

94. If A, B are idempotent matrices such that $A.B = B.A$ then
 (1) $A+B$ is idempotent (2) $A.B$ is idempotent
 (3) $A+B+A.B$ is idempotent (4) $A+B-A.B$ is idempotent
95. If A, B are square matrices each of order n then $\text{nullity}(AB) - \{\text{nullity}(A) + \text{nullity}(B)\}$
 (1) $= 0$ (2) ≥ 0 (3) ≤ 0 (4) $= \text{Rank}(AB)$
96. If A is a $m \times n$ matrix with rank q then the number of linearly independent solutions of the linear system $AX = 0$ is
 (1) $2q$ (2) $n-q$ (3) $m-q$ (4) $|n-m|$
97. If ω is a cube root of unity then $\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega^2 & 1 & \omega \\ \omega & \omega^2 & 1 \end{vmatrix}$ is
 (1) ω (2) ω^2 (3) 1 (4) 0
98. The eigenvalues of $A = \begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$ are
 (1) $1, 4$ (2) $1, 6$ (3) $2, 5$ (4) $1, 2$
99. If u, v are orthogonal unit vectors then $\|u - v\| =$
 (1) 0 (2) 1 (3) 2 (4) $\sqrt{2}$
100. In an inner product space, any orthogonal set of non-zero vectors
 (1) is linearly dependent (2) is linearly independent
 (3) contains only one vector (4) does not exist

ANALYTICAL ABILITY

For questions numbered **101** to **110** questions followed by data in the form of two statements are 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 an appropriate choice from 1 to 4 as per the following guidelines.

- (1) If the data I alone is sufficient to answer the question, then (1) is the correct answer.
- (2) If the data II alone is sufficient to answer the question, then (2) is the correct answer.
- (3) If the data I and II both are sufficient to answer the question, then (3) is the correct answer.
- (4) If the data I and II both are not sufficient to answer the question, then (4) is the correct answer.

101. What is the price of a table?

I : The total price of 3 chairs and 5 tables is Rs. 18,800

II : The total price of 6 chairs and 4 tables is Rs. 20,800

102. What was the speed of a running train A?

I : The relative speed of train A and another train B running in opposite direction is 160 kmph.

II : The train B crosses a signal post in 9 seconds.

103. What is the difference between the two digits in a two-digit number?

I : The sum of the two digits is 8

II : $\frac{1}{5}$ of that number is 15 less than $\frac{1}{2}$ of 44.

104. What is the monthly income of Q?

I : Q earns Rs.6000 more than R, who earns Rs. 3000 less than P

II : The total monthly income of P and Q is Rs. 27000

105. What is the ratio of the number of boys and girls in a school?

I : Number of boys is 40 more than the girls

II : Number of girls is 80 percent of the number of boys

106. How many children are there in the group?

- I : Average age of this group is 16 years. The total of ages of all the children in the group is 240 years.
II : The total of ages of all the children in the group and the teacher is 26.2 years. The teacher's age is six years more than the average age of the children.

107. What is the cost of polishing the rectangular floor?

- I : Room is 9 m long and 7 m wide.
II : Cost of polishing the floor of 10 m by 5 m is Rs. 112.50.

108. How long will it take to fill a tank?

- I : One pipe can fill the tank completely in 3 hours.
II : Second pipe can empty the tank in 2 hours.

109. What is Sudha's present age?

- I : Sudha's present age is five times her son's present age.
II : Five years ago her age was twenty-five times her son's age at that time.

110. A, B and C can do a work in 30 days. In what time will A alone complete the work?

- I : A and B together can do the work in 60 days.
II : C alone can do the work in 60 days.

Questions 111 to 115 : Find out the next term of the given series.

