MATH

(BENGALI Version)

1. $\frac{x^2}{144}+\frac{y^2}{25}=1$. উপরের নাভিগামী যে বৃত্তের কেন্দ্র $(0,\sqrt{2})$ বিন্দুতে তার ব্যাসার্ধ হচ্ছে —

   (A) 9 (B) 7 (C) 11 (D) 5

2. ΔABC একটি ত্রিভুজ tanA, tanB হল $pq(x^2+1)=r^2x$ সমীকরণের দুটি বীজ। তাহলে ΔABC হবে—

   (a) সমকোণী ত্রিভুজ (b) সূক্ষ্মকোণী ত্রিভুজ (c) স্থূলকোণী ত্রিভুজ (d) সমবাহু ত্রিভুজ

3. A এবং B সেটে যথাক্রমে p ও q সংখ্যক element আছে। তাহলে সেট A থেকে সেট B এর মধ্যে সম্পর্ক (relation) এর সংখ্যা—

   (A) 2^{p+q} (B) 2^{pq} (C) p+q (D) pq

4. যদি জটিল তলে z_1, z_2 দুটি নির্দিষ্ট বিন্দু এবং z একটি যে কোনো বিন্দু হয় এবং $|z-z_1|+|z-z_2|=2|z_1-z_2|$ হয় তাহলে z বিন্দুর সঞ্চার পথ—

   (A) একটি উপবৃত্ত (B) z এবং z_2 বিন্দু সংযোগকারী একটি সরলরেখা
   (C) একটি অধিবৃত্ত (D) z_1 এবং z_2 বিন্দু সংযোগকারী সরলরেখার সমদ্বিখণ্ডক।

5. যদি $S=\frac{2}{1}\,{}^nC_0+\frac{2^2}{2}\,{}^nC_1\frac{2^3}{3}\,{}^nC_2+\ldots+\frac{2^{n+1}}{n+1}\,{}^nC_n$ হয় তাহলে S সমান

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

6. 7টি consonant এবং 4টি vowal-এর মধ্যে থেকে 3টি consonant ও 2টি vowel নিয়ে কয়টি অর্থপূর্ণ শব্দ গঠন করা যাবে।

   (A) 24800 (B) 25100 (C) 25200 (D) 25400

7. 1!+2!+3!+...+11! কে 12 দিয়ে ভাগ করলে ভাগশেষ হয় —

   (A) 9 (B) 8 (C) 7 (D) 6

8. যে কোনো বাস্তব সংখ্যা x-এর জন্য $f(x)=\frac{x}{1!}+\frac{3}{2!}x^2+\frac{7}{3!}x^3+\frac{15}{3!}x^4+\ldots$ f(x)=0 সমীকরণের

   (A) কোনো বাস্তব সমাধান নেই (B) কেবলমাত্র একটি বাস্তব সমাধান আছে
   (C) কেবমাত্র দুটি বাস্তব সমাধান আছে (D) অসংখ্য বাস্তব সমাধান আছে

9. যদি $x^2+px+q=0$ সমীকরণের α,β দুটি বীজ হয় তাহলে $\alpha^3+\beta^3$ এবং $\alpha^4+\alpha^2\beta^2+\beta^4$ -এর মান যথাক্রমে

   (A) $3pq-p^3$ এবং $p^4-3p^2q+3q^2$ (B) $-p(3q-p^2)$ এবং $(p^2-q)(p^2+3q)$
   (C) $pq-4$ এবং p^4-q^4 (D) $3pq-p^3$ এবং $(p^2-q)(p^2-3q)$

10. একটি ঝোঁকশূন্য ছক্কা কে 12 বার নিক্ষেপ করা হোল। প্রতিটি face দু'বার করে পড়ার সম্ভাবনা হোল—

(A) $\frac{12!}{6!6!6^{12}}$ (B) $\frac{2^{12}}{2^6 6^{12}}$ (C) $\frac{12!}{2^6 6^{12}}$ (D) $\frac{12!}{2^6 6^{12}}$

