CHAPTER NO 2 (HSSC – II)

(1) Notation used for derivative of $y = f(x)$ is: ?

A. $\int y dx$ B. $\frac{dy}{dx}$ C. $f''(x)$ D. $D^2 f(x)$

(2) $\lim_{\delta x \to 0} \frac{f(x+\delta x)-f(x)}{\delta x} =$

A. $f'(x)$ B. $f'(a)$ C. $f'(2)$ D. $f'(0)$

(3) $\lim_{\delta x \to 0} \frac{f(a+\delta x)-f(a)}{\delta x} =$

A. $f'(x)$ B. $f'(a)$ C. $f'(2)$ D. $f'(0)$

(4) $\lim_{\delta x \to 0} \frac{f(2+\delta x)-f(2)}{\delta x} =$

A. $f'(x)$ B. $f'(a)$ C. $f'(2)$ D. $f'(0)$

(5) $\lim_{x \to 0} \frac{f(x)-f(a)}{x-a} =$

A. $f'(x)$ B. $f'(a)$ C. $f'(2)$ D. $f'(0)$

(6) $f'(3) =$

A. $\lim_{x \to a} \frac{f(x)-f(a)}{x-a}$ B. $\lim_{x \to 0} \frac{f(x)-f(0)}{x-0}$ C. $\lim_{x \to 3} \frac{f(x)-f(3)}{x-3}$ D. $\lim_{x \to 3}[f(x) - f(3)]$

(7) $\frac{d}{dx}(x^n) =$

A. nx^{n+1} B. nx^{n-1} C. $(n-1)x^{n-1}$ D. $(n-1)x^n$

(8) $\frac{d}{dx}(c) =$? where 'c' is a constant

A. $2c$ B. c C. 0 D. ∞

(9) The derivative of an even function is always

A. Odd function B. even function C. does not exist D. both a & *b*

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

A. $n(ax^{n-1} + b)$ B. $n(ax+b)^{n-1}$ C. nax^{n-1} D. $na(ax+b)^{n-1}$

(11) $\frac{d}{dx}(ax+b)^3 =$?

A. $3a(ax+b)^3$ B. $3(ax+b)^2$ C. $3a(ax+b)$ D. $3a(ax+b)^2$

(12) If U is a variable V is a constant then $\frac{d}{du}(U^v) =$?

A. $U.V^{U-1}$ B. $V.U^{V-1}$ C. U^{V-1} D. $V.U^V$

(13) $\frac{d}{dx}(x^2) =$

A. x^2 B. x^3 C. $2x$ D. 3

(14) $\frac{d}{dx}[f(x) - g(x)] =$

A. 0 B. $f'(x)g'(x)$ C. $f'(x) - g'(x)$ D. $f'(x) + g'(x)$

(15) $\frac{d}{dx}[f(x) \pm g(x)] =$

A. $f'(x) \pm g'(x)$ B. $f'(x) \mp g'(x)$ C. $f'(x) - g'(x)$ D. $f'(x) + g'(x)$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(16) $\frac{d}{dx}[f(x) \mp g(x)] =$

A. $f'(x) \pm g'(x)$ B. $f'(x) \mp g'(x)$ C. $f'(x) - g'(x)$ D. $f'(x) + g'(x)$

(17) $\frac{d}{dx}\left(x - \frac{1}{x}\right) =$ _____.

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

(18) $\frac{d}{dx}(x^n - 2) =$

A. $n(x^{n-1} - 2)$ B. $(n-2)x^{n-1}$ C. $(n-1)x^{n-1}$ D. nx^{n-1}

(19) $\frac{d}{dx}[x^2 + f(x)] =$

A. $x^2 + f'(x)$ B. $2x + f'(x)$ C. $2x + f(x)$ D. $2x - f'(x)$

(20) $\frac{d}{dx}(ax^m + bx^n) =$

A. $ax^{m-1} + bx^{n-1}$ B. $amx^{m-1} + bnx^{n-1}$ C. $x^{m-1} + x^{n-1}$ D. $mx^{m-1} + nx^{n-1}$

(21) $\frac{d}{dx}(7x^m - 8x^n) =$

A. $7x^{m-1} - 8x^{n-1}$ B. $7mx^{m-1} + 8nx^{n-1}$

C. $mx^{m-1} - nx^{n-1}$ D. $7mx^{m-1} - 8nx^{n-1}$

(22) $\frac{d}{dx}[f(x) + g(x) + h(x)] =$

A. $f'(x) - g'(x) + h'(x)$ B. $f'(x) - g'(x) - h'(x)$

C. $f'(x) + g'(x) - h'(x)$ D. $f'(x) + g'(x) + h'(x)$

(23) $f(x) = 3x^2 - 2x + 1 \Rightarrow f'0) =$

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

(24) $\frac{d}{dx}[f(x)]^n =$

A. $n[f(x)]^{n-1}$ B. $n[f(x)]^{n-1}f'(x)$ C. $f'(x)$ D. none of these

(25) $\frac{d}{dx}(x^2 - 3)^5$

A. $10x(x^2 - 3)^4$ B. $2x(x^2 - 3)^4$ C. $5x(x^2 - 3)^4$ D. $5(x^2 - 3)^4$

(26) $\frac{d}{dx}\sqrt{x - 9} =$

A. $\frac{2}{\sqrt{x-9}}$ B. $-\frac{1}{2\sqrt{x-9}}$ C. $\frac{1}{2\sqrt{x-9}}$ D. $\sqrt{x-9}$

(27) $\frac{d}{dx}[\sqrt{x} + \frac{1}{\sqrt{x}}]^2 is:$

A. $1 - \frac{1}{x^2}$ B. $\frac{1}{2} + \frac{1}{2x^2}$ C. $\frac{1}{2} - \frac{1}{2x^2}$ D. $1 + \frac{1}{\sqrt{x}}$

(28) $\frac{d}{dx}[\sqrt{x} - \frac{1}{\sqrt{x}}]^2 =$

A. $1 - \frac{1}{2x}$ B. $1 - \frac{1}{x^2}$ C. $1 + \frac{1}{x^2}$ D. 0

(29) $If\ f(x) = 3 + x, then$

A. $f'(0) \neq f'(1)$ B. $f'(0) = f'(1)$ C. $f'(0) > f'(1)$ D. $f'(0) < f'(1)$

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Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(30) $If\ f(x) = a + x\ then\ which\ of\ the\ following\ options\ is\ correct\ ?$

