SEQUENCES AND SERIES T 7Q

121. Sum to n terms of the series $\frac{1}{1\,.\,2\,.\,3\,.\,4}+\frac{1}{2\,.\,3\,.\,4\,.\,5}+\frac{1}{3\,.\,4\,.\,5\,.6}+\cdots$, is

a) $\frac{n^3}{3(n+1)(n+2)(n+3)}$

b) $\frac{n^3+6n^2-3n}{6(n+2)(n+3)(n+4)}$

c) $\frac{15n^2+7n}{4n(n+1)(n+5)}$

d) $\frac{n^3+6n^2+11n}{18(n+1)(n+2)(n+3)}$

122. If the sum of an infinite GP and the sum of square of its term is 3, then the common ratio of the first series is

a) 1 b) $\frac{1}{2}$ c) $\frac{2}{3}$ d) $\frac{3}{2}$

123. The nth term of the series $\frac{1^3}{1}+\frac{1^3+2^3}{1+3}+\frac{1^3+2^3+3^3}{1+3+5}+\ldots$ will be

a) n^2+2n+1 b) $\frac{n^2+2n+1}{8}$ c) $\frac{n^2+2n+1}{4}$ d) $\frac{n^2-2n+1}{4}$

124. If $\log 2, \log(2^x-1)$ and $\log(2^x+3)$ are in A.P., then $2, 2^x-1, 2^x+3$ are in

a) A.P. b) H.P. c) G.P. d) None of these

125. If$\log_2 a+\log_4 b+\log_4 c=2$

$\log_9 a+\log_3 b+\log_9 c=2$

$\log_{16} a+\log_{16} b+\log_4 c=2$, then

a) $a=\frac{2}{3}, b=\frac{27}{8}, c=\frac{32}{3}$

b) $a=\frac{27}{8}, b=\frac{2}{3}, c=\frac{32}{3}$

c) $a=\frac{32}{3}, b=\frac{27}{8}, c=\frac{2}{3}$

d) $a=\frac{2}{3}, b=\frac{32}{3}, c=\frac{27}{8}$

126. If the pth term of an AP be q and qth term be p, then its rth term will be

a) $p+q+r$ b) $p+q-r$ c) $p+r-q$ d) $p-q-r$

127. The sum of the series $\frac{1}{2!}+\frac{1}{4!}+\frac{1}{6!}+\cdots$ is equal to

a) $\frac{(e^2-1)}{2}$ b) $\frac{(e-1)^2}{2e}$ c) $\frac{(e^2-1)}{2e}$ d) $\frac{(e^2-2)}{e}$

128. If $|a|<1$ and $|b|<1$, then the sum of the series $a(a+b)+a^2(a^2+b^2)+a^3(a^3+b^3)+\cdots$upto ∞, is

a) $\frac{a}{1-a}+\frac{ab}{1-ab}$ b) $\frac{a^2}{1-a^2}+\frac{ab}{1-ab}$ c) $\frac{b}{1-b}+\frac{a}{1-a}$ d) $\frac{b^2}{1-b^2}+\frac{ab}{1-ab}$

129. If $0<y<2^{1/3}$ and $x(y^3-1)=1$, then $\frac{2}{x}+\frac{2}{3x^3}+\frac{2}{5x^5}+\cdots$ is equal to

a) $\log\left(\frac{y^3}{2-y^3}\right)$ b) $\log\left(\frac{y^3}{1-y^3}\right)$ c) $\log\left(\frac{2y^3}{1-y^3}\right)$ d) $\log\left(\frac{y^3}{1-2y^3}\right)$

130. $\{a_n\}$ *and* $\{b_n\}$ be two sequences given by $a_n=(x)^{\frac{1}{2^n}}+(y)^{\frac{1}{2^n}}$ and $b_n=(x)^{\frac{1}{2^n}}-(y)^{\frac{1}{2^n}}$ for all $n\in N$, then $a_1a_2a_3\ldots a_n$ is equal to