11. $\tan\frac{\pi}{5}+2\tan\frac{2\pi}{5}+4\cot\frac{4\pi}{5}$ -এর মান

(A) $\cot\frac{\pi}{5}$ (B) $\cot\frac{2\pi}{5}$ (C) $\cot\frac{4\pi}{5}$ (D) $\cot\frac{3\pi}{5}$

12. $y = x^2$ এবং $x = y^2$ বক্র দ্বারা সীমাবদ্ধ ক্ষেত্রের ক্ষেত্রফল —

(A) 1/3 (B) 1/2 (C) 1/4 (D) 3

13. $4x+3y+35=0$ সরলরেখার নিকটবর্তী এবং $y^2 = 64x$ অধিবৃত্তের উপর অবস্থিত বিন্দুর স্থানাঙ্ক–

(A) (9, –24) (B) (1, 81) (C) (4, –16) (D) (–9, –24)

14. $({}^nC_1)^2+({}^nC_2)^2+({}^nC_3)^2 \ldots+({}^nC_n)^2$ -এর মান

(A) $({}^{2n}C_n)^2$ (B) ${}^{2n}C_n$ (C) ${}^{2n}C_n+1$ (D) ${}^{2n}C_n-1$

15. কোনো পরিবারে 2 জন শিশুর মধ্যে 1 জন বালক। দ্বিতীয় শিশুটি বালিকা হওয়ার সম্ভাবনা —

(A) 1/2 (B) 1/3 (C) 2/3 (D) 7/10

16. 20^{301} সংখ্যাটিতে অঙ্কে সংখ্যা (যেখানে $\log 10^2 = 0.3010$)

(A) 602 (B) 301 (C) 392 (D) 391

17. যদি $\sqrt{y} = \cos^{-1}x$, $(1-x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} = c$ অবকল সমীকরণকে সিদ্ধ করে তাহলে c-এর মান —

(A) 0 (B) 3 (C) 1 (D) 2

18. $(1+x^2)\frac{dy}{dx}+y=e^{\tan^{-1}x}$ অবকল সমীকরণের সমাকল গুণাঙ্ক (I. F) –

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

19. $\log_{101}\log_7\left(\sqrt{x+7}+\sqrt{x}\right)=0$ সমীকরণের সমাধান

(A) 3 (B) 7 (C) 9 (D) 49

20. যদি f(x) একটি অন্তরকলনযোগ্য অপেক্ষক হয় এবং f′(4) =5 হয় তাহলে

$$= \lim_{x\to 2}\frac{f(4)-f(x)^2}{x-2}$$ এর মান

(A) 0 (B) 5 (C) 20 (D) –20

21. $\lim_{x\to 0}\dfrac{\int_0^{x^2}\cos(t^2)dt}{x\sin x}$ -এর মান

(A) 1 (B) –1 (C) 2 (D) $\log_e 2$

22. $\sqrt{x+1}-\sqrt{x-1}=\sqrt{4x-1}$ সমীকরণের সমাধান সংখ্যা

(A) 2 (B) 0 (C) 3 (D) 1

23. যদি $\lim_{x\to 0}\dfrac{2a\sin x-\sin 2x}{\tan^3 x}=1$ হয় তাহলে a এর মান

(A) 2 (B) 1 (C) 0 (D) –1

24. যদি $f(x)=\begin{cases}2x^2+1, \le 1\\ 4x^3-1, x>1\end{cases}$ হয়, তাহলে $\int_0^2 f(x)dx$ -এর মান

(A) 47/3 (B) 50/3 (C) 1/3 (D) 47/2

25. যদি $\sin^{-1}\left(\dfrac{x}{13}\right)+\operatorname{cosec}^{-1}\left(\dfrac{13}{12}\right)=\dfrac{\pi}{2}$ হয়, তবে x -এর মান —