A. $f'(0)f'(1) = 0$ B. $f'(0) < f'(1)$ C. $f'(0) > f'(1)$ D. $f'(0) = f'(1)$

(31) $If\ f(x) = 3 - \sqrt{x}, then\ f'(1) =$

A. $-\frac{1}{2}$ B. 0 C. $\frac{1}{2}$ D. 1

(32) $f(x) = x^{100} \Rightarrow f'(1) =$

A. 100 B. 99 C. 50 D. 0

(33) $\frac{d}{dx}[f(x)g(x)] =$

A. $f(x)g'(x) - f'(x)g(x)$ B. $f'(x)g(x) - f(x)g'(x)$

C. $f'(x)g(x) + f(x)g'(x)$ D. $f'(x)g'(x)$

(34) $\frac{d}{dx}\left[\frac{g(x)}{f(x)}\right] =$

A. $\frac{f(x)g'(x) - f'(x)g(x)}{[f(x)]^2}$ B. $\frac{f'(x)g(x) - f(x)g'(x)}{[f(x)]^2}$

C. $\frac{f'(x)g(x) - f(x)g'(x)}{[g(x)]^2}$ D. $\frac{g'(x)}{f'(x)}$

(35) $\frac{d}{dx}\left[\frac{1}{g(x)}\right] =$ _____

A. $\frac{1}{g'(x)}$ B. $\frac{-g(x)}{[g(x)]^2}$ C. $\frac{1}{[g(x)]^2}$ D. $\frac{-g'(x)}{[g(x)]^2}$

(36) $f(x) = \frac{1}{x-1} \Rightarrow f'(2) =$

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

(37) $\frac{d}{dx}\left(\frac{1}{\sqrt{x+a}}\right) is$ _____

A. $\frac{-3}{2\sqrt{x+a}}$ B. $\frac{1}{2(x+a)^{\frac{3}{2}}}$ C. $\frac{1}{2}$ D. None of these

(38) $\frac{d}{dx}\left[\frac{1}{(3t+2)^3}\right] =$

A. $\frac{9}{(3t+2)^2}$ B. $-\frac{9}{(3t+2)^4}$ C. $-\frac{9}{(3t+2)^2}$ D. $9(3t+2)^2$

(39) $What\ is\ the\ derivative\ of\ \frac{x^3-x}{x+1}\ with\ respect\ to\ x$

A. $\frac{2x^3+3x^2-2x-1}{(x+1)^2}$ B. $\frac{2x^3+3x^2-1}{x+1}$ C. $2x-1$ D. $1-2x$

(40) $If\ f(x) = x + 3, g(x) = x^2, then (g \circ f)'(x) =$

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

(41) $If\ f(x) = x + 2, g(x) = x^3, then (g \circ f)'(x) =$

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

(42) $If\ f(x) = \sqrt{x+1}, then \frac{d}{dx}\left(f^{-1}(x)\right) =$

A. 0 B. x C. $2x$ D. $3x$

(43) $If\ f(x) = \sqrt{x+1}, then \frac{d}{dx}\left(f^{-1}(0)\right) =$

A. 0 B. x C. $2x$ D. $3x$

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(44) $If\ \frac{d}{dx}(3x^3+x)=\frac{d}{dx}(-3x^2-5), then\ x=?$

A. $1\ or\ 2$ B. $\frac{-1}{3}$ C. $1\ or\ \frac{-1}{3}$ D. $1\ or\ 0$

(45) $If\ f(y)=by^3\ then\ which\ of\ the\ following\ is\ true$

$(I)\ \frac{d}{dx}f(y)=3by$ $(II)\ \frac{d}{dx}f(y)=3by^2$ $(III)\ \frac{d}{dx}f(y)=2y^2$

A. $I\ only$ B. $II\ only$ C. $I\ \&\ II\ only$ D. $None$

(46) $If\ x=at^2\ and\ y=2at\ then\ \frac{dy}{dx}\ is$_____

A. $\frac{y}{2a}$ B. $\frac{y}{2}$ C. $\frac{2a}{y}$ D. y

(47) $Differentiating\ x^9 w.r.t, x^2, we\ get$

A. $5x^9$ B. $\frac{5}{2}x^6$ C. $\frac{9}{2}x^7$ D. $3x^6$

(48) $The\ derivative\ of\ 6x^3\ w.r.t.x^2\ is$_____

A. $18x^2$ B. $Zero$ C. $9x^2$ D. $9x$

(49) $\frac{dy}{dx}=?\ If\ x=\frac{a(1-t^2)}{2at}, y=\frac{2bt}{1+t^2}$

A. $\frac{a(t^2-1)}{2bt}$ B. $\frac{b(1-t^2)}{2at}1$ C. $\frac{2at}{t^2(t-1)}$ D. $None$

(50) $\frac{d}{dx}(sinx)=$

A. sec^2x B. $-cosx$ C. $cosx$ D. $secxtanx$

(51) $\frac{d}{dx}\left(sin\frac{a}{x}\right)=?$

A. $-\frac{1}{x^2}cos\frac{a}{x}$ B. $\frac{1}{x}cos\frac{a}{x}$ C. $\frac{1}{a}cos\frac{a}{x}$ D. $None\ of\ these$

(52) $What\ is\ the\ derivative\ of\ sin\pi\ ?$

A. $cos\pi$ B. $-cos\pi$ C. $cos0$ D. 0

(53) $\frac{d}{dx}(sin2\pi)=$ _____.

