

Sequences and Series-2
Model Exam Question paper - 2

11th Standard

Business Maths

Reg.No. :

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I. Answer all the questions

Time : 00:45:00 Hrs

Total Marks : 35

Part-A

7 x 1 = 7

- 1) The Harmonic Mean between 3 and 27 is
(a) 12 (b) 25 (c) 150 (d) 12.5
- 2) The Harmonic Mean between the roots of the equation $\{x\}^2 - bx + c = 0$ is
(a) $2b/c$ (b) $2c/b$ (c) $2bc/b+c$ (d) none of these
- 3) If the Arithmetic Mean and Harmonic Mean of the roots of a quadratic equation are $3/2$ and $4/3$ respectively then the equation is
(a) $\{x\}^2 + 3x + 2 = 0$ (b) $\{x\}^2 - 3x + 2 = 0$ (c) $\{x\}^2 - 3x - 4 = 0$ (d) $\{x\}^2 + 2x + 3 = 0$
- 4) The A.M., G.M. and H.M. between two unequal positive numbers are themselves in
(a) G.P. (b) A.P. (c) H.P. (d) none of these
- 5) If A, G, H are respectively the A.M., G.M. and H.M. between two different two different positive real numbers then
(a) $A > G > H$ (b) $A < G > H$ (c) $A < G < H$ (d) $A > G < H$
- 6) If A, G, H are respectively the A.M., G.M and H.M. between two different positive numbers then
(a) $A = G^2/H$ (b) $G^2 = AH$ (c) $A^2 = GH$ (d) $A = GH$
- 7) For two positive real numbers G.M. = 300, H.M. = 180 their A.M. is
(a) 100 (b) 300 (c) 200 (d) 500

Part-B

6 x 2 = 12

- 8) Verify the inequality of the means for the numbers 25 and 36.
- 9) If a, b, c are three positive unequal numbers in H.P. then show that $\{a\}^2 + \{c\}^2 > \{2b\}^2$.
- 10) If x is positive and different from 1 then show that $x + \frac{1}{x} > 2$.
- 11) Write out the first 5 terms of each of the following sequences
 $\frac{n+1}{n!}$
- 12) Write out the first 5 terms of each of the following sequences
 $\frac{(-1)^{n-1}}{n+1}$
- 13) Write out the first 5 terms of each of the following sequences
 $\frac{1}{n^n}$

Part-C

2 x 3 = 6

- 14) The Arithmetic Mean of two numbers is 34 and their Geometric Mean is 16. Find the two numbers.
- 15) Write put the first 7 terms of the sequence $\{t_n\} = \left\{\frac{n+3}{2}\right\}, \text{quad } 'n' \mid 3 \mid \left(\frac{n}{2} + 1\right), \text{quad } 'n'$

Part-D

2 x 5 = 10

- 16) If a, b, c are in A.P., b, c, a are in G.P. then show that c, a, b are in H.P.
- 17) Show that the Arithmetic Mean of the roots of $\{x\}^2 - 2ax + \{b\}^2 = 0$ is the Geometric Mean of the roots of $\{x\}^2 - 2bx + \{a\}^2 = 0$ and vice versa.