(A) 5 (B) 4 (C) 12 (D) 11

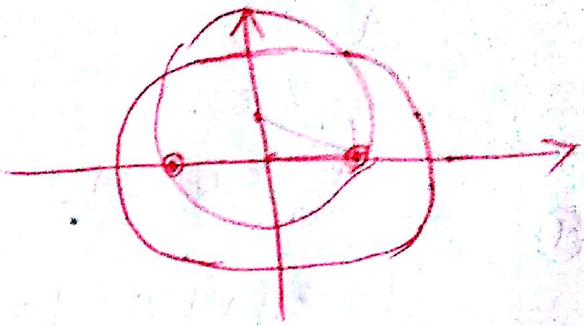
———— × ————

Q. No.

① $\frac{x^2}{144}+\frac{y^2}{25}=1$

$\Rightarrow \frac{x^2}{(12)^2}+\frac{y^2}{5^2}=1$

$\Rightarrow a=12,\ b=5$



বৃত্তের কেন্দ্র $(0,\sqrt{2}) \Rightarrow$

$\therefore$ Eccentricity $e=\sqrt{1-\frac{b^2}{a^2}}=\sqrt{1-\frac{25}{144}}=\sqrt{\frac{144-25}{144}}=\frac{\sqrt{119}}{12}$

$\therefore ae=\frac{\sqrt{119}}{12}\times 12=\sqrt{119}.$

$\therefore$ Req ব্যাসার্ধ $=\sqrt{(\sqrt{119})^2+(\sqrt{2})^2}=\sqrt{119+2}=\sqrt{121}=11$

Option (C)

② $pqx^2-r^2x+pq=0$

$\Rightarrow x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}=\frac{r^2\pm\sqrt{r^4-4.p^2q^2}}{2pq}$

$=\frac{r^2\pm\sqrt{r^4-4p^2q^2}}{2pq}.$

$\therefore$ ~~Option~~

$\therefore \tan A+\tan B=$

$\tan A.\tan B=1$

$\left[\begin{array}{l} a+b=\frac{r^2}{pq} \\ ab=\frac{pq}{pq}=1 \end{array}\right.$

$\Rightarrow \tan A=\cot B$

$\Rightarrow \tan A=\tan(\frac{\pi}{2}-B)$

$\Rightarrow A+B=\pi/2$ সমকোণী ত্রিভুজ.

Option (A).

(3)

Q. No.

$A \to p$
$B \to q$.

$A \to B$ হবে. pq. Optim (B).

(4)

$|z-z_1| + |z-z_2| = 2|z_1-z_2|$.

$z = x+iy$, $z_1 = x_1+iy_1$
$z_2 = x_2+iy_2$

$\Rightarrow |x+iy-(x_1+iy_1)| + |x+iy-(x_2+iy_2)|$
$= 2|(x_1-x_2)+i(y_1-y_2)|$

$\Rightarrow \sqrt{(x-x_1)^2+(y-y_1)^2} + \sqrt{(x-x_2)^2+(y-y_2)^2}$
$= 2\sqrt{(x_1-x_2)^2+(y_1-y_2)^2}$

$\Rightarrow (x-x_1)^2+(y-y_1)^2 + 2[\{(x-x_1)+(y-y_1)\}\{(x-x_2)+(y-y_2)\}]$
$+ (x-x_2)^2+(y-y_2)^2 = 4\{(x_1-x_2)^2+(y_1-y_2)^2\}$

$\Rightarrow x^2-2xx_1+x_1^2+y^2-2yy_1+y_1^2+2(x-x_1)(x-x_2)+2(x-x_1)(y-y_2)$
$+2(y-y_1)(x-x_2)+2(y-y_1)(y-y_2)+x^2-2xx_2+x_2^2+y^2-2yy_2+y_2^2$
$= 4\{x_1^2+x_2^2-2x_1x_2+y_1^2+y_2^2-2y_1y_2\}$.

?

