Chapter

2

DIFFERENTIATION

OBJECTIVE

(1) The function $f(x) = ax^2 + bx + c$ has maximum value if

(a) $a > 0$ (b) $a < 0$

(c) $a > 1$ (d) $a > 2$

(2) If $y = e^{2x}$ then $y_2 =$ _____

(a) e^{2x} (b) $2e^{2x}$

(c) $4e^{2x}$ (d) $16e^{2x}$

(3) $\frac{d}{dx} 100^x =$

(a) $x\ 100^{x-1}$ (b) 0

(c) 1 (d) $100^x\ \ell n\ 100$

(4) $x^3 \frac{d}{dx} \ell n2x =$ _____

(a) x^2 (b) $\frac{x^2}{2}$

(c) 1 (d) None

(5) $\frac{d}{dx} (ax + b)^n =$ _____

(a) $na^{n-1} x + b$ (b) $n (ax + b)^{n-1}$

(c) $n\ a^{n-1} x$ (d) $na (ax + b)^{n-1}$

(6) $\frac{d}{dx} \sin h^{-1} x =$ _____ ***(Lahore Board 2007)***

(a) $\frac{1}{\sqrt{1 - x^2}}$ (b) $\frac{1}{\sqrt{1 + x^2}}$

(c) $\frac{-1}{\sqrt{1+x^2}}$ (d) $\frac{-1}{\sqrt{1-x^2}}$

(7) $\frac{d}{dx}\sqrt{a^2-x^2} =$ _____

(a) $\frac{-1}{\sqrt{a^2-x^2}}$ (b) $\frac{-2x}{\sqrt{a^2-x^2}}$

(c) $\frac{-2}{\sqrt{a^2-x^2}}$ (d) $\frac{-x}{\sqrt{a^2-x^2}}$

(8) $\lim_{x \to a} \frac{f(x)-f(a)}{x-a} =$ _____

(a) f(a) (b) f′(a)

(c) integral of f(x) (d) f′(x)

(9) $\frac{d}{dx}(\cot^{-1} x) =$ _____

(a) $\frac{1}{x\sqrt{x^2+1}}$ (b) $\frac{1}{x\sqrt{x^2-1}}$

(c) $\frac{-1}{1+x^2}$ (d) $\frac{1}{1+x^2}$

(10) The increment of x is denoted by _____

(a) δx (b) f′(x)

(c) f(x) (d) None of these

(11) For extreme values of f(x) at x = a, f′(x) must be

(a) 0 (b) 3.124

(c) 2.718 (d) None of these

(12) $\frac{d}{dx}\tan h^{-1} x =$ _____ ***(Lahore Board 2011)***

(a) $\frac{1}{1+x^2}$ (b) $\frac{1}{1-x^2}$

(c) $\frac{1}{\sqrt{1-x^2}}$ (d) None of these

(13) $\frac{d}{dx}(g(x))^n =$ _____

(a) $n(g(x))^{n-1}$ (b) $(g(x))^{n-1}$

(c) $n(g(x))^{n-1} g^1(x)$ (d) None

(14) $\frac{d}{dx}(\cot^2 x) =$ _____

(a) $-\operatorname{cosec}^2 x$ (b) $2 \cot x$

(c) $-2 \cot x \operatorname{cosec}^2 x$ (d) None

(15) The process of finding derivatives of functions is called _____.

(a) Differentiation (b) Increment

(c) Differential (d) None

(16) $\frac{d}{dx} \cot x =$ _____ ***(Lahore Board 2014)***

(a) $\sec^2 x$ (b) $\operatorname{cosec}^2 x$

(c) $-\operatorname{cosec}^2 x$ (d) None of these

(17) The function $f(x) = -3x^2$ is maximum at _____ ***(Lahore Board 2006)***

(a) 3 (b) 2

(c) 1 (d) 0

(18) $f(x) = f(0) + xf'(0) + \frac{x^2}{2!} f''(0) + ...$ ***(Lahore Board 2008)***

(a) Taylor Series (b) Maclaurin Series

(c) Relative Extrema (d) None

(19) $[f(x).\, g(x)]' =$ _____ ***(Lahore Board 2006)***

(a) $f(x).\, g^1(x)$ (b) $f(x)\, g^1(x) - f'(x)\, g(x)$

(c) $f'(x)\, g(x) + f(x)\, g'(x)$ (d) $f'(x) + g^1(x)$

(20) If $f'(c) = 0$ then f has relative maximum at $x = c$ is if ***(Lahore Board 2006)***

