

11<sup>th</sup> public Exam

B

one marks Answer key

Section-I

1) (d)  $\frac{1}{2} ab \sin C$

2) (b)  $\{1, -1\}$

3) (d)  $x + 2y = 3$

4) (c)  $(-\frac{\pi}{2}, \frac{\pi}{2})$

5)  $-1 < x < 1$

b)  $x + a + b + c = 0$   
 $x = -(a + b + c)$

7) a)  $\begin{cases} x & x < 1 \\ \sqrt{x} & x \geq 1 \end{cases}$

8)  $(x-1)^2 + (y-1)^2 = 1$

9) (c)  $f(x) = \cot x$   $(-\frac{\pi}{2}, \frac{\pi}{2})$  என்ற இடைவெளியில் (9)

10) (d)  $\tan^{-1}(e^x) + c$

11) (a)  $P(A \cup B) = P(A) + P(B)$

12) (c)  $\pm \frac{1}{|a|}$

13) (a)  $24 C_{10}$

14) (a)  $(-\infty, 0)$

15) (d) 160, 640

16) (c)  $\frac{2}{5}$

17) (a)  $x - 2 \log(x+1) + c$

18) (a) 7

19) (a) 20

20) (b)  $-\frac{\pi}{6}$

(2)  $f(x) = \begin{cases} \frac{+(x+\beta)}{(x+\beta)} = 1 \\ \frac{-(x+\beta)}{(x+\beta)} = -1 \end{cases}$

(4)  $x = \frac{\pi}{2}$  அல்லது  $x$  உறையறுக்கப்படவில்லை,  $\lim_{x \rightarrow \frac{\pi}{2}} = \infty$

(7)  $f(x) = \begin{cases} x & x < 1 \\ x^2 & x \geq 1 \end{cases}$

$y = f(x) = x \Rightarrow f^{-1}(y) = x$   
 $y = x$   
 $f^{-1}(y) = y$   
 $f^{-1}(x) = x$

$y = f(x) = x^2 \Rightarrow f^{-1}(y) = x$   
 $y = x^2$   
 $\sqrt{y} = x$   
 $\Rightarrow f^{-1}(y) = \sqrt{y}$   
 $\Rightarrow f^{-1}(x) = \sqrt{x}$

(10)  $\int \frac{e^x}{e^{2x} + 1} dx = \int \frac{e^x}{(e^x)^2 + 1} dx$   $t = e^x$   
 $dt = e^x \cdot dx$   
 $= \int \frac{dt}{t^2 + 1}$   
 $= \tan^{-1}(t) + c$   
 $= \tan^{-1}(e^x) + c$

(14)  $f(x) = \frac{1}{\sqrt{|x|} - x}$   
 $|x| - x > 0 \Rightarrow |x| > x$   $x = 1, 1 > 1 \times$   $\exists 0 < x < 1$   $|x| > x$   
 $x = 0, 0 > 0 \times$   $x = -1, 1 > -1 \checkmark$   $\exists x < 0, |x| > x$   
 $\therefore D_f = (-\infty, 0)$

(d)  $t=0, A=40 \Rightarrow t=1, A=2(40), t=2, A=160, t=4, A=640$

(16)  $\lim_{x \rightarrow 0^-} \frac{3x + |x|}{6x + |x|} = \lim_{x \rightarrow 0^-} \frac{3x - x}{6x - x} = \lim_{x \rightarrow 0^-} \frac{2x}{5x} = \frac{2}{5}$ ,  $|x| = \begin{cases} -x & x < 0 \\ x & x \geq 0 \end{cases}$

(17)  $\int (\frac{x-1}{x+1}) dx = \int \frac{(x+1) - 2}{x+1} dx = \int dx - \int \frac{2}{x+1} dx = x - 2 \log|x+1| + c$

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