111. 2, 5, 9, 14, 20, —

- (1) 25 (2) 26 (3) 27 (4) 28

112. 53, 48, 50, 50, 47, —

- (1) 52 (2) 46 (3) 53 (4) 51

113. 0, 7, 26, 63, —

- (1) 124 (2) 126 (3) 215 (4) 217

114. 8, 13, 22, 35, ———

- (1) 45 (2) 52 (3) 50 (4) 65

115. 97, 86, 73, 58, 41, ———

- (1) 54 (2) 55 (3) 56 (4) 20

Questions 116 to 120 : Find the missing term of the given series.

116. 5, 10, 13, 26, 29, 58, 61, ———

- (1) 122 (2) 64 (3) 125 (4) 128

117. 1, 3, 9, 31, ?, 651

- (1) 97 (2) 127 (3) 129 (4) 109

118. 2, 7, 23, ?, 220, 665

- (1) 78 (2) 72 (3) 70 (4) 71

119. 3, 15, 75, ?, 1875, 9375

- (1) 375 (2) 125 (3) 250 (4) 625

120. 9, 16, 25, ?, 49, 64

- (1) 29 (2) 26 (3) 36 (4) 40

Questions 121 to 125 : Find out the Odd number of the series.

121. 4, 11, 21, 34, 49, 69, 91

- (1) 69 (2) 49 (3) 34 (4) 21

122. 8, 17, 37, 79, 165, 338, 689

- (1) 17 (2) 79 (3) 165 (4) 338

123. 13, 15, 19, 25, 33, 41, 55

- (1) 15 (2) 19 (3) 25 (4) 41

124. 2, 3, 6, 12, 45, 157.5, 630

- (1) 45 (2) 3 (3) 157.5 (4) 12

125. 3, 4, 10, 33, 148, 685, 4116

- (1) 685 (2) 10 (3) 4 (4) 148

Directions (Q.126 to 130) : Study the following information carefully and answer the questions given below:

Seasonwise Consumption of Fertilizers (000 tonns of nutrients)

Year	Kharif	Rabi	Total	Percent Share	
				Kharif	Rabi
1996-97	6920	7388	14308	48.4	51.6
1997-98	8092	8096	16188	50.0	50.0
1998-99	7834	8964	16798	46.6	53.4
1999-00	9304	9841	19145	48.6	51.4

126. The consumption of fertilizers was almost equal during both the seasons in the year

- (1) 1996-97 (2) 1997-98 (3) 1998-99 (4) 1999-2000

127. Maximum consumption of fertilizers was during

- (1) 1998-99 (2) 1996-97 (3) 1999-2000 (4) 1997-98

128. The percent share in the consumption of fertilizers during 1996-2000 was

- (1) Less for Kharif (2) Less for Rabi
(3) Equal for both the seasons (4) Inadequate data

129. Which season has shown consistent increase in the consumption of fertilizers over the period 1996-2000

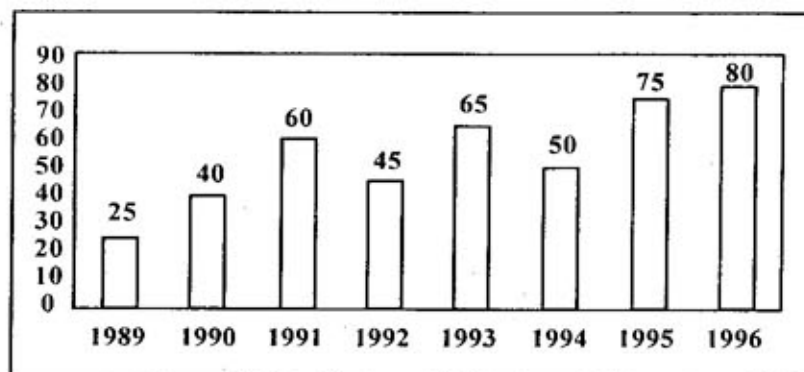
- (1) Kharif (2) Rabi (3) Both (4) None

130. The difference between the consumption of fertilizers in both the seasons is minimum during

- (1) 1996-97 (2) 1997-98 (3) 1998-99 (4) 1999-2000

Directions (Q.131 to 135) : Study the following graph carefully and answer the questions given below:

Production of food grain by a state over the years (1000 tonnes)



131. The average production of 1990 and 1991 was exactly equal to the average production of which of the following pairs of years?
(1) 1989 & 92 (2) 1989 & 95 (3) 1993 & 94 (4) 1994 & 95
132. What is the difference in the production of food grains between 1991 & 1994
(1) 10,000 tonnes (2) 15,000 tonnes (3) 500 tonnes (4) 5,000 tonnes
133. In which of the following years was the percentage increase on production from the previous year the maximum among the given years?
(1) 1991 (2) 1993 (3) 1995 (4) 1990
134. In how many of the given years was the production of foodgrain more than the average production of the given years?
(1) 2 (2) 3 (3) 4 (4) 1
135. What was the percentage drop in the production of foodgrain from 1991 to 1992?
(1) 15 (2) 20 (3) 25 (4) 30
136. If cook is called butler, butler is called manager, manager is called teacher, teacher is called clerk and clerk is called principal, who will teach in a class?
(1) manager (2) butler (3) teacher (4) clerk

Set Code : **T2**

Booklet Code : **A**

137. Fire : Ashes :: Explosion :?

- (1) sound (2) debris (3) fury (4) flame

138. In a certain code FICTITIOUS is written as IFTCTIOISU. How is POSTPONE written in that code?

- (1) OPSTOPEN (2) PSOPTNOE (3) POTSOPEN (4) OPTSOPEN

139. What would be the next term in the following series? P3C, R5F, T8I, V12L, _____

- (1) Y17O (2) X17M (3) X17O (4) X16O

140. Deepak said to Nitin, 'That boy playing with football is the younger of the two brothers of the daughter of my father's wife'. How is the boy playing football related to Deepak?

- (1) Son (2) brother (3) cousin (4) nephew

141. Choose the number which is different from other in the group

- (1) 48 (2) 12 (3) 36 (4) 58

142. If in a certain code, SWITCH is written as TVJSDG, which word would be written as CQFZE

- (1) BREAD (2) BARED (3) BRAED (4) BRADE

143. If GIVE is coded as 5137 and BAT is coded as 924 how is GATE coded?

- (1) 5427 (2) 5724 (3) 5247 (4) 2547

144. Find the missing term

AYD BVF DRH ? KGL

- (1) FMI (2) GMJ (3) HLK (4) GLJ

145. Six persons M, N, O, P, Q and R are sitting around a table. N is between R and O, M is between Q and P, R is to the left of P. Who is between M and R?

- (1) M (2) N (3) P (4) Q

Set Code : **T2**

Booklet Code : **A**

146. If 3rd of a month is 3 days after Sunday, what will be the day on the 15th of the same month?

- (1) Wednesday (2) Tuesday (3) Sunday (4) Monday

147. How many times do the hands of a clock coincide in a day?

- (1) 24 (2) 20 (3) 21 (4) 22

148. If in a certain language 943 is coded as BED and 12448 is coded as SWEET. How is 492311 coded in that language?

- (1) EDSWBS (2) TSWBDD (3) DSWTEE (4) EBWDSS

149. If '+' means ' \div ', '-' means '+', ' \times ' means '-', ' \div ' means ' \times ' then $16 \div 8 - 12 + 6 \times 8 = ?$

- (1) 120 (2) 122 (3) 124 (4) 128

150. Anthropology is related to man in the same way as Anthology is related to

- (1) nature (2) apes (3) poems (4) flowers

COMMUNICATIVE ENGLISH

151. Fill in the blank with the correct article from the given options:

_____ school is very cold. Hasn't it got _____ central heating system?

It has, but _____ central heating is broken down.

- (1) the, a, the (2) a, the, the (3) an, the, the (4) the, the, a

152. Fill in the blanks with the correct article from the given options:

_____ attempt has been made to collect funds to start _____ public library in _____ town where I live.

- (1) the, a, the (2) an, a, the (3) an, the, a (4) a, an, the

153. Complete the sentence with the right preposition from the options given below:

A university is where you study _____ a degree.

