NU-FAST

CS & ENGG

PAST PAPERS

Part-2

22. $\begin{bmatrix} 5 & 3 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} 2 & 3 \\ 1 & 3 \end{bmatrix} = ?$

A. $\begin{bmatrix} 13 & 9 \\ 2 & 24 \end{bmatrix}$

B. $\begin{bmatrix} 0 & 13 \\ 13 & 0 \end{bmatrix}$

C. $\begin{bmatrix} 12 & 10 \\ 9 & 13 \end{bmatrix}$

D. $\begin{bmatrix} 13 & 24 \\ 5 & 9 \end{bmatrix}$

23. $\begin{vmatrix} \text{Tan}\,\theta & 0 \\ 0 & \text{Cos}\,\theta \end{vmatrix} = ?$

A. $\text{Sin}\,\theta.\text{Cos}\,\theta$

B. $-\text{Cos}\,\theta$

C. $\text{Sin}\,\theta$

D. Undefined

24. $98.01 \times \_\_\_\_ = 0.502$

A. 0.105

B. 0.423

C. 0.002

D. 0.005

25. 20 clothes take 40 minutes to dry in certain conditions. How long will 15 clothes takes to dry in the same conditions?

A. 20 min

B. 15 min

C. 30 min

D. 40 min

26. The equation of the line $\perp$ to $y = 4x + 5$ and passing through (2, 3) is:

A. $x - 2y = 10$

B. $x + 4y = 10$

C. $2x - y = 20$

D. $x + 4y - 14 = 0$

27. $\int \text{Tan}^2 x \, \text{Sec}^2 x \, dx$

A. $\frac{\text{Tan}^3 x}{2} + c$

B. $\frac{\text{Sin}^2 x}{2} + c$

C. $\frac{\text{Cos}^3 x}{3} + c$

D. $\frac{\text{Tan}^3 x}{3} + c$

8. $2 \log 2 + \frac{3}{2} \log 16 - 2 \log 3 = \log x$ then x ?

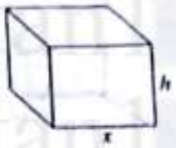
A. $321/9$

B. $256/9$

C. $265/6$

D. $256/6$

10. The box pictured has a square base with side x and a closed top. The surface area of the box is :



A. $4x + h$
B. $4x + 4h$
C. hx^3
D. $2x^2 + 4xh$

11. Vaqar drives at an average speed of 50 m/h from Karachi to Lahore and comes back at an average speed of 70 m/h. What is his average speed for the round trip?

A. 60 m/h
B. 61.66 m/h
C. 58.33 m/h
D. 57 m/h

12. A shopkeeper buys coffee A at $ 50 per kg and coffee B at $ 80 per kg. He mixes them together in the ratio 4:1. What is the average price of the mixture per kg?

A. $68
B. $56
C. $74
D. $60

13. A train 260 m in length is traveling at the speed of 30 km/h and another train 140 m in length is traveling at a speed of 50 km/h. If both trains are traveling in the opposite directions, in how many seconds will they completely pass each other?

A. 14 sec
B. 18 sec
C. 24 sec
D. 30 sec

14. A man buys a T.V. for Rs. 15000 after receiving a discount of 25%. What was the marked price?

A. 18750
B. 20000
C. 21250
D. 22417

15. For the given figure, the area of the circle is 18π. Find the side of square.

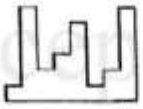
A. 3
B. $3\sqrt{2}$
C. 6
D. $6\sqrt{2}$

16. Length of rectangle is four times its width and area is 144, then Perimeter =?

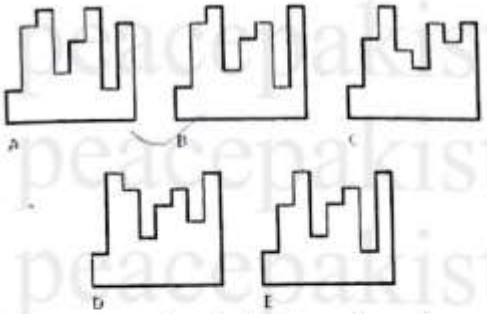
A. 30
B. 60
C. 90
D. None of these

17. When a coin is tossed twice, probability of exactly one 1 head is

A. $1/4$
B. $1/2$
C. $1/3$
D. 1



Which of the following pieces, when fitted to the above piece, will form a perfect square?