a) $x-y$ b) $\frac{x+y}{b_n}$ c) $\frac{x-y}{b_n}$ d) $\frac{xy}{b_n}$

131. The sum of the infinite terms of the series $\frac{5}{3^2+7^2}+\frac{9}{7^2+11^2}+\frac{13}{11^2+15^2}+\ldots$ is

a) $\frac{1}{18}$ b) $\frac{1}{36}$ c) $\frac{1}{54}$ d) $\frac{1}{72}$

132. The first term of a GP is 7, the last term is 448 and sum of all term is 889, then the common ratio is

a) 5 b) 4 c) 3 d) 2

133. Sum of infinite number of terms of a G.P. is 20 and sum of their squares is 100. The common ration of the G.P. is

a) 5 b) 3/5 c) 8/5 d) 1/5

134. If three real numbers a, b, c are in harmonic progression, then which of the following is true?

a) $\frac{1}{a}, b, \frac{1}{c}$ are in AP b) $\frac{1}{bc}, \frac{1}{ca}, \frac{1}{ab}$ are in HP

c) ab, bc, ca are in HP d) $\frac{a}{b}, \frac{b}{c}, \frac{c}{a}$ are in HP

135. $i^2 + i^4 + i^6 + \ldots$ upto$(2k+1)$terms, $k \epsilon N$ is

a) 0 b) 1 c) -1 d) k

136. If $a^x = b, b^y = c, c^z = a$, then value of xyz is

a) 0 b) 1 c) 2 d) 3

137. If $a_1, a_2, \ldots a_n$ are in arithmetic progression, where $a_1 > 0$ for all i.

Then, $\frac{1}{\sqrt{a_1}+\sqrt{a_2}} + \frac{1}{\sqrt{a_2}+\sqrt{a_3}} + \ldots + \frac{1}{\sqrt{a_{n-1}}+\sqrt{a_n}}$ is equal to

a) $\frac{n^2(n+1)}{2}$ b) $\frac{n-1}{\sqrt{a_1}+\sqrt{a_n}}$ c) $\frac{n(n-1)}{2}$ d) None of these

138. Let $n(>1)$ be a positive integer then the largest integer m such that $(n^m + 1)$ divides $(1 + n + n^2 + \ldots + n^{127})$, is

a) 32 b) 63 c) 64 d) 127

139. If $1, \log_3 \sqrt{(3^{1-x} + 2)}, \log_3(4.3^x - 1)$ are in AP, then $x$equals

a) $\log_3 4$ b) $1 - \log_3 4$ c) $1 - \log_4 3$ d) $\log_4 3$

140. The value of $\log_5\left(1+\frac{1}{5}\right) + \log_5\left(1+\frac{1}{6}\right) + \log_5\left(1+\frac{1}{7}\right) + \cdots$

$+ \log_5\left(1+\frac{1}{624}\right)$ is

a) 5 b) 4 c) 3 d) 2

141. In the expansion of $2\log_e x - \log_e(x+1) - \log_e(x-1)$ the coefficient of x^{-4} is

a) $\frac{1}{2}$ b) -1 c) 1 d) None of these

142. If a, b, c are three unequal positive quantities in H.P., then

a) $a^{3/2} + c^{3/2} > 2b^{1/2}$ b) $a^5 + c^5 > 2b^5$ c) $a^2 + c^2 > 2b^3$ d) None of these

143. If the arithmetic mean of a and b is $\frac{a^n + b^n}{a^{n-1} + b^{n-1}}$, then the value of n is

a) -1 b) 0 c) 1 d) None of these

144. If G is the GM of the product of r set of observation with geometric means $G_1, G_2, \ldots G_r$ respectively, then G is equal to

a) $\log G_1 + \log G_2 + \ldots + \log G_n$ b) $G_1, G_2, \ldots, G_r$

c) $\log G_1, \log G_2, \ldots, \log G_n$ d) None of the above

145. The sum of all 2 digit odd numbers is

a) 2475 b) 2530 c) 4905 d) 5049

146. The sum of series $\frac{1}{1.2.3} + \frac{1}{3.4.5} + \frac{1}{5.6.7} + \cdots \infty$ is equal to

a) $\log_e 2 - \frac{1}{2}$ b) $\log_e 2$ c) $\log_e 2 + \frac{1}{2}$ d) $\log_e 2 + 1$

JEE MONTHWISE TEST AND NOTES SCHEDULE 2026

MAY SCHEDULE

UNIT 1 – SETS, RELATIONS AND FUNCTIONS	UNIT 1 – PHYSICS AND MEASUREMENT	UNIT 1 – SOME BASIC CONCEPTS IN CHEMISTRY
UNIT 2 – COMPLEX NUMBERS AND QUADRATIC EQUATIONS	UNIT 2 – KINEMATICS	UNIT 2 – ATOMIC STRUCTURE
UNIT 3 – MATRICES AND DETERMINANTS	UNIT 3 – LAWS OF MOTION	UNIT 3 – CHEMICAL BONDING AND MOLECULAR STRUCTURE