Q. No.

5

$$S = \frac{2}{1}\cdot {}^nC_0 + \frac{2^2}{2}\,{}^nC_1 + \frac{2^3}{3}\cdot {}^nC_2 + \cdots + \frac{2^{n+1}}{n+1}\cdot {}^nC_n$$

$$= \frac{2^{n-1} - 1}{n+1}$$

6

$${}^7C_3 \times {}^4C_2$$

$$= \frac{7!}{3!\,4!} \times \frac{4!}{2!\,2!}$$

$$= \frac{7\times\cancel{6}\times5\times\cancel{4!}}{\cancel{3}\times\cancel{2}\times\cancel{4!}} \times \frac{3\times\cancel{4}^{2}\times\cancel{2!}}{\cancel{2!}\,\cancel{2!}}$$

$$= 35\times 6$$

$$= 210$$

$${}^7P_3 \times {}^4P_2$$

$$= \frac{7!}{(7-3)!} \times \frac{4!}{(4-2)!}$$

$$= \frac{7\times6\times5\times\cancel{4!}}{\cancel{4!}} \times \frac{4\times3\times\cancel{2!}}{\cancel{2!}}$$

$$= 30\times7\times12$$

$$= 360\times 7$$

$$= 2520$$

7

$$1! + 2! + 3! + \cdots + 11!$$

$$= 43954713$$

(A) 9

[$n(n+1)$.

8

$$f(x) = \frac{x}{1!} + \frac{3}{2!}x^2 + \frac{7}{3!}x^3 + \frac{15}{3!}x^4 + \cdots$$

$$= \frac{x}{1!} + \frac{1+2}{2!}x^2 + \frac{2^2+3}{3!}x^3 + \frac{3^2+6}{3!}x^4 + \cdots$$

সমীকরণের বাস্তব সমাধান নাই (A)

9

$$\alpha+\beta = -p$$

$$\alpha\beta = 2.$$

$$\therefore \alpha^3+\beta^3 = \cancel{(\alpha+\beta)(\alpha^2+\alpha\beta+\beta^2)}$$

$$= (\alpha+\beta)^3 - 3\alpha\beta(\alpha+\beta)$$

$$= -p^3 + 3qp = 3pq - p^3$$

Q. No.

$\alpha^4+\beta^4+\alpha^2\beta^2$

$=(\alpha^2+\beta^2)^2-2\alpha^2\beta^2+\alpha^2\beta^2$

$=((\alpha+\beta)^2-2\beta\alpha)^2-\alpha^2\beta^2$

$=(p^2-2q)^2-q^2$

$=(p^2-q)(p^2-3q)$

$\pi-2$

(10) Optem (B).

(11)

$\tan\frac{\pi}{5}+2\tan\frac{2\pi}{5}+4\cot\frac{4\pi}{5}$

$=\tan\frac{\pi}{5}+\tan\frac{2\pi}{5}+\tan\frac{2\pi}{5}+4\cot\frac{4\pi}{5}$

$= \cancel{\tan\left(\frac{\pi}{5}\right)} \cancel{-\cot\frac{4\pi}{5}+\tan\frac{2\pi}{5}-\cot 2\pi}$

$=\tan\frac{\pi}{5}+\tan\frac{2\pi}{5}+\tan\frac{2\pi}{5}+4\cot\left(\pi-\frac{\pi}{5}\right).$

$=\tan\frac{\pi}{5}+\tan\frac{2\pi}{5}+\tan\frac{2\pi}{5}-4\cot\frac{\pi}{5}$

Page - 2

Q. No.

(12)

