

National Talent Search State Level Examination – 2018

Answer Key & Solutions

PART – I GENERAL MENTAL ABILITY TEST

1.	3	2.	1	3.	4	4.	3	5.	4
6.	3	7.	2	8.	1	9.	3	10.	4
11.	2	12.	1	13.	2	14.	4	15.	3
16.	1	17.	2	18.	4	19.	3	20.	1
21.	2	22.	4	23.	3	24.	2	25.	1
26.	*	27.	3	28.	1	29.	2	30.	3
31.	4	32.	1	33.	2	34.	3	35.	2
36.	1	37.	3	38.	4	39.	2	40.	1
41.	1	42.	4	43.	2	44.	3	45.	2
46.	3	47.	4	48.	4	49.	3	50.	2

PART – II LANGUAGE COMPREHENSIVE TEST

51.	4	52.	1	53.	1	54.	2	55.	4
56.	2	57.	2	58.	3	59.	3	60.	1
61.	2	62.	4	63.	3	64.	1	65.	4
66.	3	67.	1	68.	1	69.	4	70.	2
71.	2	72.	2	73.	2	74.	4	75.	1
76.	2	77.	2	78.	1	79.	1	80.	4
81.	3	82.	4	83.	3	84.	4	85.	2
86.	2	87.	2	88.	3	89.	4	90.	3
91.	4	92.	1	93.	4	94.	1	95.	4
96.	1	97.	3	98.	4	99.	4	100.	4

PART – III SCHOLASTIC APTITUDE TEST

PHYSICS

101.	3	102.	3	103.	4	104.	4	105.	3
106.	2	107.	2	108.	1	109.	1	110.	1
111.	1	112.	3	113.	3				

CHEMISTRY

114.	3	115.	1	116.	2	117.	3	118.	1
119.	1	120.	2	121.	1	122.	3	123.	4
124.	3	125.	4	126.	4	127.	2		

BIOLOGY

128.	4	129.	1	130.	2	131.	1	132.	2
133.	3	134.	4	135.	1	136.	4	137.	2
138.	3	139.	1	140.	4				

SOCIAL SCIENCE

141.	2	142.	2	143.	2	144.	3	145.	1
146.	1	147.	4	148.	3	149.	3	150.	1
151.	1	152.	2	153.	1	154.	4	155.	3
156.	2	157.	3	158.	2	159.	3	160.	4
161.	1	162.	1	163.	2	164.	2	165.	3
166.	4	167.	4	168.	2	169.	1	170.	3
171.	4	172.	3	173.	2	174.	1	175.	3
176.	2	177.	2	178.	3	179.	2	180.	3

MATHEMATICS

181.	4	182.	1	183.	3	184.	1	185.	2
186.	2	187.	3	188.	2	189.	4	190.	3
191.	3	192.	1	193.	2	194.	1	195.	1
196.	3	197.	3	198.	3	199.	1	200.	2

SOLUTION

PART – I GENERAL MENTAL ABILITY TEST

4. 3
perfect square
10. 4
($6^4 - 6$)
13. 2
difference
14. 4
differences (3, 0, 6, 1, 9, 2, 12, 3)
16. 1
 $n^3 + 1$
19. 3
FERK
20. 1
WVKX
34. 3
 $7 \times 4 - 9$
35. 2
(4 8) \times 6
36. 1
 $3 \times 5 + 4$
37. 3
 $3 + 6 + 4 = 13 = 1 + 4$
38. 4
add 3
41. 1
V > S > T > RU

PART – III SCHOLASTIC APTITUDE TEST

PHYSICS

101. 3
Resistance is obstruction to the flow of electric current.
102. 3
Radiation
Conduction and convection needs medium to travel, while radiation does not need medium to travel.
103. 4
1000 cubic centimeter
 $1 \text{ litre} = 10^3 \text{ m}^3$
 $1 \text{ meter} = 100 \text{ cm}$
 $1 \text{ litre} = 10^3 \text{ 100 cm}^3 \quad 10^3 \text{ 10}^6 \text{ cm}^3$
 $1 \text{ litre} = 10^3 \text{ cm}^3$
104. Irregular & non – periodic vibration
Music is produced by regular and periodic vibrations Noise is produced by irregular & non – periodic vibrations.