A. $2cos2\pi$ B. 0 C. $cos2\pi$ D. $2sin\pi$

(54) $\frac{d}{dx}\left(sin\sqrt{x}\right)=$ _____

A. $cos\sqrt{x}$ B. $\frac{cos\sqrt{x}}{\sqrt{x}}$ C. $cos\sqrt{x}.2\sqrt{x}$ D. $\frac{cos\sqrt{x}}{2\sqrt{x}}$

(55) $\frac{d}{dx}[sin\{f(x)\}]=$

A. $cos\{f(x)\}f'(x)$ B. $cos\{f(x)\}$ C. $sin\{f'(x)\}$ D. $cos\{f'(x)\}$

(56) $\frac{d}{dx}[f(x)sinx]=$

A. $f'(x)sinx+f(x)cosx$ B. $f'(x)sin(x)-f(x)cosx$

C. $f'(x)cos(x)+f(x)sinx$ D. $f'(x)cosx$

(57) $If\ f(x)=(x-1)^2sinx\ then\ which\ of\ the\ following\ options\ is\ correct\ for\ f'(0)\ ?$

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

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Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(58) $What\ equals\ f'(0)\ if\ (x) = sin^2(3-x)?$

A. $-2sin3cos3$ B. $2sin3cos3$ C. $6sin3cos3$ D. $-2sin3$

(59) $If\ f(x) = a\ sin3x\ and\ f'\left(\frac{\pi}{3}\right) = 6, then\ what\ is\ the\ value\ of\ a\ ?$

A. 2 B. -2 C. $-\frac{1}{2}$ D. $\frac{1}{2}$

(60) $f(\sqrt{x}) = sinx \Rightarrow f'(\pi) =$

A. $2\pi cos\sqrt{\pi}$ B. $2\pi cos\pi^2$ C. $-2\sqrt{\pi}$ D. $2\sqrt{\pi}cos\sqrt{\pi}$

(61) $\frac{1}{x}\frac{d}{dx}(sinx^2) =$

A. $2xcosx^2$ B. $cosx^2$ C. $2xcos^2x$ D. $2cosx^2$

(62) $if\ f(x) = sinx, then\ f'\left[\frac{2x+3}{x-1}\right] =$

A. $cos\left[\frac{2x+3}{x-1}\right]$ B. $-cos\left[\frac{2x+3}{x-1}\right]$ C. $cos\left[\frac{x-1}{2x+3}\right]$ D. $cosx$

(63) $if\ f(x) = sinx, then\ f'(cos^{-1}3x) =$

A. $cosx$ B. $-\frac{3}{\sqrt{1-9x^2}}$ C. $\frac{3}{\sqrt{1-9x^2}}$ D. $3x$

(64) $If\ y = \sqrt{sinx + \sqrt{sinx + \sqrt{sinx + \cdots + \infty}}}\ then\ \frac{dy}{dx}(2y-1) = ?$

A. $Sinx$ B. $Cosx$ C. $Secx$ D. $Cosecx$

(65) $\frac{d}{dx}(cosx) =$

A. sec^2x B. $cosx$ C. $-sinx$ D. $secxtanx$

(66) $\frac{d}{dx}cos\,x^\circ = ?$

A. $-sin\,x^\circ$ B. $x^\circ\ sin\,x^\circ$ C. $\frac{\pi}{180}sin\,x^\circ$ D. $-\frac{\pi}{180}sin\,x^\circ$

(67) $What\ is\ the\ derivative\ of\ cos^2x\ at\ x = \frac{\pi}{4}$

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

(68) $\frac{d}{dx}cos(cos(cos\,x)) = ?$

A. $-sin[cos(cosx)].sin(cosx)$ B. $-cos[sin(sinx)].sin(sinx)$

C. $-sin[cos(cosx)].sin(cosx).sinx$ D. $sin[cos(cosx)].cos(cosx)$

(69) $\frac{d}{dx}(sin2x + cos2x) =$

A. $2(cos2x + sin2x)$ B. $(cos2x - sin2x)$

C. 0 D. $2(cos2x - sin2x)$

(70) $Derivative\ of\ sin^3x\ \ w.r.t\ \ cos^2x\ is: ?$

A. $\frac{3}{2}tanx.secx.$ B. $-\frac{3}{2}sinx$ C. $\frac{3sin^2x}{2cosx}$ D. $3sin^2x$

(71) $if\ f(x) = cosx, then\ f'(sin^{-1}x) =$

A. $-sinx$ B. $-x$ C. 1 D. $\frac{1}{\sqrt{1-x^2}}$

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Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(72) $if\ f(x) = cosx, then\ f'(\pi) =$

A. -1 B. 0 C. $\frac{1}{2}$ D. 1

(73) $If\ x = a\ cos^4\theta, y = bsin^4\theta\ then$

A. $a\frac{dy}{dx} = -b\ tan^2\theta$ B. $a\frac{dy}{dx} = -b\ tan^2\theta = 0$

C. $\frac{dy}{dx} = \frac{a}{b\ tan^2\theta}$ D. $none$

(74) $\frac{d}{dx}tan3x =$

A. $3sec^2x$ B. $3sec^23x$ C. sec^23x D. sec^2x

(75) $if\ f(x) = tanx, then\ f'[\frac{\pi}{3}] =$

A. 4 B. 2 C. 1 D. 0

(76) $if\ f(x) = tan\sqrt{\pi}, then\ f'\left[\frac{\pi^2}{16}\right] =$

A. $\frac{1}{\sqrt{\pi}}$ B. $\frac{1}{\pi}$ C. $\sqrt{\pi}$ D. π

(77) $\frac{1}{3x^2}\frac{d}{dx}(tanx^3) =$

A. sec^2x^3 B. $3x^2sec^2x^3$ C. sec^2x D. $3sec^2x$

(78) $2\sqrt{tanx}\frac{d}{dx}\sqrt{tanx} =$

A. $\frac{1}{2\sqrt{tanx}}sec^2x$ B. 0 C. sec^2x D. $\sqrt{tanx}$

(79) $if\ f(x) = tanx, then\ f'(x)cos^2x =$

A. sec^2x B. $secx$ C. 0 D. 1

(80) $\frac{d}{dx}\left[tan[sec^{-1}\sqrt{\frac{cot^2x+1}{cot^2x}}]\right] =$

A. $-cosec^2x$ B. sec^2x C. $secx$ D. $secxtanx$

(81) $\frac{d}{dx}sec\ x = ?$

A. $tanx$ B. $cosx$ C. $sec\ x\ .tan\ x$ D. $\frac{1}{cosx}$

(82) $\frac{d}{dx}sec\ 2x = ?$

A. $2.sec\ 2x.tan\ 2x$ B. $2.sec2x.tan^2x$ C. $2.secx.tanx$ D. $sec2x.tan2x$

(83) $What\ is\ the\ derivative\ of\ cosecx\ ?$

A. $-cot^2x$ B. $-cosecx\ cotx$ C. $-cotx$ D. $-sec^2x$

(84) $\frac{d}{dx}(-coscex) =$

A. $-cosecxcotx$ B. $cosecxcotx$ C. $-sinx$ D. $secxtanx$

(85) $\frac{d}{dx}(cotx) =$

A. $-cosec^2x$ B. $cosec^2x$ C. $-sinx$ D. $secxtanx$

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Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(86) $if\ f(x) = cotx, then\ f'\left(\frac{\pi}{4}\right) =$