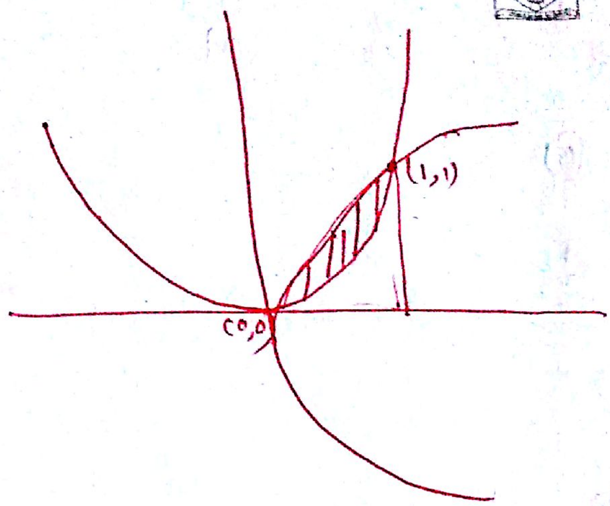
$y = x^2$, $x = y^2$

$\therefore \int_0^1 y\,dx - \int_1^0 x\,dy$

$= \int_0^1 x^2 dx - \int_1^0 y^2 dy$

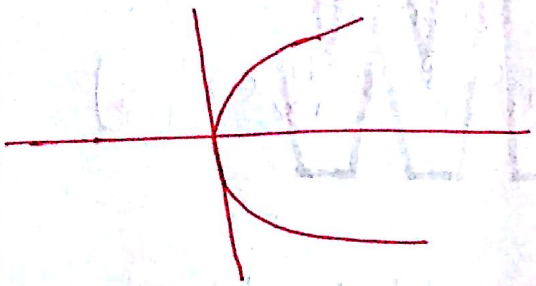
$= \left[\frac{x^3}{3}\right]_0^1 - \left[\frac{y^3}{3}\right]_1^0$

$= \frac{1}{3} + \frac{1}{3} = 2/6 = 1/3$



(13)

$4x + 3y + 35 = 0$



$y^2 = 64x$

$y^2 = 4ax$

$\therefore 4a = 64 \Rightarrow a = 16$

(14)

$1^2 + 2^2 + 3^2 + \cdots n^2$

$= \frac{n(n+1)(2n+1)}{6}$

$= \frac{{}^nC_n({}^nC_n+1)[2\,{}^nC_n+1)}{6}$

$=$

Q. No.

(15) $1/2$ (A)

(16)

(17)

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

$\therefore \frac{dy}{dx} = 2\cos^{-1}x \cdot \frac{-1}{\sqrt{1-x^2}}$

$\frac{d^2y}{dx^2} = 2.y.\left[\frac{-(-2x)}{2\sqrt{1-x^2}} + \frac{dy}{dx}\cdot(-)\frac{1}{\sqrt{1-x^2}}\right]$

$\Rightarrow (1-x^2)y_1^2 = 4y$

$\Rightarrow (1-x^2).2y_1y_2 + y_1^2.(-2x) = 4y_1$

$\Rightarrow (1-x^2)y_2 - xy_1 = 2$

$(1-x^2)y_1^2 = 4y$

Option (D).

(18) $(1+x^2)\frac{dy}{dx} + y = e^{\tan^{-1}x}$.

$\Rightarrow \frac{dy}{dx} + \frac{y}{1+x^2} = \frac{e^{\tan^{-1}x}}{1+x^2}$

$IF = e^{\int\frac{1}{1+x^2}dx} = e^{\tan^{-1}x}$.

Integrating factor is $e^{\tan^{-1}x}$

Q. No.

(19). $\log_{101}\log_7(\sqrt{x+7}+\sqrt{x})=0$

$\log_{101}(\log_7(\sqrt{x+7}+\sqrt{x}))=\log_{101}100$

$\Rightarrow \log_7(\sqrt{x+7}+\sqrt{x})=101$

$\Rightarrow (\sqrt{x+7}+\sqrt{x})=$??

20. $f(4)=5$, $\lim\limits_{x\to 2}\frac{f(4)-f(x)^2}{x-2}$

$=\lim\limits_{x\to 2}\frac{5-(f(x))^2}{x-2}$

$=\lim\limits_{x\to 2}\frac{-2f(x).f'(x)}{1}$

$= -2f(2).f'(2)$

??