19.

20. On glancing through your morning newspaper you notice that four pages are missing. One of the missing pages is page 8. The back page of the newspaper is 28. What are the other three missing pages?

A. 7, 19, 20 B. 9, 19, 20 C. 7, 21, 22
D. 7, 20, 21 E. 7, 23, 24

18. In a movie show, 45% of audience were students. What is the ratio of students to non-students?

A. $\frac{55}{45}$

B. $\frac{45}{55}$

C. $\frac{25}{60}$

D. $\frac{75}{120}$

19. If x years ago, Kumail's age was y, then what will his age be after z-years.

A. $y + x + z$

B. $y + z$

C. $x - y + z$

D. None of these

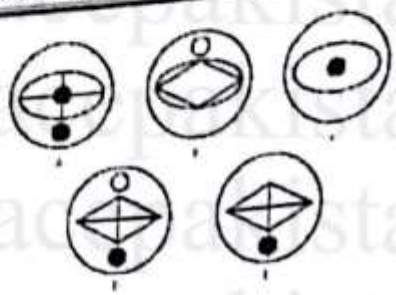
20. The ratio of males to females at a party is 2:5. After 21 more males join the party, the ratio changes to 3:4. How many males were there initially at the party?

A. 12

B. 20

C. 24

D. 84



16. How many lines appear below?

17. Which word below most closely means susceptible to attack or damage?

A. Debilitated
B. Vulnerable
C. Unstable
D. Emasculated
E. Unprepared

18. Which day is three days before the day immediately following the day two days before the day three days after the day immediately before Friday?

A. Sunday
B. Monday
C. Tuesday
D. Wednesday
E. Thursday

37. The first three terms in the expansion of $(1-x)^{-2}$ are

A. $1-2x-3x^2$ B. $1+x+x^2$

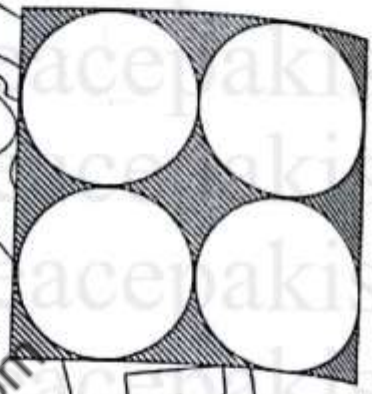
C. $1+2x+3x^2$ D. $1-x-x^2$

38. If a matrix A of order 3×2 multiplied by another matrix B of order 2×3, then the order of the resultant matrix is?

A. 3×2 B. 2×3

C. 3×3 D. 2×2

39. Find shaded area if radius of each circle is unity?



A. $16-4\pi$ B. $4-\pi$

C. $16-\pi$ D. $4+\pi$

40. The sum of the series 1, 2, 3, ... 40 terms is?

A. 240 B. 820

C. 260 D. 740

41. The single G.M between 2 and 32 is?

A. 2 B. 32

C. 8 D. Zero

42. The single harmonic mean between 2 and 8 is?

A. 16 B. $5/16$

C. 10 D. 6

43. A card is drawn from a well shuffled deck of playing card, what is the probability of obtaining a Red Queen?

A. $1/13$ B. $1/26$

C. $2/9$ D. $1/45$

4. A boy has 6 Red, 4 White and 8 Green marbles, what is the probability of obtaining 2 marbles of the same colour?

A. $36/153$ B. $49/153$

C. $64/153$ D. $2/9$

. A die is thrown. The probability of obtaining an even number or six?