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

(87) $Derivative\ of\ cot\ x^2\ w.r.t\ x^2\ is$:

A. $cosec\ x^2\ cot\ x^2$ B. $-2xcosec^2x$ C. $-cosec^2x^2$ D. $2x\ cotx$

(88) $if\ f(x) = -cotx, then\ f'\left(\frac{\pi}{4}\right) =$

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

(89) $\frac{d}{dx}\left[cot\left[sec^{-1}\sqrt{\frac{cot^2x+1}{cot^2x}}\right]\right] =$

A. $-cosec^2x$ B. sec^2x C. $secx$ D. $secxtanx$

(90) $If\ g(x)\ is\ inverse\ of\ f(x)\ and\ f'(x) = \frac{1}{1+x^2}\ then\ g'(x) =?$

A. $1 + x^2$ B. $1 + g(x)$ C. $1 + [g(x)]^2$ D. $none\ of\ these$

(91) $Find\ the\ value\ of\ \frac{d}{dx}(sin^{-1}\sqrt{ax})$

A. $\frac{a}{\sqrt{1-ax}}$ B. $\frac{1}{\sqrt{1-ax}}$ C. $\frac{\sqrt{a}}{\sqrt{1-ax}}$ D. $\frac{\sqrt{a}}{a\sqrt{x(1-ax)}}$

(92) $If\ f(x) = sin^{-1}x\ then\ what\ is\ the\ value\ of\ f'(0)?$

A. -1 B. 0 C. 1 D. ∞

(93) $\frac{d}{dx}\left(sin^{-1}\left(Cos\left(\frac{\pi}{2} - x\right)\right)\right) =?$

A. $\frac{\pi}{2}$ B. $Cosx$ C. 1 D. $-Sinx$

(94) $\frac{d}{dx}\left(cos^{-1}\frac{x}{a}\right) =$ _____.

A. $\frac{-a}{\sqrt{a^2-x^2}}$ B. $\frac{-a}{\sqrt{x^2-a^2}}$ C. $\frac{-1}{\sqrt{a^2-x^2}}$ D. $\frac{-1}{a\sqrt{a^2-x^2}}$

(95) $\frac{d}{dx}(cos^{-1}3x) =?$

A. $\frac{-1}{\sqrt{1-9x^2}}$ B. $\frac{1}{\sqrt{1-9x^2}}$ C. $\frac{3}{\sqrt{1-9x^2}}$ D. $\frac{-3}{\sqrt{1-9x^2}}$

(96) $\frac{d}{dx}\left(\frac{1}{cos^{-1}x}\right) =?$

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

(97) $What\ is\ the\ value\ of\ \sqrt{1-x^2}\ \frac{d}{dx}\ (sin^{-1}x + cos^{-1}x)$

A. $\sqrt{1-x^2}$ B. 2 C. $\frac{1}{x}$ D. 0

(98) $\frac{d}{dx}(cosec^{-1}x) =$

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $-\frac{1}{x\sqrt{x^2-1}}$ C. $\frac{1}{1+x^2}$ D. $cot^{-1}x$

(99) $if\ f(x) = cosec^{-1}x, then\ f'(secx) =$

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $secxtanx$ C. $cos^2xcosecx$ D. $-cos^2xcosecx$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(100) $\frac{d}{dx}(sec^{-1}x) =$

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $-\frac{1}{x\sqrt{x^2-1}}$ C. $\frac{1}{1+x^2}$ D. $cot^{-1}x$

(101) $if\ f(x) = sec^{-1}x, then\ f'(secx) =$

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $secxtanx$ C. $cos^2xcosecx$ D. $-cos^2xcosecx$

(102) $\frac{d}{dx}(tan^{-1}x) =$

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $-\frac{1}{1+x^2}$ C. $\frac{1}{1+x^2}$ D. $cot^{-1}x$

(103) $\frac{d}{dx}[tan^{-1}(-x)] is\ equal\ to$:

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

(104) $If\ y = tan(ptan^{-1}x)\ then\ (1+x^2)y_1 =?$

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

(105) $If\ \frac{y}{x} = tan^{-1}\frac{x}{y}, then \frac{dy}{dx} =?$

A. $\frac{x}{y}$ B. $\frac{y}{x}$ C. xy D. $\frac{1}{xy}$

(106) $If\ f(x) = tan^{-1}x, then\ f'(cotx) =$

A. $\frac{1}{1+x^2}$ B. sin^2x C. cos^2x D. sec^2x

(107) $\frac{d}{dx}tan^{-1}\left[\frac{sin\,2x}{1+cosx}\right] =$

A. 0 B. 1 C. 2 D. 3

(108) $\frac{d}{dx}\left[tan^{-1}\sqrt{\frac{1-cosx}{1+cosx}}\right] =$

A. 1 B. $\frac{1}{2}$ C. 0 D. -1

(109) $\frac{d}{dx}\left[cot^{-1}\sqrt{\frac{1+cosx}{1-cosx}}\right] =$

A. 1 B. $\frac{1}{2}$ C. 0 D. -1

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

A. $\frac{1}{x\sqrt{x^2-1}}$ B. $-\frac{1}{1+x^2}$ C. $\frac{1}{1+x^2}$ D. $tan^{-1}x$

(111) $If\ f(x) = cot^{-1}x, then\ f'(tanx) =$

A. $-\frac{1}{1+x^2}$ B. $-sin^2x$ C. sec^2x D. $-cos^2x$

(112) $\frac{d}{dx}cot^{-1}\left[\frac{1+cosx}{sin\,2x}\right] =$

A. 3 B. 2 C. 1 D. 0

(113) $What\ is\ the\ value\ of\ (1+x^2)\frac{d}{dx}(tan^{-1}x - cot^{-1}x)?$

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

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(114) $(1+x^2)\frac{d}{dx}(tan^{-1}x + cot^{-1}x)$