105. 3

o

Ray which passes through optical centre remains undeviated.

106. 2

$C \quad {}^5_9F_{32}$
 $C \quad F_{32}$
 $100180 \quad {}^9_5C$
 $F_{32} \quad C \quad {}^5_9F_{32}$

107. 2

Due to refraction when a light ray passes from dense medium to rarer medium it bends away from normal.

108. 1

4 Meter. Image formed by the plane mirror is at equal distance as that of the object from plane mirror.

109. 1

According to the law of floatation weight of a floating body is equal to the weight of displaced liquid.
Ans (1) wt. of displaced liquid.

110. 1

$Re \quad q \quad R_1 \quad R_2$
 $2 \quad 2 \quad 4$
 $1 \quad 1 \quad 1 \quad Re$
 $q \quad R_1 \quad R_2$
 $2 \quad 1 \quad 12 \quad 21$
 $14, 1$

111. 1

Second's needle of clock completes one revolution in one minute. Therefore its time period will be 1 minute.

112. 3

When an object is placed between two plane mirrors infinite number of images will be formed.

113. In long lightens images is formed behind Retina.

CHEMISTRY

114. **3**
Ethylene double Bond
115. **1**
All non-metal oxide on reacting with water gives Acidic solution
116. **2**
Stainless steel contains Iron, Chromium, Carbon
117. **3**
Anthracite has maximum percentage of carbon
118. **1**
Factual
119. **1**
 $Zn + 2HCl \rightarrow ZnCl_2 + H_2$
120. **2**
Bromine liquid at room temperature
121. **1**
Na reacts with cold water to give H_2 gas
122. **3**
Factual
123. **4**
Flint glass (Factual)
124. **3**
Controlled nuclear fission required in nuclear reactor.
125. **4**
Factual
126. **4**
 $CaC_2 + H_2O \rightarrow C_2H_2 + Ca(OH)_2$
127. **2**
Fog \rightarrow liquid in gas

BIOLOGY

128. **4**
Measles, Rabies & Polio are caused by viruses while Tuberculosis is a bacterial disease caused by *Mycobacterium tuberculosis*.
129. **1**
Marasmus is a PEM (Protein energy Malnutrition) caused in children between 0-1 years.
130. **2**
Sonalika is a high yielding variety of wheat.
131. **1**
Red Blood Corpuscles are cells without nucleus.
132. **2**
Lamarckism is based on – (i) Use and disuse of organs (ii) Inheritance of acquired characters. Other three options are related to Darwinism.
133. **3**
Pepsin is not found in pancreatic juice but found in gastric juice secreted by stomach.
134. **4**
Sodium benzoate is a chemical used as preservative in Jams and jelly.

135. **1**
Retinol is common name of Vitamin A.
136. **4**
Thiamine is scientific name of vitamin B1, not found in RNA.
137. **2**
Maize is anemophilous flower in which pollination takes place by air.
138. **3**
Platypus is an egg laying mammal, most primitive mammal.
139. **1**
Silver fish is an insect belongs to phylum – Arthropoda, not a true fish.
140. **4**
BCG is a vaccine for tuberculosis developed by Calmette-Guerin.

MATHEMATICS

181. **4**

$$\begin{array}{r} x^4 \quad 4y^4 \\ x^2 \quad 2y^2 \quad 4x^2y^2 \\ x^2 \quad 2y^2 \end{array}$$
182. **1**

$$\begin{array}{r} 24 \qquad \qquad \qquad 6 \qquad \qquad 10 \\ \frac{1}{x} 6824 \end{array}$$
183. **3**

$$\sqrt{10} \quad \sqrt{25} \quad 11 \quad \sqrt{10} \quad 6 \quad \sqrt{16} \quad 4$$
184. **1**

$$\begin{array}{r} \frac{1}{2} 15b^3 + b^2 + 00 \\ 5b^3 + 6b^2 + 1 \end{array}$$
185. **2**

$$\begin{array}{r} b \quad 1/2 \\ 2 \\ 1 \end{array}$$
186. **2**^{t3} **2t**
 radii 2r, 3r
 higt 4h, 3h