A. $1/2$ B. $1/4$

C. $2/3$ D. 1

ANEES HUSSAIN

EXCELLENCE IN EDUCATION SINCE 1989

NU-FAST(CS) # 2

GULSHAN CAMPUS
E - 4, First Floor, Maqbool Heights,
Main NIPA Chowrangi, Above Mobile World.
: 021-34993996, 021-34989588, 0321-9289588

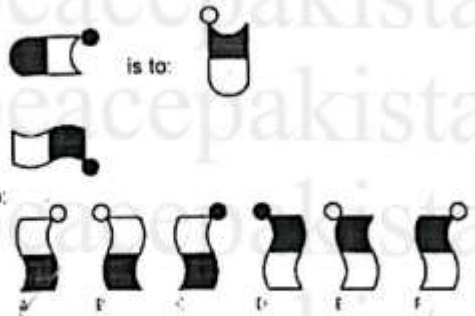
DHA CAMPUS
73-C, Mezzanine floor, 9th Commercial Street,
DHA Phase-4, Karachi.
Ph: 021-35386815, 021-35388455, 021-35893385

ORTH NAZIMABAD CAMPUS
C-17, Block I, 5 Star Chowrangi Karachi.
: 021-36631160, 021-36634284, 0321-2333114

BAHADURABAD CAMPUS
Mezzanine Floor, Alamgir Heights, Alamgir Road,
Near Subway Snacks & Sharfabad Chowrangi.
Karachi
Ph: 0303-2267893, 021-34921180, 021-34943939

www.aneeshussain.com E-Mail: aneeshussainbhd@gmail.com

6. Comparison



7. A car travels at a speed of 40 mph over a certain distance and then returns over the same distance at a speed of 60 mph. What is the average speed for the total journey?

A. 45 B. 48 C. 50
D. 52 E. 56

8. What numbers should replace the question marks?

926 : 24
799 : 72
956 : ?

A. 48 B. 50 C. 51
D. 52 E. 58

9. What number should replace the question mark?

7	10	9	6
5	1	3	7
2	3	2	1
4	12	8	?