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

(115) $\frac{d}{dx}(e^x) =$

A. 0 B. 1 C. xe^{x-1} D. e^x

(116) $\frac{d}{dx}\left[e^{f(x)}\right] =$

A. $e^{f(x)}$ B. $e^{(x)}$ C. $\frac{e^{f(x)}}{f'(x)}$ D. $e^{f(x)}f'(x)$

(117) $\frac{d}{dx}[e^{tanx}] =$

A. $e^{tanx}\, sec^2x$ B. e^{tanx} C. $e^{tanx}\, lnsec^2x$ D. $e^{tanx}\, lntanx$

(118) $\frac{d}{dx}e^{e^x} = ?$

A. e^{2x} B. $e^x e^{e^x}$ C. e^e D. $\frac{1}{e^x}$

(119) *Derivative of* $In\, e^{x^3}$ *w.r.t x is*

A. $3x^2$ B. $3e^{x^2}$ C. $\frac{1}{3e^x}$ D. $\frac{1}{e^x}$

(120) *If* $y = e^{20x}$ *then* y_4*?*

A. $16000\, e^{20x}$ B. $160000\, e^{20x}$ C. $1600000\, e^{20x}$ D. $16000000\, e^{20x}$

(121) $\frac{d}{dx}(2e^3) =$ _____.

A. $2e^3 + lne$ B. $6e^2$ C. 0 D. $2e^3 + lne^3$

(122) *Which of the following represents* $f'(x)$ *if* $e^{f(x)} = 1 + x^2$ *?*

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

(123) *Which of the following represents* $\frac{dy}{dx}$ *if* $sinx = e^y$ *?*

A. $-cotx$ B. $tanx$ C. $-tanx$ D. $cotx$

(124) $\frac{d}{dx}a^x =$ _____

A. a^x B. $a^x lna$ C. $a^x lnx$ D. $\frac{a^x}{lna}$

(125) *If* $f(x) = a^x$ *then* $f'(x)$*is* _____

A. $a^x lna$ B. a^x C. lna D. *None of these*

(126) $\frac{d}{dx}(5^x) =$

A. $\frac{5^x}{ln5}$ B. $\frac{ln5}{5^x}$ C. $5^x ln5$ D. 5^x

(127) $\frac{d}{dx}(7^x)$ *?*

A. $7^x lnx$ B. $7^x ln7$ C. $7^x lnx$ D. *None of these*

(128) $\frac{d}{dx}(a^{2x}) =$ _____.

A. $2a^{2x} lna$ B. $2xa^{2x-1}$ C. $a^{2x} lna$ D. $2a^{2x}$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(129) *If* $f(x+h)=a^{x+h}$ *then* $f'(x)$*is equal to*:

A. $a^x \ln a$ B. $a^x \ln x$ C. $a^{x+h} \ln a$ D. $a^{x+h} \ln(x+h)$

(130) $\frac{d}{dx}(5^x+2^x)=$

A. $5^x ln5 - 2^x ln2$ B. $5^x ln5 + 2^x ln2$ C. $5^x + 2^x$ D. $5^x - 2^x$

(131) $\frac{d}{dx}7^{4x-3}=?$

A. $\frac{4x-3}{In\ 7}$ B. $4x\ In\ 7$ C. $(4x-3)In\ 7$ D. $4.7^{4x-3} In\ 7$

(132) $\frac{d}{dx}(3^{5x})=$ _____

A. $3^{5x} ln3$ B. 5.3^{5x} C. $5.3^{5x}\ ln3$ D. $3^{5x}\ lne$

(133) $\frac{d}{dx}\left[10^{sinx}\right]=$

A. 10^{cosx} B. $10^{sinx}\ cosxln10$ C. $10^{sinx}\ ln10$ D. $10^{cosx}\ ln10$

(134) $\frac{d}{dx}(lnx)=$

A. 0 B. $\frac{1}{x}$ C. 1 D. e^x

(135) $\frac{d}{dx}[lnf(x)]=$

A. $\frac{1}{x}$ B. $\frac{1}{f(x)}$ C. $\frac{f'x}{f(x)}$ D. $f(x)f'(x)$

(136) *What is the derivative of* $ln(e^x)$*?*

A. -1 B. 0 C. $\frac{1}{2}$ D. 1

(137) $\frac{d}{dx}\left(a^{lnx}\right)=$ _____

A. $a^{lnx} lnx$ B. $a^{lnx}.\frac{1}{x}$ C. $\frac{a^{lnx}\ lna}{x}$ D. *None of these*

(138) *If* $y=e^{In\ sin\,x^2}$ *then* $\frac{dy}{dx}=?$

A. $Cosx^2$ B. $x^2 Cosx^2$ C. $2xCosx^2$ D. $Sinx^2$

(139) *Evaluate* $\frac{d}{dx}\left(ln\left(\frac{1}{e^{ax}}\right)\right)$

A. a B. $-ae^{ax}$ C. $-a$ D. ae^{ax}

(140) $x\frac{d}{dx}(lnx)=$

A. 0 B. x C. 1 D. lnx

(141) $x^3\frac{d}{dx}(ln2x)=$

A. x^2 B. $2x^2$ C. $3x^2$ D. $6x^2$

(142) *Evaluate* $\frac{d}{dx}\left(ln\left(\frac{1}{e^{ax}}\right)\right)$

A. a B. $-ae^{ax}$ C. $-a$ D. ae^{ax}

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(143) $\frac{d}{dx}\ In\ (In\ x) = ?$