(a) $f''(c) > 0$ (b) $f''(c) < 0$

(c) $f''(c) = 0$ (d) $f''(c) \geq 0$

(21) Tenth order derivative of $x^9 - 78x^7 + 1150x^3 - 789x$ is _____

(a) $9x^8$ (b) 9

(c) 0 (d) None

(22) $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + ...$ ***(Gujranwala Board 2008)***

(a) $\sin x$ (b) $\cos x$

(c) $\ell n\,(1+x)$ (d) e^x

(23) The minimum value of the function $f(x) = x^2 - x - 2$ is _____ ***(Gujranwala Board 2008)***

(a) $\frac{-9}{2}$ (b) $\frac{-9}{4}$

(c) -1 (d) 0

(24) $\frac{d}{dx}\log_a{}^x =$ _____ ***(Gujranwala Board 2007)***

(a) $\frac{\ell na}{x}$ (b) $\frac{1}{x\,\ell na}$

(c) $\frac{1}{x}$ (d) $x\,\ell na$

(25) $\frac{d}{dx}\,a^{\sqrt{x}} =$ _____

(a) $\sqrt{x}\;a^{\sqrt{x}-1}$ (b) 0

(c) $\frac{\ell na}{2}\,a^{\sqrt{x}}\frac{1}{\sqrt{x}}$ (d) $a^{\sqrt{x}}\,\ell na$

(26) For a function f, if $f(x_2) > f(x_1)$, whenever $x_2 > x_1$, f(x) is _____

(a) constant (b) increasing

(c) decreasing (d) None

(27) $\frac{d}{dx}x^n = nx^{n-1}$ where ***(Lahore Board 2006)***

(a) $n \in C$ (b) $n \in \Re$

(c) $n \in Q$ (d) $n \in Q'$

(28) For a function f(x), if $f'(c) = 0$ & $f''(c) > 0$ then f(x) has, at $x = c$

(a) relative maxima (b) relative minima

(c) point of inflection (d) stationary point

(29) Any point where f(x) is neither increasing nor decreasing is called _____ , provided $f'(x) = 0$ at that point.

(a) stationary point (b) critical point

(c) point of inflection (d) None

(30) $\frac{d}{dx}\sin(\sin x) =$ _____

(a) $\cos(\sin x)$ (b) $\cos(\sin x)\cos x$

(c) $-\cos(\sin x)\cos x$ (d) x

(31) $\frac{d}{dx}\log_2{}^x =$ _____

(a) $\frac{1}{\ell n 2}$ (b) $\frac{2}{x}$

(c) $\frac{1}{x\,\ell n 2}$ (d) None of these

(32) If $y = e^x + x^e$ then $y_2 =$ _____

(a) e^x (b) $e^x + 1$

(c) 0 (d) None

(33) $\lim_{\delta x \to 0} \frac{f(x+\delta x) - f(x)}{\delta x} =$ _____ ***(Lahore Board 2007) (Lahore Board 2013)***

(a) 0 (b) $f'(x)$

(c) $f'(x)$ at $x = a$ (d) not defined

(34) $\frac{d}{dx}[\tan^{-1}x + \cot^{-1}x) =$ _____

(a) 0 (b) 1

(c) $\sin^{-1}x$ (d) $\cos^{-1}x$

(35) $\frac{d}{dx}(ax^m + bx^n) =$ _____ ***(Lahore Board 2009)***

(a) $ax^{m-1} + bx^{n-1}$ (b) $max^{m-1} + nbx^{n-1}$

(c) $a + b$ (d) $x^m + x^n$

(36) If $f(x) = x^{\frac{2}{3}}$ then $f'(8) =$ _____ ***(Lahore Board 2008, Lahore Board 2014)***

