. B
29. B
30. D
31. C
32. A
33. A
34. D
35. C
36. A
37. C
38. A
39. D
40. B
41. $\frac{115}{7} = 25$

25+3=28 (d)

42 C

$4^3 + 1 = 65$

43. $(1+5)\times 4=24$

$(2+2)\times 9=36$

$(?+4)\times 7=56$

(C) 4

44. Question not clear

45. (B)

(4 X 9 X 7) + (6 X 5 X 8) = 492

$\therefore$ (2 X 5 X 7) + (3 X 4 X 5) = 130

46. $2^2\ 4^2 \Rightarrow 2\times 4=8$

$5^2\ 8^2 \Rightarrow 5\times 8=40$

(C)

47. 27 + 22 = 49 + 1 = 50

(D)

48. $5^2+4^2-1=40$

$\therefore\ 10^2+6^2-1=135$

(B)

49. 2 X 2) 3 =4

2 X 5) 6 =10

2 X 11) 12 =22

2 X 23) 24 =46

2 X 47) 48

2 X (47 + 48) =190

(C)

50. A