A. $\frac{1}{x}$ B. $\frac{1}{x\ In\ a}$ C. $\frac{1}{x\ In\ x}$ D. $\frac{x}{In\ x}$

(144) $\frac{d}{dx}\ In\ x^x = ?$

A. $Inx+1$ B. $(lnx)^x$ C. $x^x . lnx$ D. $x^x . ln(ex)$

(145) $\frac{d}{dx}(In\ x)^{In\ x} = ?$

A. $(In\ x)^{In\ x}\left(\frac{1+In\ In\ x}{x}\right)$ B. $(In\ x)^{In\ x}(1 + In\ In\ x)$

C. $(In\ x)^{In\ x}\left(\frac{In\ In\ x}{x}\right)$ D. $none$

(146) $Evaluate\ \frac{d}{dx}\left(ln\left(\frac{1}{e^{ax}}\right)\right)$

A. a B. $-ae^{ax}$ C. $-a$ D. ae^{ax}

(147) $\frac{d}{dx}(log_a x) = ?$

A. $\frac{lna}{x}$ B. $\frac{1}{x}$ C. $\frac{1}{xlna}$ D. $\frac{a}{xlna}$

(148) $\frac{d}{dx}(e^x + e^{-x}) = ?$

A. $2sinhx$ B. $2coshx$ C. $sinhx$ D. $coshx$

(149) $\frac{d}{dx}\ sinhx = ?$

A. $\frac{e^x - e^{-x}}{2}$ B. $coshx$ C. $\frac{1}{cosec\ hx}$ D. $\frac{e^x + e^{-x}}{2}$

(150) $\frac{d}{dx}cosh\ x = ?$

A. $sinhx$ B. $-sinhx$ C. $sechx$ D. $none\ of\ these$

(151) $\frac{d}{dx}cosh2x =$ _____

A. $sinh2x$ B. $2sinh2x$ C. $-sinh2x$ D. $-2sinh2x$

(152) $\frac{d}{dx}(cosechx) =$

A. $-cosechxcothx$ B. $cosechxcothx$ C. $sechxtanhx$ D. $-sechxtanhx$

(153) $\frac{d}{dx}(sechx) =$

A. $tanh^2 x$ B. $tanhx$ C. $sechxtanhx$ D. $-sechxtanhx$

(154) $\frac{d}{dx}(cothx) =$

A. $sech^2 x$ B. $-sech^2 x$ C. $-cosech^2 x$ D. $cosechx$

(155) $Which\ of\ the\ following\ is\ equal\ to\ \frac{d}{dx}(sinh^{-1}x)\ ?$

A. $\frac{1}{\sqrt{1+x^2}}$ B. $\frac{-1}{\sqrt{1+x^2}}$ C. $\frac{1}{\sqrt{1-x^2}}$ D. $\frac{-1}{\sqrt{1-x^2}}$

(156) $if\ f(x) = sinh^{-1}x, then\ f'(tanx) =$

A. $cosx$ B. $sec^2 x$ C. $\frac{1}{\sqrt{1+x^2}}$ D. $sinx$

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Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(157) $\frac{d}{dx}(cosh^{-1}x) =$

A. $\frac{1}{\sqrt{1-x^2}}$ B. $\frac{1}{\sqrt{1+x^2}}$ C. $\frac{1}{\sqrt{x^2-1}}$ D. $-\frac{1}{\sqrt{1-x^2}}$

(158) $\frac{1}{\sqrt{x^2-1}}$ *is the derivative of* _____

A. $cos^{-1}x$ B. $sin^{-1}x$ C. $cosh^{-1}x$ D. $sinh^{-1}x$

(159) $\frac{d}{dx}cos\,ech^{-1}x =?$

A. $\frac{1}{x\sqrt{1+x^2}}$ B. $\frac{1}{1-x^2}$ C. $\frac{-1}{\sqrt{1+x^2}}$ D. $\frac{-1}{x\sqrt{1+x^2}}$

(160) $\frac{d}{dx}(sech^{-1}x) =$

A. $-\frac{1}{x\sqrt{1-x^2}}$ B. $\frac{1}{x\sqrt{1-x^2}}$ C. $\frac{1}{x\sqrt{x^2-1}}$ D. $-\frac{1}{x\sqrt{1+x^2}}$

(161) *if* $f(x) = -sech^{-1}x$, *then* $f'(sinx) =$

A. $\frac{1}{x\sqrt{1-x^2}}$ B. $2cosec2x$ C. $cosx$ D. $2sec2x$

(162) $\frac{d}{dx}(tanh^{-1}x) =$

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

(163) $\frac{d}{dx}(coth^{-1}x) =$

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

(164) *If* $3x + 4y + 7 = 0$ *then* $\frac{dy}{dx} =$ _____

A. $-\frac{3}{7}$ B. $\frac{-3}{4}$ C. $\frac{-3-7}{4}$ D. $\frac{-4}{3}$

(165) *If* $x^2 + y^2 = 4$ *then* $\frac{dy}{dx}$ *is*_____

A. $-\frac{y}{x}$ B. $\frac{x}{y}$ C. $-\frac{x}{y}$ D. *None of these*

(166) *If* $x^{\frac{3}{4}} + y^{\frac{3}{4}} = a^{\frac{3}{4}}$ *then* $\frac{dy}{dx} =?$

A. $\left(\frac{y}{x}\right)^{\frac{3}{4}}$ B. $-\left(\frac{y}{x}\right)^{\frac{1}{4}}$ C. $-\left(\frac{x}{y}\right)^{\frac{1}{4}}$ D. $\left(-\frac{y}{x}\right)^{\frac{3}{4}}$

(167) *if* $f(x) = x^3 + 2x + 9$, *then* $f''(x) =$

A. $3x^2 + 2$ B. $3x^2$ C. $6x$ D. $2x$

(168) *If* $y = (2x + 5)^{\frac{3}{2}}$, *then* y_2 *will be*:

A. $\frac{3}{2x+5}$ B. $3(2x + 5)^{\frac{1}{2}}$ C. $\frac{3}{\sqrt{2x+5}}$ D. $6(2x + 5)^{-\frac{1}{2}}$

(169) *if* $f(x) = x^3 + 2x + 9$, *then* $f'''(0) =$

A. 0 B. 2 C. 3 D. 6

(170) *What is the fourth derivative of* $-\frac{1}{6}x^3 + \frac{1}{4}x^2 + 2x + 7$?

