DPP Daily Practice Problem *Physics*	*Topic : Mathematical Tools* DPP No. 4	Time : 30 min. Total Marks : 48 Max.

Type of Questions
Single choice Objective ('–1' negative marking) Q. 1 to Q. 11
Subjective Questions ('–1' negative marking) Q. 12

Q 1) If $f(x) = 3x + 4x^2 - 2$, then value of $f(-1)$ is

A) 1 B) -1
C) 2 D) 5

Q 2) $If\ f(x) = sin^2x - cos^2 x$, Then find $f(\pi/12)$

A) $\frac{\sqrt{3}}{2}$ B) $-\frac{\sqrt{3}}{2}$
C) $\frac{1}{2}$ D) $-\frac{1}{2}$

Q 3) $If\ f(x) = \frac{\frac{1}{x}+1}{\frac{1}{x}-1}$, Find the value of $f(x) + f(-x)$ is

A) $2(1 + x^2)$ B) $2\frac{(1-x^2)}{(1+x^2)}$
C) $2\frac{(1+x^2)}{(1-x^2)}$ D) $\frac{(1+x^2)}{(1-x^2)}$

Q 4) $f(x) = tan\ x$ then the vatue $f\left(\frac{\pi}{4}\right)$

A) 2 B) 3
C) 1 D) None of these

Q 5) $If\ g(x) = e^{2x} + e^x - 1\ and\ h(x) = 3x^2 - 1, the\ value\ of\ g(h(0))\ is$:

A) $\frac{1}{e^2} + e - 1$ B) $\frac{1}{e^2} + \frac{1}{e} - 1$
C) $e^2 + e - 1$ D) $\frac{1}{e^2} + \frac{1}{e}$

Q 6) If $f(x) = \sin^3 x - \cos(2x)$, then the value of $f\left(\frac{\pi}{2}\right)$ is -

A) 2 B) 0
C) -2 D) 1

Q 7) $If\ f(x) = x^2\ and\ g(x) = sin(2x);\ the\ value\ of\ g(f(\sqrt{y})) =$

A) $siny$ B) $sin2y$
C) $sin2\sqrt{y}$ D) $sin^2(2y)$

Q 8) $If\ f(x) = sinx + cosx, then\ \frac{f(x)+f(-x)}{f(x)-f(-x)}$

A) $\frac{sinx+cosx}{sinx-cosx}$ B) $cot\ x$ C) $tan\ x$ D) $\frac{sinx-cosx}{sinx+cosx}$

Q 9) $If\ f(x) = x + 1\ ;\ g(z) = z^2;\ h(y) = 3y, The\ value\ of\ f(h(g(a)))\ is$:

A) $(3a + 1)^2$ B) $3a^2 + 1$ C) $3(a^2 + 1)$ D) $3a^2$

Q 10) $If\ f(x) = \frac{x^3-1}{x^2+1}, then\ the\ value\ of\ f(f(1))is$

(i) 2 (ii) -2 (iii) 1 (iv) -1

Q 11) $If\ f(x) = 5x - 5,\ g(x) = sin^3\ x + 2cos^3x$
$The\ value\ of\ f(g(f(1)))\ is$

A) 5 B) 0 C) 10 D) -5

Q 12) $If\ f(x) = \frac{x-1}{x+1}$, Find the value of

A) $f(1)$ B) $f(0)$
C) $f(f(1))$ D) $f(2)$