A. 0 B. 1 C. 2
D. 3 E. 4

10. What number should replace the question mark?

A. 15 B. 19 C. 25
D. 27 E. 31

8. The x-coordinate of point of intersection of $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is?

A. $\pm a$ B. $\pm 2b$

C. $\pm \frac{a}{2}$ D. $\pm b$

9. If $y = \text{Tan } x$, then its derivative is?

A. $\text{Cosec}^2 x$ B. $\text{Tan } x$

C. $\text{Sin}^2 x$ D. $\text{Sec}^2 x$

10. The formula of H.M between two numbers "a" & "b" is?

A. $\frac{a+b}{2}$ B. $\pm \sqrt{ab}$

C. $2ab$ D. $\frac{2ab}{a+b}$

11. $\text{Sin}^2 60 + \text{Cos}^2 30 + \text{Cot}^2 60 = ?$

A. $\frac{11}{6}$ B. $\frac{5}{7}$

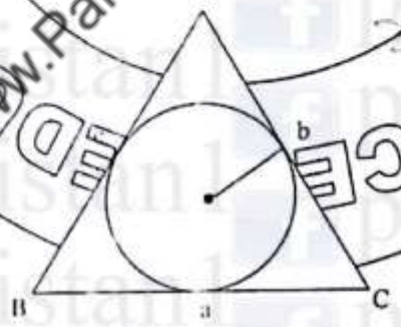
C. $\frac{6}{11}$ D. $\frac{7}{9}$

12. If $y = \text{Cosec } x$, then $\frac{d^2y}{dx^2}$ is?

A. $2\,\text{Sin}^2 x.\text{Cosec}^2 x$ B. $2\,\text{Cosec}^2 x.\text{Cot}^2 x$

C. $2\,\text{Cosec}^2 x\,(1 + 2\,\text{Cot}^2 x)$ D. $2\,\text{Cosec}^2 x.\text{Cot } x$

13. The radius of circle is?



A. $\frac{abc}{\Delta}$ B. $\frac{\Delta}{S}$

C. $\frac{abc}{4\Delta}$ D. $\frac{4\Delta}{8}$

14. If $U = \{x \mid x \in N, x \geq 10\}$; $A = \{1,2,3\}$; $B = \{3,4,5\}$ then $(A - B) \cup B = ?$

A. $\{1,3,5\}$ B. $\{1,2,3,4,5\}$

C. $\{2,4,5\}$ D. $\{1,2,3\}$

15. For what value of 'k', the sum of the roots equal to the product of the roots if equations is $9x^2 + kx + 4 = 0$?

A. -4 B. 2

C. 3 D. 5

16. Find the simple interest on Rs.8500 in 5 yrs at 15%?

A. 7365 B. 3765

C. 6375 D. None of these

17. $\int x \cdot \ln x \, dx$

A. $\ln x \frac{x}{2} + c$ B. $\ln x \frac{x^2}{2} - \frac{x^2}{2} + c$

C. $\ln x \frac{x^2}{2} - \frac{1}{4}x^2 + c$ D. None of these

18. If $y = e^{\sin 2x}$, then $y_1 = ?$

A. $2\cos 2x\, e^{\sin 2x}$ B. $e^{\cos x}\cos x$

C. $e^{\cos x}\sin x$ D. $e^{\sin x}$

19. The equation of directrix of the curve $\frac{x^2}{16} + \frac{y^2}{25} = 1$ is?

A. $x = \pm \frac{16}{5}$ B. $y = \pm \frac{21}{5}$

C. $x = \pm \frac{25}{3}$ D. $y = \pm \frac{19}{5}$

20. If $\vec{a}$ and $\vec{b}$ are perpendicular then:

A. $\vec{a} + \vec{b} = 0$ B. $\vec{a} \cdot \vec{b} = 0$

C. $\vec{a} \times \vec{b} = 0$ D. $\frac{a}{b} = 1$

21. $\lim_{x \to -3} \frac{x^2 + 5x + 6}{x + 3}$

A. ∞ B. 0

C. 1 D. -1

46. The ratio of investment of A: B is 2:3 and B: C is 4:3, out total profit of Rs.7000, the share of "c" is?

A. 3000 B. 2500
C. 3500 D. None of these

47. The radius of circle is inscribed in triangle is?

A. $\frac{2\sqrt{3}}{3}$ B. $2\sqrt{3}$
C. $4\sqrt{3}$ D. 2

48. The formula for the area of a triangle, all of whose sides are equal in length is?

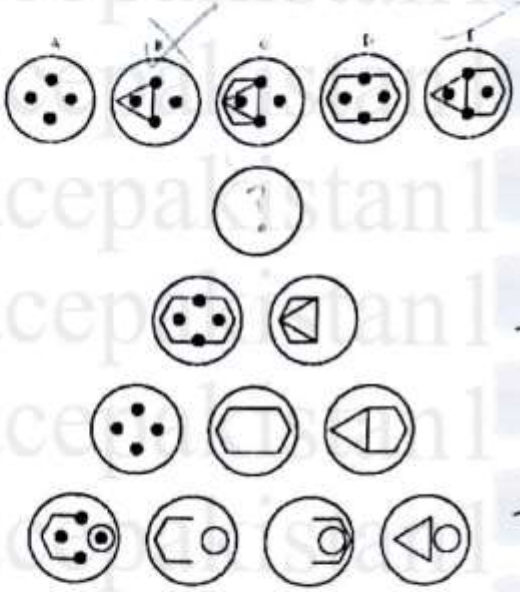
A. $\frac{3}{4}x^2$ B. $\frac{\sqrt{3}}{4}x^2$
C. $\frac{\sqrt{5}}{4}x^2$ D. $\frac{1}{2}x^2$

49. Find the value of γ, if two sides of triangle are a = 40.1 cm, b = 20 cm and area of triangle is 307.1838 sq. cm?

A. 30^0 B. 45^0
C. 50^0 D. 60^0

50. If $f(x) = x + 2$; $g(x) = 3x + 2$ then $5(f - g) = ?$

A. 10x B. 2x
C. $-10x$ D. 5x



12. Which two words mean the opposite?

DOLOROUS, CONVENE, DISPARAGE, OFFEND, PRAISE, TREMBLE

13. What number should replace the question mark ?

7	8	8	48
9	7	5	58
11	5	7	48
6	12	5	?

ENGLISH

Direction: - Question 1-2: In each question a word is given. Beneath the word are four lettered words or phrases. Choose the word or phrase that is closest in meaning to the given word

1. **Incorrigible**

A. Narrow B. Straight C. Inconceivable D. Unreliable

2. **Ingenuous**

A. Clever B. Stimulating C. Native D. Gullible

Change the voice

3. Who taught you grammar?

A. who you were taught grammar? B. By who it were taught grammar?
C. By whom were you taught grammar? D. By whom are you taught grammar?