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

154. Complete the sentence with the right preposition from the options given below:

Even the new drug could not cure him _____ his illness.

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

155. Use the correct form of the tense given in the options to fill in the blank:

As soon as he _____ (finish) his exams, he went to Paris for a month.

- (1) had been finished (2) had finished
(3) has finished (4) would have finished

156. Use the correct form of the tense given in the options to fill in the blank:

You _____ energy if you switched off the lights more often.

- (1) would save (2) would have saved
(3) had saved (4) will save

157. Choose the right option to fill in the blank to convert the active sentence into a passive one.

Michael has not sent me a text message.

I _____ a text message.

- | | |
|--------------------------|------------------------|
| (1) have not sent | (2) have not been sent |
| (3) has not been sending | (4) had not been sent |

158. Choose the best word in the following to make the sentence complete.

Neither the director nor the actors _____ following the lines closely.

- | | | | |
|---------|--------|----------|-------------|
| (1) are | (2) is | (3) were | (4) are not |
|---------|--------|----------|-------------|

159. Choose the best word in the following to make the sentence complete.

Every one of the clerks _____ applied for casual leave today.

- | | | | |
|----------|---------|--------|---------|
| (1) have | (2) has | (3) is | (4) had |
|----------|---------|--------|---------|

160. Choose the correct question tag for the following.

They are repairing the old bridge now, _____?

- | | | | |
|---------------|----------------|------------------|-------------------|
| (1) are they? | (2) have they? | (3) aren't they? | (4) weren't they? |
|---------------|----------------|------------------|-------------------|

161. Identify the synonym for the word ABSURD.

- | | | | |
|----------------|--------------|----------------|----------------|
| (1) reasonable | (2) sensible | (3) ridiculous | (4) convenient |
|----------------|--------------|----------------|----------------|

162. Identify the synonym for the word NOVICE.

- | | | | |
|--------------|-----------------|------------|-------------|
| (1) beginner | (2) connoisseur | (3) expert | (4) veteran |
|--------------|-----------------|------------|-------------|

163. Identify the antonym for the word ACQUIT.

- | | | | |
|-------------|-------------|---------------|-------------|
| (1) release | (2) control | (3) exonerate | (4) condemn |
|-------------|-------------|---------------|-------------|

164. Identify the antonym for the word RECEDE.

- | | | | |
|-----------|-------------|-------------|-------------|
| (1) leave | (2) abscond | (3) advance | (4) retreat |
|-----------|-------------|-------------|-------------|

Set Code : **T2**

Booklet Code : **A**

165. Choose the one, which can be substituted for the given words/sentence.

The period between two reigns

- (1) anachronism (2) interregnum (3) gap (4) stasis

166. Choose the one, which can be substituted for the given words/sentence.

One who has an irresistible tendency to steal

- (1) stevedore (2) heretic (3) iconoclast (4) kleptomaniac

167. Choose a suffix/prefix to fill in the blank with the right form of the word given in the bracket:

The school has been given money to _____ the class rooms. (modern)

- (1) ity (2) ising (3) ize (4) un

168. Fill in the blank with the right word:

As soon as it saw us, the bird _____ away.

- (1) flue (2) flew (3) flu (4) flown

169. Fill in the blanks with the right word from the words often confused:

The film starts in a graveyard, an _____ image for the decaying society which is the theme of the film.

- (1) adversary (2) apposite (3) opposite (4) appal

170. Fill in the blanks with the right word from the words often confused:

We can't afford to become _____ about any of our products.

- (1) complacent (2) complaisant (3) complement (4) compliment

171. Identify which part of the sentence is wrong:

Every one of the survivors/of the ill-fated aircraft/have told/the same story.

- (1) 1 (2) 2 (3) 3 (4) 4