JUNE SCHEDULE

UNIT 4 – PERMUTATIONS AND COMBINATIONS	UNIT 4 – WORK, ENERGY AND POWER	UNIT 4 – CHEMICAL THERMODYNAMICS
UNIT 5 – BINOMIAL THEOREM AND ITS SIMPLE APPLICATIONS	UNIT 5 – ROTATIONAL MOTION	UNIT 5 – SOLUTIONS
UNIT 6 – SEQUENCE AND SERIES	UNIT 6 – GRAVITATION	UNIT 6 – EQUILIBRIUM

JULY SCHEDULE

UNIT 7 – LIMIT, CONTINUITY AND DIFFERENTIABILITY	UNIT 7 – PROPERTIES OF SOLIDS AND LIQUIDS	UNIT 7 – REDOX REACTIONS AND ELECTROCHEMISTRY
UNIT 8 – INTEGRAL CALCULUS	UNIT 8 – THERMODYNAMICS	UNIT 8 – CHEMICAL KINETICS

UNIT 9 – DIFFERENTIAL EQUATIONS	UNIT 9 – KINETIC THEORY OF GASES	UNIT 9 – CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

AUGUST SCHEDULE

UNIT 10 – CO-ORDINATE GEOMETRY	UNIT 10 – OSCILLATIONS AND WAVES	UNIT 10 – P – BLOCK ELEMENTS
UNIT 11 – THREE-DIMENSIONAL GEOMETRY	UNIT 11 – ELECTROSTATICS	UNIT 11 – D – AND F – BLOCK ELEMENTS
UNIT 12 – VECTOR ALGEBRA	UNIT 12 – CURRENT ELECTRICITY	UNIT 12 – CO-ORDINATION COMPOUNDS

SEPTEMBER SCHEDULE

UNIT 13 – STATISTICS AND PROBABILITY	UNIT 13 – MAGNETIC EFFECTS OF CURRENT AND MAGNETISM	UNIT 13 – PURIFICATION AND CHARACTERISATION OF ORGANIC COMPOUNDS
UNIT 14 – TRIGONOMETRY	UNIT 14 – ELECTROMAGNETIC INDUCTION AND ALTERNATING CURRENTS	UNIT 14 – SOME BASIC PRINCIPLES OF ORGANIC CHEMISTRY
	UNIT 15 – ELECTROMAGNETIC WAVES	UNIT 15 – HYDROCARBONS

OCTOBER SCHEDULE

JEE MATHS PYQS TEST PAPERS UPLOAD	UNIT 16 – OPTICS	UNIT 16 – ORGANIC COMPOUNDS CONTAINING HALOGENS
	UNIT 17 – DUAL NATURE OF MATTER AND RADIATION	UNIT 17 – ORGANIC COMPOUNDS CONTAINING OXYGEN
	UNIT 18 – ATOMS AND NUCLEI	UNIT 18 – ORGANIC COMPOUNDS CONTAINING NITROGEN

NOVEMBER SCHEDULE

JEE MATHS PYQS TEST PAPERS UPLOAD	UNIT 19 – ELECTRONIC DEVICES	UNIT 19 – BIOMOLECULES

147. If $\log_a ab = x$, then the value of $\log_b ab$ is

a) $\frac{x-1}{x}$ b) $\frac{x}{x-1}$ c) $\frac{x}{x+1}$ d) $\frac{x+1}{x}$

148. The value of $1.1! + 2.2! + 3.3! + \ldots + n.n!$ is

a) $(n+1)!$ b) $(n+1)! + 1$ c) $(n+1)! - 1$ d) None of these

149. The value of $\log_2[\log_2\{\log_3(\log_3 27^3)\}]$ is

a) 1 b) 0 c) 3 d) 2

150. The sum to n terms of the series $2^2 + 4^2 + 6^2 + \ldots$ is

a) $\frac{n(n+1)(2n+1)}{3}$ b) $\frac{2n(n+1)(2n+1)}{3}$ c) $\frac{n(n+1)(2n+1)}{6}$ d) $\frac{n(n+1)(2n+1)}{9}$