A. 7 B. 2 C. 0 D. -1

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(171) $If\ f(x) = (2x+1)^4\ then\ what\ will\ be\ the\ 4th\ derivative\ of\ f(x)\ at\ x = 0?$

A. 0 B. 48 C. 324 D. 384

(172) $If\ y = 7x^6 + 3x^4 - 5x^3 + 2, then\ which\ one\ is\ ture$

A. $y_5 = 0$ B. $y_6 = 0$ C. $y_7 = 0$ D. $y_8 = 0$

(173) $\frac{d^2y}{dx^2}\ for\ x^2 + y^2 = a^2\ is$

A. $\frac{-a^2}{y}$ B. $\frac{-a^2}{y^3}$ C. $\frac{a^2}{y^2}$ D. $\frac{y^3}{a^2}$

(174) $If\ y = 2x^5 - 3x^4 + 4x^3 + x - 2\ then\ y_2 = ?$

A. $40x^3 - 36x^2 + 24x$ B. $\frac{dy^2}{dx}$ C. $y_2 - y_1$ D. dy_2

(175) $If\ y = \frac{2}{x}\ then\ y + \frac{1}{2}\frac{d^2y}{dx^2} = ?$

A. $\frac{2+x}{x^2}$ B. $\frac{2+2x}{x^2}$ C. $\frac{2(1+x^2)}{x^3}$ D. $\frac{x^3-1}{2}$

(176) $Value\ of\ \frac{d^2}{dx^2}(-cosx) at\ x = \frac{\pi}{4}\ is:$

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

(177) $if\ f(x) = sinx, then\ f''(sin^{-1}x) =$

A. $\frac{1}{\sqrt{1-x^2}}$ B. $cosx$ C. $-sinx$ D. $-x$

(178) $if\ \frac{d}{dx}(sinx) - \frac{d^2}{dx^2}(cosx) =$

A. $2sinx$ B. $2cosx$ C. 0 D. $-2sinx$

(179) $if\ \frac{d}{dx}(cosx) + \frac{d^2}{dx^2}(cosx) =$

A. $2sinx$ B. $2cosx$ C. 0 D. $-2sinx$

(180) $if\ \frac{d}{dx}(\text{sinx}) + \frac{d^2}{dx^2}(cosx) =$

A. $2sinx$ B. $2cosx$ C. 0 D. $-2sinx$

(181) $If\ y = e^x\ sinx, then\ \frac{d^2y}{dx^2} - 2\frac{dy}{dx} + 2y = ?$

A. $1 - x^2$ B. 0 C. $2x$ D. $x + 2$

(182) $if\ f(x) = sinx, then\ f'''(0) =$

A. -1 B. 0 C. 0.5 D. 1

(183) $if\ f(x) = cosx, then\ f'''(\pi) =$

A. -1 B. 0 C. 0.5 D. 1

(184) $if\ f(x) = sinx, then\ f''(cos^{-1}x) =$

A. x B. $cosx$ C. $-sinx$ D. $-x$

(185) $if\ y = sin3x, then\ y_4 =$

A. $3sin3x$ B. $9sin3x$ C. $27sin3x$ D. $81sin3x$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(186) $if\ y = sinx, then\ =$

A. $y_4 \neq y$ B. $y_4 = y$ C. $y_4 = y_1$ D. $y_4 = y_2$

(187) $if\ y = e^x\ =, then\ y_4\ =$

A. 0 B. e^x C. $2e^x$ D. $4e^x$

(188) $if\ y = e^{2x}\ =, then\ y_4\ =$

A. $16e^{2x}$ B. $8e^{2x}$ C. $4e^{2x}$ D. $2e^{2x}$

(189) $If\ y = lnx, then\ y_4 =?$

A. $\frac{-3}{x^4}$ B. $\frac{-6}{x^4}$ C. $\frac{-5}{x^4}$ D. $\frac{4}{x^4}$

(190) $If\ y = sin\,x\ then:$

A. $y - y_2 = 0$ B. $y - y_3 = 0$ C. $y - y_4 = 0$ D. $y + y_4 = 0$

(191) $If\ y = cos\,ax\ then\ y_8 =?$

A. $a^8\,cos(ax + 4\pi)$ B. $a^8\,cos(ax + 2\pi)$ C. $a^8\,cos(ax + 5\pi)$ D. $a^8\,cos(ax + 3\pi)$

(192) $f(x) = f(0) + f'(0)x + \frac{f''(0)}{2!}x^2 + \cdots$ *this expansion of* $f(x)$ *is called* ____*series.*

A. *Taylor's* B. *Binomial* C. *Maclaurin's* D. *Power*

(193) $ln(1 + x) =$

A. $x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ B. $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

C. $x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \cdots$ D. $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots$

(194) $-ln(1 - x) =$

A. $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \cdots$ B. $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

C. $-x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \cdots$ D. $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots$

(195) $cosx =$

A. $x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ B. $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

C. $-x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \cdots$ D. $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots$

(196) $sinx =$

A. $x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$ B. $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

C. $-x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} - \cdots$ D. $x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \cdots$

(197) *The Maclaurin series expansion of* e^x *is*

A. $1 + x - \frac{x^2}{2} + \frac{x^3}{3} - \cdots$ B. $1 - x - \frac{x^2}{2} + \frac{x^3}{3} - \cdots$

C. $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots$ D. *none of these*

(198) $e^{2x} =$

A. $1 + 2x + \frac{4x^2}{2!} + \frac{8x^3}{3!} + \cdots$ B. $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$

C. $1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \cdots$ D. $1 - x + \frac{x^2}{2!} - \frac{x^3}{3!} + \cdots$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(199) *A function is said to be increasing fucntion if*_____

A. $f(x_1) = f(x_2)$ B. $f(x_2) > f(x_1)$ C. $f(x_2) < f(x_1)$ D. *None of these*

(200) *If* $f(x) = x^3 - 27x + 5$ *is increasing when*

A. $x < -3$ B. $|x| > 3$ C. $|x| < 3$ D. $x \geq 3$

(201) *If* $f(x) = \sqrt{x^2 - 2x + 1}$, *on the interval* $[0,2]$, ... *then* $f'(x) = ?$

A. 1 B. -1 C. 0 D. *Does not exist*

(202) *The function* $f(x) = 4x - x^2$ *is increasing in the interval*_____

A. $0 \leq x \leq 2$ B. $2 \leq x < 4$ C. $0 < x < 2$ D. $0 < x \leq 2$

(203) *When* $f(x) = 4x - x^2$ *then* $f(x)$ *is increasing for the interval:*

A. $(-\infty, 2)$ B. $[-2, 2]$ C. $(2, \infty)$ D. $(-\infty, \infty)$

(204) *the function* $f(x) = x^3$ *is*

A. *increasing for* $x > 0$ B. *decreasing for* $x < 0$

C. *decreasing* $x > 0$ D. *constant for* $x > 0$

(205) *The derivative of striclty decreasing function is always*_____.