4. Point out the word with incorrect spelling:

A. Embarrassment B. Deterrent C. Connoisseur D. Gourmat

Fill in the blanks

5. One property of radioisotopes is _____ decaying in half-lives over a long period of time.

A. The B. Them C. They re D. Their

6. In a parliamentary system, it is not the monarch but the Prime Minister _____.

A. Whom the real power B. Who has the real power
C. Whom has the real power D. Who the real power

Comprehension

Clipper ships were the swiftest sailing ships that were ever put to sea and the most beautiful. These ships had their days of glory in the 1840s and 1850s. The first were built in Baltimore, but most were constructed in the shipyards of New England. It was Chinese tea that brought them into existence. Tea loses its flavor quickly when stored in the hold of a vessel, and merchants were willing to pay top prices for fast delivery. American shipbuilders designed clippers to fill this need. Then came the California Gold Rush of 1849, when slippers took gold seekers from the East Coast to the West by way of Cape Horn.

7. According to the passage, where were the majority of clipper ships built?

A. California B. Baltimore C. New England D. Great Britain

8. They --------- fresh grape juice here.

A. Does not sell B. Do not sell C. Did not sold D. Were not sell

Insert the proper verb

9. Who _____ this umbrella?

A. Own B. Owing C. Owns D. Is owning

Write the correct negative sentence:

10. Mary had a little lamb.

A. Mary had not a little lamb. B. Mary did not have a little lamb.
C. Mary had not had a little lamb. D. Mary does not have a little lamb.

BASIC MATH

1. A's income is 20% more then B's income. B's income is what percent less than A's?

A. $16\frac{2}{3}\%$ B. 20%

C. $18\frac{1}{4}\%$ D. 15%

2. The surface area of a cube is 150 sq. feet. How many cubic feet are there in the volume of the cube?

A. 30 B. 50

C. 100 D. 125

3. The angles of a triangle are in the ratio 2: 3: 4. What is the degree measure of largest angle?

A. 40 B. 80

C. 90 D. 120

4. If a minute hand of a clock moves 45 degree, how many minutes have passed?

A. 6 B. 7.5

C. 15 D. 30

5. 16 workers can do a piece of work in 3 hours. Find the number of hours required to complete the same work by 5 workers.

A. 9 hours B. 8 hours

C. 9.6 hours D. 10 hours

6. In 1970 the cost price of a house was Rs.12 and in 1996 it is Rs.34. Find the increase percent?

A. 145 % B. 83.3 %

C. 200 % D. 183.3 %

7. In a bag there are 4 red, 6 white and 10 blue balls. How many balls must you pick to be sure that you have atleast two matching pairs?

A. 4 B. 6

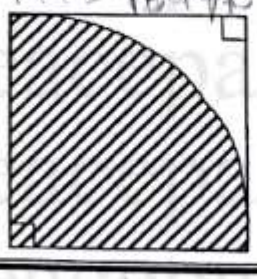
C. 8 D. 10

8. Area of a rectangle is 144 cm^2. The length of rectangle is 7 more than the breadth. Find its breadth.

A. 9 cm B. 12 cm

C. 15 cm D. 20 cm

9. If the area of the square is 100cm^2, find the area of the sector.



A. 10π cm^2 B. 25 cm^2

C. 25π cm^2 D. 100 cm^2

NU- FAST (CS) #2

ANSWER SHEET

STUDENT'S NAME _____ DATED: _____

ENGLISH		ANALYTICAL SKILLS AND I.Q		GENERAL MATH		ADVANCED MATHEMATICS	
1	D	1	6 (SIX)	1	B	1	B
2	D	2	E	2	D	2	D
3	C	3	C	3	B	3	A
4	D	4	D	4	B	4	B
5	D	5	ABUNDANCE	5	C	5	D
6	B	6	A	6	D	6	B
7	C	7	B	7	B	7	B
8	B	8	C	8	A	8	A
9	C	9	A	9	C	9	D
10	B	10	E	10	D	10	D
		11	E	11	A	11	A
		12	DISPARAGE AND PRAISE	12	B	12	C
		13	67	13	B	13	B
		14	A	14	B	14	B
		15	A	15	C	15	A
		16	14	16	B	16	C
		17	B	17	B	17	C
		18	D	18	B	18	A
		19	B	19	A	19	C
		20	C	20	C	20	B
						21	D
						22	D
						23	C
						24	D
						25	C
						26	D
						27	D
						28	B
						29	D
						30	D
						31	B
						32	D
						33	B
						34	A
						35	D
						36	B
						37	C
						38	C
						39	C
						40	B
						41	C
						42	A
						43	B
						44	B
						45	A
						46	A
						47	A
						48	B
						49	C
						50	C