(a) $\frac{1}{2}$ (b) $\frac{2}{3}$

(c) $\frac{1}{3}$ (d) 3

(37) $\frac{d}{dx} \sin 2\pi =$ _____

(a) $\cos 2\pi$ (b) $2 \cos 2\pi$

(c) 0 (d) $-\cos 2\pi$

(38) $\frac{d}{dx} 2^{5x} =$ _____

(a) 5.2^{5x} (b) $5.2^{5x} \ell n2$

(c) $2^{5x} \ell n2$ (d) $\frac{2^{5x}}{\ell n2}$

(39) If $y = \cos x$ then $y_4 =$ _____ ***(Lahore Board 2011)***

(a) y (b) y_2

(c) y_3 (d) y_4

(40) Function $f(x) = \sin x$ for domain $(-\pi, \pi)$ is increasing in interval ___ ***(Lahore Board 2011)***

(a) $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$ (b) $\left[\frac{-\pi}{2}, \pi\right]$

(c) $\left[\frac{\pi}{2}, \pi\right]$ (d) $\left[-\pi, \frac{\pi}{2}\right]$

(41) $\frac{d}{dx} (\sqrt{\tan x}) =$ _____ ***(Lahore Board 2011)***

(a) $\frac{1}{2\sqrt{\tan x}} \sec^2 x$ (b) $\frac{\sec^2 x}{\sqrt{\tan x}}$

(c) $\frac{\sec x}{\sqrt{\tan x}}$ (d) $\frac{\sqrt{\sec x}}{\tan x}$

(42) $(1 + x^2) \frac{d}{dx} (\tan^{-1} x + \cot^{-1} x) =$ _____ ***(Lahore Board 2009)***

(a) -1 (b) 0

(c) 1 (d) 2

(43) If $y = \sin x$ then ***(Lahore Board 2009)***

(a) $y_4 \neq y$ (b) $y_4 = y_1$

(c) $y_4 = y$ (d) $y_4 = y_2$

(44) $\sin x =$ _____ ***(Lahore Board 2009)***

(a) $x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + ...$ (b) $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + ...$

(c) $-x - \frac{x_3}{3} + \frac{x_5}{5} - \frac{x^7}{7} + ...$ (d) $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + ...$

(45) If $f(x) = \sin x$, then slope of normal at $x = 0$ is _____

(a) -1 (b) Zero

(c) 1 (d) $\frac{\sqrt{3}}{2}$

(46) If $x = a\cos\theta$, $y = a\sin\theta$, then $\frac{dy}{dx} =$ _____

(a) $-\cot\theta$ (b) $\cot\theta$

(c) $\sec\theta$ (d) None of these

(47) If $y = \sqrt{a^2 + x^2}$, $y_1 =$ _____

(a) $\frac{-x}{\sqrt{a^2 + x^2}}$ (b) $\frac{x}{\sqrt{a^2 + x^2}}$

(c) $\frac{x}{\sqrt{a^2 + x^2}}$ (d) $\frac{1}{\sqrt{a^2 + x^2}}$

(48) If $f(x) = 3 + x$ then

(a) $f'(0) = f'(1)$ (b) $f'(0) < f'(1)$

(c) $f'(0 = f(0)$ (d) $f'(0) > f(0)$

(49) If $f(x) = \sec x$ then $f'\left(\frac{\pi}{2}\right) =$ _____

(a) zero (b) 1

(c) -1 (d) does not exist

(50) $\frac{d}{dx}(e^{2\ell nx^3}) =$

(a) $6x^5$ (b) $5x^5$

(c) $6x^6$ (d) $7x^6$

(51) If $y = e^{-2x}$ then $y'' - 2y' + y =$ _____

(a) y (b) 3y

(c) $6y$ (d) $9y$

(52) $\lim_{\delta x \to 0} \frac{\tan(x+\delta x) - \tan x}{\delta x} =$ _____

(a) $\tan x$ (b) 0

(c) ∞ (d) $\sec^2 x$

(53) $\frac{d}{dx} e^{\ell nx} =$ _____

(a) $2x$ (b) x

(c) $e^{\ell nx}$ (d) 1

(54) Maclaurin's series is valid if _____

(a) Divergent (b) Convergent

(c) Harmoni (d) None

(55) If $f'(x)$ does not change its sign before and after $x = c$, then at $x = c$, f is called ___

(a) Maxima (b) Minima

(c) Point of inflection (d) None

(56) If $f'(x) > 0$ for each $x \in (a, b)$ f is _____

(a) constant function (b) increasing function

(c) decreasing function (d) none

(57) Geometrically derivatives at any point of the curve represents ____ ***(Lahore Board 2010)***

