DPP: 7
Subject: Mathematics
Topic: Limits

1. Solve : $\lim_{x\to 0^+} \log_{\sin x} \sin 2x.$

2. Solve : $\lim_{x\to 0^+} (\sin x)^x$

3. Evaluate : $\lim_{x\to 0} (\operatorname{cosec} x)^x$

4. Evaluate : $\lim_{x\to 0} |x|^{\sin x}$.

5. Solve : $\lim_{x\to 0^+} (\sin x)^{\tan x}$.

6. Evaluate : $\lim_{n\to\infty} \left(\frac{e^n}{\pi}\right)^{1/n}$.

7. $\lim_{n\to\infty}\left(\sum_{r=1}^{m} r^n\right)^{\frac{1}{n}} =$

(A) m (B) m/2
(C) e^m (D) $e^{m/2}$

8. $\lim_{x\to 0} (x)^{\frac{1}{\ell n \sin x}}$

(A) 1 (B) 0
(C) e (D) does not exist

9. $\lim_{x\to 0} \left(\sec\frac{\pi}{2^x}\right)$ (ℓ nx) is equal to

(A) $-\frac{\pi}{2\ell n2}$ (B) $\frac{\pi}{2}$

(C) $\frac{\pi}{2\ell n2}$ (D) $\frac{\pi}{\pi\ell n2}$

ANSWER KEY

1.1	**2.**1	**3.**1	**4.**1	**5.**1	**6.**e	**7.a**
8.c	**9.d**					