151. If arithmetic mean of two positive numbers is A, their geometric mean is G and harmonic mean is H, then H is equal to

a) G^2/A b) A^2/G^2 c) A/G^2 d) G/A^2

152. The sum of the infinite series $1 + \frac{1}{2!} + \frac{1.3}{4!} + \frac{1.3.5}{6!} + \cdots$ is

a) e b) e^2 c) $\sqrt{e}$ d) $\frac{1}{e}$

153. If $a_1, a_2, \ldots, a_n$ are in AP with common difference d, then the sum of the series $\sin d\,(\operatorname{cosec} a_1 \operatorname{cosec} a_2 + \operatorname{cosec} a_2 \operatorname{cosec} a_3 + \ldots + \operatorname{cosec} a_{n-1} \operatorname{cosec} a_n)$ is

a) $\sec a_1 - \sec a_n$ b) $\cot a_1 - \cot a_n$ c) $\tan a_1 - \tan a_n$ d) $\operatorname{cosec} a_1 = \operatorname{cosec} a_n$

154. The sum of a GP with common ratio 3 is 364 and last term is 243, then the number of terms is

a) 6 b) 5 c) 4 d) 10

155. If a, b, c be respectively the pth, qth and rth terms of a HP., then

$\Delta = \begin{vmatrix} bc & ca & ab \\ p & q & r \\ 1 & 1 & 1 \end{vmatrix}$ equals

a) 1 b) 0 c) -1 d) None of these

156. If $a\left(\frac{1}{b}+\frac{1}{c}\right), b\left(\frac{1}{c}+\frac{1}{a}\right), c\left(\frac{1}{a}+\frac{1}{b}\right)$ are in A.P., then

a) a, b, c are in A.P. b) $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in A.P. c) a, b, c are in H.P. d) $\frac{1}{a}, \frac{1}{b}, \frac{1}{c}$ are in G.P

157. If $\log(x+z) + \log(x-2y+z) = 2\log(x-z)$, then x, y, z are in

a) H.P. b) G.P. c) A.P. d) None of these

158. If x, y, z are three consecutive positive integers, then

$\frac{1}{2}\log_e x + \frac{1}{2}\log_e z + \frac{1}{2\,x\,z+1} + \frac{1}{3}\left(\frac{1}{2\,x\,z+1}\right)^3 + \cdots$ is equal to

a) $\log_e x$ b) $\log_e y$ c) $\log_e z$ d) None of these

159. The value of $9^{1/3} \times 9^{1/9} \times 9^{1/27} \times \ldots.\infty$, is

a) 9 b) 1 c) 3 d) None of these

160. The coefficient of x^n in the series $1 + \frac{a+bx}{1!} + \frac{(a+bx)^2}{2!} + \frac{(a+bx)^3}{3!} = \cdots\infty$ is

a) $\frac{(ab)^n}{n!}$ b) $e^b.\frac{a^n}{n!}$ c) $e^a.\frac{b^n}{n!}$ d) $e^{a+b}.\frac{(ab)^n}{n!}$

161. If the 7^{th} term of an H.P. is $1/10$ and 12^{th} term is $1/25$, then 20^{th} term is

a) $\frac{1}{37}$ b) $\frac{1}{41}$ c) $\frac{1}{45}$ d) $\frac{1}{49}$

162. If $2/3, k, 5/8$ are in AP, then value of k is

a) 15 b) 21 c) 12 d) $31/48$

163. The sum of the series $1 + \frac{1}{3}.\frac{1}{4} + \frac{1}{5}.\frac{1}{4^2} + \frac{1}{7}.\frac{1}{4^3} + \cdots\infty$ is

a) $\log_e 1$ b) $\log_e 2$ c) $\log_e 3$ d) $\log_e 4$

164. Let $f(x)$ be a polynomial function of second degree. If $f(1) = f(-1)$ and a, b, c are in AP, then $f'(a), f'(b)$ and $f'(c)$ are in

a) AP
b) GP
c) HP
d) Arithmetico-Geometric Progression

165. The sum of the series $1 \cdot 2 \cdot 3 + 2 \cdot 3 \cdot 4 + 3 \cdot 4 \cdot 5 + \ldots$ to n terms is

a) $n(n+1)(n+2)$
b) $(n+1)(n+2)(n+3)$
c) $\frac{1}{4}n(n+1)(n+2)(n+3)$
d) $\frac{1}{4}(n+1)(n+2)(n+3)$