A. *Negative* B. *Positive* C. *Zero* D. *Both Positive and Negative*

(206) *In which of the following intervals* $f(x) = x^2$ *decreases?*

A. $(-\infty, +\infty)$ B. $(0,0)$ C. $(-\infty, 0)$ D. $(0, +\infty)$

(207) *The function* $f(x) = -3x^2$ *has maximum value at*

A. $x = 3$ B. $x = 2$ C. $x = 1$ D. $x = 0$

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

A. $a > 0$ B. $a < 0$ C. $a > 1$ D. $a > 2$

(209) *The maximum value of the function* $f(x) = sinx\ cosx$ *is*

A. 1 B. 2 C. $\frac{1}{2}$ D. 0

(210) *The minimum value of a function occurs when its derivative is* _____

A. *Equal to zero* B. *Greater than zero*

C. *Less than zero* D. *Equal to one*

(211) *The minimum value of the function* $f(x) = x^2 - x - 2$ *is*

A. $-\frac{9}{2}$ B. $-\frac{9}{4}$ C. -1 D. 0

(212) *The minimum value of the function* $f(x) = 5x^2 - 6x + 2$ *is*

A. $\frac{1}{5}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. 0

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

A. $a > 0$ B. $a < 0$ C. $a < -1$ D. $a < -2$

(214) *The minimum value of the function* $y = x^3 - 3x^2$ *is*

A. $y(1) = -13$ B. $y(2) = -4$ C. $y(2) = 4$ D. $y(3) = 0$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

(215) *Minimum value of* $\sqrt{e^{x^2}-1}$ *is* ……

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

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

A. $(0,1)$ B. $(1,0)$ C. $(2,0)$ D. $(-3,2)$

(217) The deceleration of a point, when it is momentarily at rest, which is moving along a straight line with a velocity $16 - t^2$ is_____

A. $4m/sec^2$ B. $6m/s^2$ C. $2m/sec^2$ D. $8m/sec^2$

(218) The point on the curve $y^2 = x$, the tangent at which makes an angle of $\frac{\pi}{4}$ with x − axis is_____

A. $\left(\frac{1}{2},\frac{1}{4}\right)$ B. $\left(\frac{1}{2},\frac{1}{2}\right)$ C. $(2,4)$ D. $\left(\frac{1}{4},\frac{1}{2}\right)$

(219) The point of inflexion on the curve $a^2y = (x-b)^3$ is_____

A. $(a,0)$ B. $(b,0)$ C. (a,b) D. $(1,a)$

(220) If $x = c$ is point of inflection of the function $y = f(x)$ then $f'(c) = 0, f''(c) = 0$ and which of the following is also true for $\varepsilon > 0$.

A. $f''(c+\varepsilon)f''(c-\varepsilon) < 0$ B. $f''(c+\varepsilon)f''(c-\varepsilon) > 0$

C. $f''(c+\varepsilon)f''(c-\varepsilon) = 0$ D. $f''(c+\varepsilon)f''(c-\varepsilon) = \infty$

(221) A rectangle is of perimeter 176m. What will be its maximum area?

A. $1936m^2$ B. $1854m^2$ C. $2110m^2$ D. $1836m^2$

(222) A cylinder is contained in a sphere of radius "r". What will be its height if its volume is maximum?

A. $\frac{r}{\sqrt{3}}$ B. $r\sqrt{3}$ C. $\frac{2r}{\sqrt{3}}$ D. $2\sqrt{3r}$

Prepared By:
Mr. Mohsin Abbas Shah (Principal: **The Scholars Science College**, Lecturer: **National Academy of Sciences**)
Ms Fouzia Zishan (**HOD Mathematics**), Ms Masooma Kazmi (**Lecturer Mathematics**)

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1	B	51	D	101	C	151	B	201	A
2	A	52	D	102	C	152	A	202	D
3	B	53	B	103	B	153	D	203	A
4	C	54	B	104	D	154	C	204	A
5	A	55	A	105	B	155	A	205	A
6	C	56	A	106	B	156	A	206	C
7	B	57	A	107	B	157	C	207	D
8	C	58	A	108	B	158	C	208	B
9	A	59	B	109	B	159	D	209	C
10	D	60	B	110	B	160	A	210	C
11	D	61	D	111	D	161	B	211	B
12	B	62	A	112	C	162	A	212	A
13	C	63	D	113	D	163	B	213	A
14	C	64	B	114	B	164	C	214	B
15	A	65	C	115	D	165	B	215	C
16	B	66	D	116	D	166	C	216	B
17	D	67	B	117	A	167	C	217	D
18	D	68	C	118	B	168	C	218	D
19	B	69	D	119	A	169	D	219	B
20	B	70	B	120	B	170	C	220	B
21	D	71	B	121	C	171	D	221	A
22	D	72	B	122	D	172	C	222	C
23	D	73	A	123	D	173	B		
24	B	74	B	124	B	174	A		
25	A	75	A	125	A	175	C		
26	C	76	B	126	C	176	A		
27	A	77	A	127	B	177	D		
28	B	78	C	128	A	178	B		
29	B	79	A	129	A	179	B		
30	D	80	B	130	B	180	C		
31	A	81	C	131	D	181	B		
32	A	82	A	132	C	182	A		
33	B	83	B	133	B	183	B		
34	A	84	B	134	B	184	B		
35	B	85	A	135	C	185	D		
36	C	86	D	136	D	186	B		
37	B	87	C	137	C	187	B		
38	B	88	A	138	C	188	A		
39	C	89	A	139	C	189	B		
40	C	90	C	140	C	190	C		
41	D	91	D	141	A	191	A		
42	C	92	C	142	C	192	C		
43	A	93	C	143	C	193	D		
44	B	94	C	144	A	194	A		
45	D	95	D	145	A	195	B		
46	C	96	C	146	C	196	A		
47	C	97	D	147	C	197	C		
48	D	98	B	148	A	198	A		
49	D	99	D	149	B	199	B		
50	C	100	A	150	A	200	B		