W		W		W		W	
R		R		R		R	

ADVANCED MATHEMATICS

1. The nth term of a sequence, if its first term is 1 and common difference is 2?

A. $2n+1$ B. $2n-1$

C. $2n$ D. $2n+2$

2. The equation of the line passing through origin and slope is $1/\sqrt{3}$?

A. $y = \frac{2}{\sqrt{3}}x$ B. $y = \sqrt{3}x$

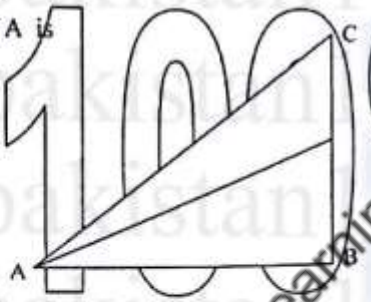
C. $y = \sqrt{2}\,x$ D. $y = \frac{1}{\sqrt{3}}x$

3. If "A" & "B" are two square matrices then $(A+B)'$

A. $A' + B'$ B. $B'A'$

C. $A' - B'$ D. None of these

4. The right bisector of $\angle A$ is



A. Drawn $\perp$ from $\overline{BC}$ B. Drawn $\perp$ from $\angle A$

C. Drawn $\perp$ from $\overline{AC}$ D. None of these

5. If $f(x) = 3x^2 + 1$ and $g(x) = x - 1$, find $(f-g)_2 = ?$

A. 29 B. 48

C. 30 D. 32

6. The probability of a queen when there are two decks is?

A. $1/26$ B. $1/13$

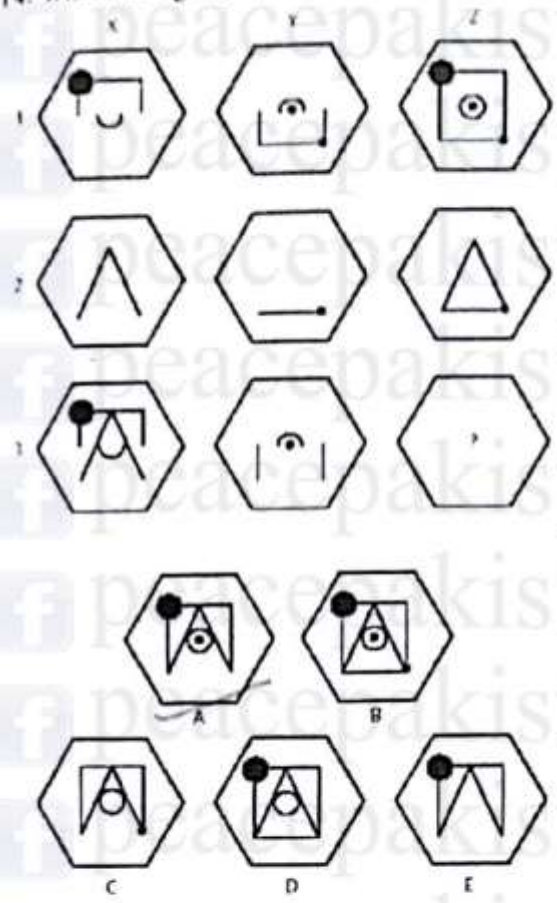
C. $1/52$ D. $1/9$

7. $\int (\sin x - \cos x)^2\,dx$

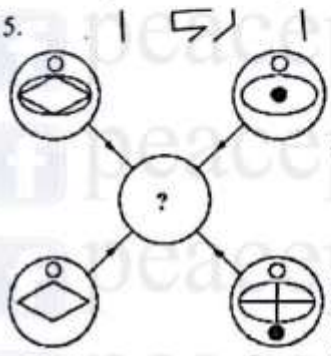
A. $x - \frac{\sin 2x}{2} + c$ B. $x + \frac{\cos 2x}{2} + c$

C. $x + \sin 2x + c$ D. None of these

14. Which hexagon, A, B, C, D or E, fits the missing space?



15.