Q. No.

(21) $\lim_{x\to 0} \int_0^{x^2} \frac{\cos(t^2)dt}{x\sin x}$

(22)
$\sqrt{x+1} - \sqrt{x-1} = \sqrt{4x-1}$

$\Rightarrow x+1+(x-1) - 2\sqrt{(x+1)(x-1)} = 4x-1$

$\Rightarrow 2x - 2\sqrt{(x+1)(x-1)} = 4x-1$

$\Rightarrow -2\sqrt{(x+1)(x-1)} = 4x-1-2x$

$\Rightarrow -2\sqrt{(x+1)(x-1)} = \cancel{4x-3}\ 2x-1$

$\Rightarrow \left(-2\sqrt{x^2-1}\right)^2 = (2x-1)^2$

$\Rightarrow 4(x^2-1) = 4x^2 - 2.2x.1+1$

$\Rightarrow \cancel{4x^2}-4 = \cancel{4x^2} - 4x+1$

$\Rightarrow +4x = +5$

$\Rightarrow x = 5/4.$

(24)
$\int_0^2 f(x)dx = \int_0^1 (2x^2+1)\,dx + \int_1^2 (4x^3-1)\,dx$

$= \left[\frac{2x^3}{3}+x\right]_0^1 + \left[4\frac{x^4}{4} - x\right]_1^2$

$= \frac{2}{3}+1+16-2-\cancel{1}+\cancel{1}$

$= 17+\frac{2}{3}-2 = \frac{51+2-6}{3} = \frac{47}{3}$

MATH

(ENGLISH Version)

1. Let the equation of an ellipse be $\frac{x^2}{144}+\frac{y^2}{25}=1$. Then the radius of the circle with entre $(0,\sqrt{2})$ and passing through the foci of the ellipse is–

   (A) 9 (B) 7 (C) 11 (D) 5

2. In a ΔABC, tanA and tanB are the roots of $pq(x^2+1)=r^2x$. Then ΔABC is–

   (A) a right angled triangle (B) an acute angled triangle
   (C) an obtuse angled triangle (D) an equilateral triangle

3. Let the number of elements of the sets A and B be p and q respectively. Then the number of relations from the set A to the set B is–

   (A) 2^{p+q} (B) 2^{pq} (C) p+q (D) pq

4. Let z_1, z_2 be two fixed comlex numbers in the Argand plane and z be an arbitrary point satisfying $|z-z_1|+|z-z_2|=2|z_1-z_2|$. Then the locus of z will be–

   (A) an ellipse (B) a straight line joing z_1 and z_2
   (C) a parabola (D) a bisector of the line segment joining z_1 and z_2

5. Let $S=\frac{2}{1}\,{}^nC_0+\frac{2^2}{2}\,{}^nC_1\frac{2^3}{3}\,{}^nC_2+\ldots+\frac{2^{2+1}}{n+1}\,{}^nC_n$ Then S equals

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

6. Out of 7 consonants and 4 vowels, the number of words (not necessarily meaningful) that can be made, each consisting of 3 consonants and 2 vowels, is

   (A) 24800 (B) 25100 (C) 25200 (D) 25400

7. The remainder obtained when 1!+2!+3!+...+11! is divided by 12 is

   (A) 9 (B) 8 (C) 7 (D) 6

8. For every real number x, let $f(x)=\frac{x}{1!}+\frac{3}{2!}x^2+\frac{7}{3!}x^3+\frac{15}{3!}x^4+\ldots$ Then the equation f(x)=0 has

   (A) no real solution (B) exactly one real solution
   (C) exactly two real solutions (D) inifinite number of real solutions.