(a) slope of chord (b) slope of tangent

(c) slope of any line (d) none

(58) $\frac{d}{dx} |x| =$ _____ at $x = 0$

(a) 1 (b) -1

(c) 0 (d) does not exist

(59) $\frac{d}{dx} [\cos h^{-1}(\sec(x)) =$ _____

(a) $\frac{1}{\sqrt{\sec^2 x - 1}}$ (b) $\cos x$

(c) $\sin x$ (d) $\sec x$

(60) If $y = \log_{10}(ax^2 + bx) =$ _____

(a) $\frac{1}{ax^2 + bx}$ (b) $\frac{1}{(ax^2 + bx)\ \ell nx10}$

(c) $\frac{2ax + b}{(ax^2 + bx)\ \ell n10}$ (d) None

(61) $\frac{d}{dx}(x^3 - 5)^4 =$ _____

(a) 0 (b) $(3x^2)^4$

(c) $4(x^3 - 5)^3$ (d) $12(x^3 - 5)^3 x^2$

(62) $\frac{d}{dx}(2x^m - 7x^n) =$ _____

(a) $2mx^{m-1} - 7nx^{n-1}$ (b) $2x^{m-1} - 7x^{n-1}$

(c) $2 - 7$ (d) 5

(63) $\frac{d}{dx}[f(x) \cos x] =$ _____

(a) $f'(x) \sin x + f(x) \cos x$ (b) $-f'(x) \sin x$

(c) $f'(x) \cos x - f(x) \sin x$ (d) None of these

(64) If $3x - 4y + 9 = 0$ $\frac{dy}{dx} =$ _____

(a) -4 (b) $\frac{4}{3}$

(c) $\frac{-3}{4}$ (d) $\frac{3}{4}$

(65) $\frac{d}{dx}(3^x - 2^x) =$ _____

(a) 0 (b) $x3^{x-1} - x2^{x-1}$

(c) $3^x \ell n3 - 2^x \ell n2$ (d) None of these

(66) $\frac{d}{dx}(e^{\tan x}) =$ _____

(a) $e^{\tan x}$ (b) $\tan x\ e^{\tan x - 1}$

(c) $e^{\tan x} \sec^2 x$ (d) $e^{\tan x}\ \ell n \tan x$

(67) If $f(x) = \begin{vmatrix} x^2 & \tan x \\ 7 & 2 \end{vmatrix}$ then $f'(x) =$ _____

(a) 0 (b) $\begin{vmatrix} 2x & \sec^2 x \\ 0 & 0 \end{vmatrix}$

(c) $\begin{vmatrix} 2x & \sec^2 x \\ 7 & 2 \end{vmatrix}$ (d) $\begin{vmatrix} x^2 & \tan x \\ 7 & 2 \end{vmatrix}$

(68) The function $f(x) = ax^2 + bx + c$ has minimum value if

(a) $a > 0$ (b) $a < 0$

(c) $a < -1$ (d) $a < -2$

(69) The function $f(x) = x^3$ is

(a) increasing for $x > 0$ (b) increasing for $x < 0$

(c) decreasing for $x > 0$ (d) both a, b

(70) If $f(x) = -\sin x$ then $f''(\cos^{-1}x) =$ _____

(a) x (b) cos x

(c) – x (d) – sin x

(71) $\frac{d}{dx}\sin x - \frac{d^2}{dx^2}(\cos x) =$ _____

(a) 2 sin x (b) 2 cos x

(c) 0 (d) – 2 sin x

(72) $\frac{d}{dx}\cos\theta^o =$ _____ ***(Lahore Board 2013)***

(a) $-\sin\theta$ (b) 0

(c) $-\sin\theta\frac{\pi}{180}$ (d) $-\frac{180}{\pi}\sin\theta$

(73) Slope of constant function is _____

(a) 1 (b) 0

(c) – 1 (d) constant

(74) If $\frac{d}{dx}(3x^3 + x) = \frac{d}{dx}(-3x^2 - 5)$ then x = _____

(a) 1 or 2 (b) 1 or 0

(c) 1 or $\frac{-1}{3}$ (d) $-\frac{1}{3}$

(75) The point at which curve $y = x^2 - 4x + 3$ has gradient -2 is _____

(a) (0, 1) (b) (2, 1)