166. If AM and GM of x and y are in the ratio $p:q$, then $x:y$ is

a) $p - \sqrt{p^2+q^2} : p + \sqrt{p^2+q^2}$
b) $p + \sqrt{p^2-q^2} : p - \sqrt{p^2-q^2}$
c) $p:q$
d) $p + \sqrt{p^2+q^2} : p - \sqrt{p^2+q^2}$

167. If a and b are two different positive real numbers, then which of the following statements is true?

a) $2\sqrt{ab} > a + b$
b) $2\sqrt{ab} < a + b$
c) $2\sqrt{ab} = a + b$
d) None of these

168. The sum of

$\frac{\frac{1}{2}\cdot\frac{2}{2}}{1^3} + \frac{\frac{2}{2}\cdot\frac{3}{2}}{1^3+2^3} + \frac{\frac{3}{2}\cdot\frac{4}{2}}{1^3+2^3+3^3} + \ldots$ upto n terms is equal to

a) $\frac{n-1}{n}$
b) $\frac{n}{n+1}$
c) $\frac{n+1}{n+2}$
d) $\frac{n+1}{n}$

169. $(\underset{n-\text{digits}}{666\ldots.6})^2 + (\underset{n-\text{digits}}{888\ldots.8})$ is equal to

a) $\frac{4}{9}(10^n - 1)$
b) $\frac{4}{9}(10^{2n} - 1)$
c) $\frac{4}{9}(10^n - 1)^2$
d) None of these

170. If $H_n = 1 + \frac{1}{2} + \frac{1}{3} + \cdots + \frac{1}{n}$, then the value of $S_n = 1 + \frac{3}{2} + \frac{5}{3} + \cdots + \frac{2n-1}{n}$ is

a) $H_n + n$
b) $2n - H_n$
c) $(n-1) + H_n$
d) $H_n + 2n$

171. The length of a side of a square is "a" metre. A second square is formed by joining the middle points of this square. Then a third square is formed by joining the middle points of the sides of the second square and so on. Then, the sum of the areas of squares which carried upto infinity is

a) a^2
b) $2a^2$
c) $3a^2$
d) $4a^2$

172. If the sum of n terms of the series

$1 + \frac{4}{5} + \frac{7}{5^2} + \frac{10}{5^3} + \cdots$ is $l + \frac{15}{16}\left(1 - \frac{1}{5^{n-1}}\right) - \frac{(3n-2)}{4(5^{n-1})}$, then l is

a) $\frac{4}{5}$
b) $\frac{5}{4}$
c) $\frac{6}{5}$
d) $\frac{5}{6}$

173. 0.5737373 ... is equal to

a) $\frac{284}{497}$
b) $\frac{284}{495}$
c) $\frac{568}{999}$
d) $\frac{567}{990}$

174. If x, y, z are in GP and $a^x = b^y = c^z$, then

a) $\log_a c = \log_b a$
b) $\log_b a = \log_c b$
c) $\log_c b = \log_a c$
d) None of these

175. In a geometric progression consisting of positive terms, each term equals the sum of the next two terms. Then, the common ratio of this progression equals

a) $\frac{1}{2}(1-\sqrt{5})$
b) $\frac{1}{2}\sqrt{5}$
c) $\sqrt{5}$
d) $\frac{1}{2}(\sqrt{5}-1)$

176. $\log_3 2, \log_6 2 \log_{12} 2$ are in

a) A.P.
b) G.P.
c) H.P.
d) None of these

177. If p, q, r are in AP and are positive, the roots of the quadratic equation $px^2 + qx + r = 0$ are all real for

a) $\left|\frac{r}{p} - 7\right| \geq 4\sqrt{3}$
b) $\left|\frac{p}{r} - 7\right| < 4\sqrt{3}$
c) All p and r
d) No p and r

178. The value of $(0.16)^{\log_{2.5}\left(\frac{1}{3}+\frac{1}{3^2}+\frac{1}{3^3}+\cdots\infty\right)}$, is

a) 2 b) 3 c) 4 d) None of these

179. The value of $\frac{\log_a(\log_b x)}{\log_b(\log_a b)}$ is

a) $\log_b a$ b) $\log_a b$ c) $-\log_a b$ d) $-\log_b a$

180. $\frac{1}{1.3}+\frac{1}{2.5}+\frac{1}{3.7}+\frac{1}{4.9}+\ldots$ is equal to

a) $2\log_e 2-2$ b) $2-\log_e 2$ c) $2\log_e 4$ d) $\log_e 4$