Each line and symbol that appears in the four outer circles, above, is transferred to the centre circle according to these rules:

if a line or symbol occurs in the outer circles:
once: it is transferred
twice: it is possibly transferred
3 times: it is transferred
4 times: it is not transferred.

Which of the circles A, B, C, D or E, shown below, should appear at the centre of the diagram, above?

29. $\int [f(x)]^n \cdot f'(x)\, dx = ?$

A. $2[f(x)]^n + c$ B. $2[f(x)]^{n+1} + c$

C. $\frac{[f(x)]^n}{n} + c$ D. $\frac{[f(x)]^{n+1}}{n+1} + c$

30. $\int \text{Sin}\,5x \cdot \text{Cos}\,2x\, dx = ?$

A. $\frac{1}{2}\text{Cos}\,7x - \frac{1}{3}\text{Sin}\,3x + c$ B. $\frac{1}{4}\text{Cos}\,7x - \frac{1}{3}\text{Cos}\,3x + c$

C. $\frac{1}{4}\text{Sin}\,7x + \frac{1}{3}\text{Cos}\,3x + c$ D. $-\frac{1}{14}\text{Cos}\,7x - \frac{1}{6}\text{Cos}\,3x + c$

31. Conjugate of $3+4i$ is?

A. $3+4i$ B. $3-4i$

C. $4-3i$ D. $4+3i$

32. The set $\{1, -1, i, -i\}$ is closed with respect to the operation of ____?

A. $+$ B. $-$

C. $\times$ D. B and C both

33. $A \cup (B \cap C) = ?$

A. $(A \cap B) \cup (A \cap C)$ B. $(A \cup B) \cap (A \cup C)$

C. $(B \cap C) \cap A'$ D. $(A - B) \cap (A - C)$

34. The roots of equation $x^2 - 4x + 3 = 0$ is?

A. $1, 3$ B. $-1, 3$

C. $-1, -3$ D. $1, 0$

35. If α, β are the roots of $x^2 - 4x + 3 = 0$, then the equation whose roots are α^2 and β^2 is?

A. $x^2 + 10x + 9 = 0$ B. $x^2 + 10x - 9 = 0$

C. $2x^2 + 4x - 5 = 0$ D. $x^2 - 10x + 9 = 0$

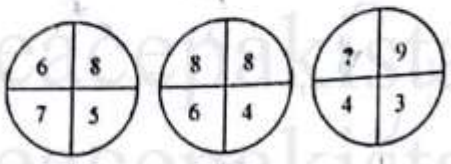
36. If $a + b = p$ and $a^2 + b^2 = q$ then $a - b = ?$

A. $\sqrt{p^2 - 2q}$ B. $\sqrt{2q - p^2}$

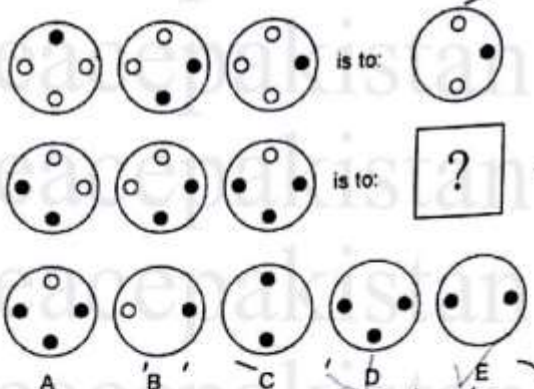
C. $\sqrt{p^2 + 2q}$ D. $\sqrt{2q - p}$

ANALYTICAL SKILLS & I.Q

1. What number should replace the question mark?



2. Comparison



3. What word below means the same as the word FORTE?

A. endowment
B. conduct
C. talent
D. redoubt
E. style

4. What number comes next in this sequence?

25, 32, 27, 36, 29, ?

A. 37
B. 38
C. 39
D. 40
E. 42

5. Spiral clockwise round the perimeter to spell out a nine-letter word, which must finish in the centre square. The word commences at one of the corner squares. You must provide the missing letters.

	N	
B	E	A
A	C	N