(c) (1, 0) (d) (– 3, 2)

(76) $\frac{d}{dx}\ \ell n e^{x^3} =$ _____

(a) $3x^2$ (b) $\frac{1}{e^{x^3}}\ 3x^2$

(c) $e^{x^3}\ 3x^2$ (d) None

(77) Given $S = 980t - 490t^2$, the velocity at the instant $t = \frac{1}{2}$ is __ ***(Lahore Board 2013)***

(a) – 490 cm/ sec (b) 49 cm/ sec

(c) 490 cm/ sec (d) 490 cm

(78) $\frac{d}{dx} \cos(\cos(\cos x)) =$ _____

(a) $-\sin[\cos(\cos x)]\sin(\cos x)$

(b) $-\cos[\sin(\sin x)]\sin(\sin x)$

(c) $-\sin[\cos(\cos x)]\sin(\cos x)\sin$

(d) $\sin[\cos(\cos x)]\cos(\cos x)$

(79) If $\frac{y}{x} = \tan^{-1}\frac{x}{y}$ $\frac{dy}{dx} =$ _____

(a) $\frac{x}{y}$ (b) $\frac{y}{x}$

(c) xy (d) $\frac{1}{xy}$

(80) $\frac{d}{dx} 8^{2x-3} =$ _____

(a) 0 (b) $(2x-3)8^{2x-3-1}$

(c) $8^{2x-3}\,\ell n8 \times 2$ (d) None

(81) $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!}$ ..... is Maclaunn's series expansion of __ ***(Lahore Board 2012)***

(a) cos x (b) sin x

(c) $\ell n(1-x)$ (d) $\ell n(1+x)$

(82) Notation Df(x) for derivative used by ***(Lahore Board 2012)***

(a) cauchy (b) newton

(c) ℓeibnitz (d) Lagrange

(83) $\frac{d}{dx}\left(\frac{a}{x}\right)$ where a is constant is ***(Lahore Board 2012)***

(a) $\frac{a}{x}$ (b) $\frac{-a}{x}$

(c) $\frac{a}{x^2}$ (d) $\frac{-a}{x^2}$

(84) If $y = x^2 - 1$ $dy =$ _____ ***(Lahore Board 2012)***

(a) $x\,dx$ (b) $(x-1)\,dx$

(c) $2x\,dx$ (d) $2(x-1)dx$

(85) If $y = e^{-ax}$ then $\frac{d^2y}{dx^2} =$ _____ ***(Lahore Board 2012)***

(a) $-a^2 e^{-ax}$ (b) ae^{-ax}

(c) $-ae^{-ax}$ (d) $a^2 e^{-ax}$

(86) $\frac{d}{dx}(\sin h\, 2x) =$ _____ ***(Lahore Board 2012)***

(a) $2 \cos h\, 2x$ (b) $2 \sin h\, 2x$

(c) $-2 \cos h\, 2x$ (d) $-2 \sin h\, 2x$

(87) If $\frac{d}{dx} f(x) = \frac{x}{\sqrt{1-x^2}}$ then $f'(\sin x) =$ _____ ***(Lahore Board 2012)***