9. If α, β are the roots of the quadratic quation $x^2+px+q=0$, then the values of $\alpha^3+\beta^3$ and $\alpha^4+\alpha^2\beta^2+\beta^4$ are respectively–

   (A) $3pq-p^3$ and $p^4-3p^2q+3q^2$ (B) $-p(3q-p^2)$and $(p^2-q)(p^2+3q)$
   (C) $pq-4$ and p^4-q^4 (D) $3pq-p^3$ and $(p^2-q)(p^2-3q)$

10. A fair six faced die is rolled 12 times. The probability that eacth face turns up twice is equal to

(A) $\frac{12!}{6!6!6^{12}}$ (B) $\frac{2^{12}}{2^6 6^{12}}$ (C) $\frac{12!}{2^6 6^{12}}$ (D) $\frac{12!}{2^6 6^{12}}$

11. The value of $\tan\frac{\pi}{5}+2\tan\frac{2\pi}{5}+4\cot\frac{4\pi}{5}$ is

(A) $\cot\frac{\pi}{5}$ (B) $\cot\frac{2\pi}{5}$ (C) $\cot\frac{4\pi}{5}$ (D) $\cot\frac{3\pi}{5}$

12. The area of the region bounded by the curves $y = x^2$ and $x = y^2$ is

(A) 1/3 (B) 1/2 (C) 1/4 (D) 3

13. The point on the parabola $y^2 = 64x$ which is nearest to the line $4x+3y+35=0$ has coordinats –

(A) (9, –24) (B) (1, 81) (C) (4, –16) (D) (–9, –24)

14. The value of the sum $({}^nC_1)^2+({}^nC_2)^2+...+({}^nC_n)^2$is

(A) $({}^{2n}C_n)^2$ (B) ${}^{2n}C_n$ (C) ${}^{2n}C_n+1$ (D) ${}^{2n}C_n-1$

15. Ram is visiting a friend. Ram knows that his friend has 2 children and 1 of them is a boy. Assuming that a child is euqlly likely to be a boy or a girl, then the probability that the other child is a girl, is

(A) 1/2 (B) 1/3 (C) 2/3 (D) 7/10

16. The number of digits in 20^{301} (given $\log 10^2 = 0.3010$) is

(A) 602 (B) 301 (C) 392 (D) 391

17. If $\sqrt{y} = \cos^{-1}x$ then it satisfies the differential equation

$\left(1-x^2\right)\frac{d^2y}{dx^2} - x\frac{dy}{dx} = c$ where c is equal to

(A) 0 (B) 3 (C) 1 (D) 2

18. The integrating factor of the differential equation $\left(1+x^2\right)\frac{dy}{dx} + y = e^{\tan^{-1}x}$

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

19. the solution of the equation $\log_{101}\log_7\left(\sqrt{x+7}+\sqrt{x}\right) = 0$ is

(A) 3 (B) 7 (C) 9 (D) 49

20. Let f(x) be a differentiable function and f'(4) =5. Then $= \lim_{x\to 2}\frac{f(4)-f(x)^2}{x-2}$

(A) 0 (B) 5 (C) 20 (D) –20

21. The value of $\lim_{x\to 0} \frac{\int_0^{x^2} \cos(t^2)dt}{x\sin x}$ is

(A) 1 (B) –1 (C) 2 (D) $\log_e 2$

22. If $\lim_{x\to 0} \frac{2a\sin x - \sin 2x}{\tan^3 x}$ exists and is equal to 1, then the value of a is

(A) 2 (B) 1 (C) 0 (D) –1

23. If $f(x) = \begin{cases} 2x^2+1, \le 1 \\ 4x^3-1, x>1 \end{cases}$ then $\int_0^2 f(x)dx$ is

(A) 47/3 (B) 50/3 (C) 1/3 (D) 47/2

24. The number of solution(s) of the equation $\sqrt{x+1} - \sqrt{x-1} = \sqrt{4x-1}$ is /are

(A) 2 (B) 0 (C) 3 (D) 1

25. If $\sin^{-1}\left(\frac{x}{13}\right) + \operatorname{cosec}^{-1}\left(\frac{13}{12}\right) = \frac{\pi}{2}$ then the value of x is

(A) 5 (B) 4 (C) 12 (D) 11

———— × ————

Raf work