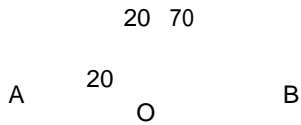
$$\frac{1}{3} \frac{r^2 h}{r^2 h} \quad \frac{4r^2}{3 \cdot 9r^2} \quad \frac{4h}{3h} \quad \frac{16}{27 \cdot 3} \quad \frac{16}{81}$$
187. **3**

$$\begin{array}{r} 2r \quad 14 \\ r \quad \frac{7 \cdot 7}{22} \end{array} \quad \frac{20}{14}$$
188. **2**

$$\begin{array}{r} 2rh \quad 14 \quad 20 \quad 280 \text{ cm}^2 \\ 2 \\ 5 \quad 180 \end{array}$$

189. $6 \cdot 180$
 30
 150
 4
 $1^3 k 1^2 \quad 111 \quad 6 \quad 0$
 $k \quad 1 \quad 6 \quad 0$
 $k \quad 6$

190. 3
 20



191. 3
 $AB \quad ACA$

110
 $C \quad B$

192. 1
 $\frac{1}{x} \quad \frac{1}{50x} \quad \frac{1}{12}$
 $\frac{50x}{x} \quad \frac{1}{x} \quad \frac{1}{12}$
 $600 \quad 50x \quad x^2$
 $x^2 \quad 50x \quad 600 \quad 0$
 $x^2 \quad 30x \quad 20x \quad 600 \quad 0$
 $x \quad 30, 20$

193. 2
 $5 \cos A \quad 12 \ln A$
 $\tan A \quad 5/12$
 $\frac{\tan A}{2 \tan A} \quad \frac{1}{\frac{12}{5}}$
 $\frac{17}{19} \quad \frac{12}{19}$
 $\frac{17}{19} \quad \frac{12}{19}$

194. 1
 $\frac{a}{a-x} \quad \frac{a}{a-x} \quad \frac{a}{a-x} \quad \frac{a}{a-x} \quad \frac{b}{b-1}$
 $\frac{2}{2} \frac{a}{a-x} \quad \frac{b-1}{b-1} \text{ squaring, } \frac{a}{a-x} \quad \frac{b^2-1}{b^2-1} \frac{2b}{2b}$
 Again using compodendo & dividend 0 rule.

$$\frac{a \times a \times x}{a \times a \times x} \times \frac{2b^2 - 1}{4b}$$

$$\frac{a}{x} \times \frac{2b^2 - 1}{4b} \times \frac{4ab}{2b^2 - 1} \times \frac{2ab}{b^2 - 1}$$

195. 1
 $\log_4 \log_2 x - 1$
 $\log_2 x - 4$
 $x \cdot 2^4 = 16$

196. 3
 $8000 = 100^{10} \cdot 800$
 $8800 = 100^{20} \cdot 1760$

197. 3
 $5 \cdot k^{1/p}$
 $7 \cdot k^{1/q}$
 $5 \cdot 7 \cdot k^{1/q}$

$$k^{1/p} \cdot k^{1/q} \cdot k^{1/r} = k^1$$

$$\frac{1}{p} + \frac{1}{q} + \frac{1}{r} = 1$$

198. 3
 $\tan 60 = \frac{h - 100}{x}$
 $\sqrt{3}x = h - 100$
 $3h - 300 = h - 100$
 $2h = 200$
 $h = 100$
 $\tan 30 = \frac{h - 100}{x}, x = h - \frac{100}{\sqrt{3}}$

199. 1
 $x_1, x_2, \dots, x_8 = 152$
 $x_1 + x_2 + \dots + x_8 = 152 \cdot 8$
 New mean = $\frac{x_1 + x_2 + \dots + x_8 + 143 + 156}{10}$
 $\frac{152 \cdot 8 + 143 + 156}{10} = 151.5$

200. 2
 $x = 0.6666 \dots$ i
 $10x = 6.6666 \dots$ ii
 subtract ii from i, $9x = 6$
 $x = \frac{6}{9} = \frac{2}{3}$