Light Questions

Q.1 Compute the following without log tables:

(A) $\log_{\sqrt{2}} 16$ **(B)** $\log_{\sqrt{2}}\left(32\sqrt[5]{4}\right)$ **(C)** $\log_{125} 625$

(D) $\log_{\sqrt{3}+\sqrt{2}} \sqrt{3}-\sqrt{2}$ **(E)** $\log_2\left(\frac{1}{512}\right)$ **(F)** $\log_{(\cot 45^\circ)}(\operatorname{cosec} 45^\circ)$

Q.2 Evaluate:

(A) $\log_{3-9} 27 - 2\log_{3-4} 9$ **(B)** $\log_3 \log_5 125$

Q.3 Evaluate:

(A) $4^{\log_2 6}$ **(B)** $4^{\log_{10} 100} + 100^{\log_{10} 4}$

Q.4 The value of $\log 99(0.\overline{9})$ is =_____

Q.5 **(i)** $4^{\log_{\frac{1}{2}} 3}$ =_____ **(ii)** $8^{\frac{1}{\log_3 2}}$ =_____

(iii) $2^{\log_3 7} - 5^{\log_8 11} - 7^{\log_3 2} - 11^{\log_8 5}$ **(iv)** $\log_4(\sqrt{4\sqrt{4}\sqrt{4}})$

(v) $\log_5\left(\log_5(\sqrt{5\sqrt{5}\sqrt{5}})\right)$ **(vi)** $\log_{\frac{1}{3}}\left(\sqrt[4]{729 \cdot \sqrt[3]{9^{-1} \cdot 27^{\frac{-4}{3}}}}\right)$

Q.6 Prove that:

(A) $7\log\frac{16}{15} + 5\log\frac{25}{24} + 3\log\frac{81}{80} = \log 2$ **(B)** $\log(1+2+3) = \log 1 + \log 2 + \log 3$

Q.7 Evaluate:

(A) $\log_{10}\sin 1^\circ \log_{10}\sin 2^\circ \log_{10}\sin 3^\circ \ldots\ldots \log_{10}\sin 179^\circ$

(B) $\log_2(\tan 1^\circ)\log_2(\tan 2^\circ)\log_2(\tan 3^\circ) \ldots\ldots\ldots \log_2(\tan 89^\circ)$

(C) $\log_{10}(\log_2 3) + \log_{10}(\log_3 4) + \cdots\ldots\ldots + \log_{10}(\log_{1023} 1024)$ =_____.

Answer Key

Q.1	**(A)** 8	**(B)** 18/5	**(C)** 4/3	**(D)** 1	**(E)** -9	**(F)** N.D.
Q.2	**(A)** 2/3	**(B)** 1				
Q.3	**(A)** 36	**(B)** 42				
Q.4	0					
Q.5	**(i)** $\frac{1}{9}$	**(ii)** $\frac{1}{27}$	**(iii)** 0	**(iv)** 1	**(v)** 0	**(vi)** -2
Q.7	**(A)** 0	**(B)** 0	**(C)** 1			