(a) $\sec^{-1}x$ (b) $\frac{1}{\cot x}$

(c) $\frac{1}{\tan x}$ (d) $\tan^{-1}x$

(88) If $y = \cos x$ then ***(Lahore Board 2012)***

(a) $y_4 + y = 0$ (b) $y_4 - y = 0$

(c) $y_2 - y = 0$ (d) $y_3 - y = 0$

(89) $\frac{d}{dx}(3)^{3x} =$ _____ ***(Lahore Board 2012)***

(a) $3^{3x}\,\ell n\, 3$ (b) $3^{3x}\,\ell n\, 9$

(c) $3^{3x}\,\ell n\, 27$ (d) $3^{3x}\,\ell n\, 18$

(90) $\frac{d}{dx}(\tan^{-1}x) =$ _____ ***(Lahore Board 2012)***

(a) $\frac{-x}{1+x^2}$ (b) $\frac{1}{1+x^2}$

(c) $\frac{1}{1-x^2}$ (d) $\frac{1}{x\sqrt{x^2-1}}$

(91) $\frac{d}{dx}[C\ f(x)] =$ _____ ***(Lahore Board 2012)***

(a) $Cf'(x)$ (b) $C'f'(x)$

(c) $[Cf(x)]'$ (d) All of these

(92) Notation for derivative was used by Newton ***(Lahore Board 2013)***

(a) $\frac{dy}{dx}$ (b) $D\ f(x)$

(c) $f'(x)$ (d) $f'(x)$

(93) $\frac{d}{dx}(\text{cosec}^2x - \cot^2x)$ is ***(Lahore Board 2013)***

(a) $\cot^2x + \text{cosec}^2x$ (b) $-2\ \text{cosec}\ x \cot x + 2 \cot x\ \text{cosec}^2x$

(c) 0 (d) $\sec^2x + \tan^2x$

(94) $\frac{d}{dx}\cos^2x$ is ***(Lahore Board 2013)***

(a) $-\sin^2x$ (b) $\sin^2x$

(c) $-\sin 2x$ (d) $\sec^2x = 0$

(95) The function $f(x) = 2 + 3x^2$ has minimum value at

(a) $x = 3$ (b) $x = 2$

(c) $x = 1$ (d) $x = 0$

(96) If $y = f(x)$ is a differentiable function, then differential of x is defined by the relation. ***(Lahore Board 2013)***

(a) $dx = \delta y$ (b) $dx = dy$

(c) $\delta x = dy$ (d) $dx = \delta x$

(97) If $y = a^{f(x)}$ then $\frac{dy}{dx} =$ _____ ***(Lahore Board 2013)***

(a) $\frac{f'(x)\, a^{f(x)}}{\ell na}$ (b) $f'(x)\, a^{f(x)}$

(c) $f'(x)\, a^{f(x)}\, \ell na$ (d) $a^{f(x)}\, \ell na$

(98) If $f(x + h) = 2^{x+h}$ then $f'(x)$ = _____

(a) 2^{x+h} (b) $\frac{2^x}{ln^2}$

(c) $2^x\, ln^2$ (d) 2^x

(99) $\frac{d}{dx}\left(\frac{x^2 - 4}{x - 2}\right)$ = _____

(a) 0 (b) 1

(c) $x + 2$ (d) $x - 2$

(100) $\frac{d}{dx} e^{\sin x}$ = _____

(a) $e^{\sin x} \cos x$ (b) $e^{\sin x} \sin x$

(c) $\sin x\, e^{\sin x - 1}$ (d) $\sin x\, e^{\sin x + 1}$

(101) If $y = ln(\sin x)$ then $\frac{dy}{dx}$ = _____

(a) $\tan x$ (b) $\cot x$

(c) $-\tan x$ (d) $-\cot x$

(102) $\frac{d}{dx} \tan r$ = _____

(a) $ln \cos x$ (b) $-ln \cos x$

(c) $-\sec^2 x$ (d) $\sec^2 x$

ANSWERS

1.	b	2.	c	3.	d	4.	a	5.	d	6.	b
7.	d	8.	b	9.	c	10.	a	11.	a	12.	b
13.	c	14.	c	15.	a	16.	c	17.	d	18.	b
19.	c	20.	b	21.	c	22.	d	23.	b	24.	b
25.	c	26.	b	27.	c	28.	b	29.	a	30.	b
31.	c	32.	d	33.	b	34.	a	35.	b	36.	c
37.	c	38.	b	39.	a	40.	a	41.	a	42.	b
43.	c	44.	a	45.	a	46.	a	47.	b	48.	a
49.	d	50.	a	51.	d	52.	d	53.	d	54.	b
55.	c	56.	b	57.	b	58.	d	59.	d	60.	c
61.	d	62.	a	63.	c	64.	d	65.	c	66.	c
67.	c	68.	a	69.	d	70.	a	71.	b	72.	c
73.	b	74.	d	75.	c	76.	a	77.	c	78.	c
79.	b	80.	c	81.	a	82.	a	83.	d	84.	c
85.	d	86.	a	87.	b	88.	b	89.	c	90.	b
91.	a	92.	c	93.	c	94.	c	95.	d	96.	d
97.	c	98.	c	99.	b	100.	a	101.	b	102.	d