FAST PAST PAPER 1

MATHEMATICS

1. Find $(A - B) \cap B$ when A={a,e,i,o,u} and B={a,b,c,d}
   a. Φ
   b. A
   c. B
   d. A – B
2. Find the value of 'λ' if both the vectors if $a = 2i - j - 2k, b = 3i - 2\lambda j$ are perpendicular to each other
   a. -3
   b. -6
   c. 6
   d. 3
3. When there are 10 balls of different colours. In how many ways you can choose 7 balls of different colours black and white balls are excluded?
   a. 8
   b. 10
   c. 12
   d. 60
4. When $cos\theta sin\theta = 0.22$ then $(cos\theta - sin\theta)^2 =$
   a. $\frac{1}{2}$
   b. 0.56
   c. 0.44
   d. 0.0484
5. Find the point dividing (1,2) & $(7, -4)$ in the ratios 1: 2
   a. (0,-3)
   b. (0,3)
   c. (-3,0)
   d. (3,0)
6. Find the geometric progression when $a = 4$ & $r = \frac{1}{3}$
   a. $4, \frac{4}{3}, \frac{4}{9}, \frac{4}{27}, ...$
   b. $4, \frac{16}{3}, \frac{64}{9}, \frac{256}{27}, ...$
   c. $1, 4, \frac{16}{3}, \frac{64}{9}, \frac{256}{27}, ...$
   d. None
7. Find the derivative of $7x^6 + 6x^5 + 5x^4$
   a. $7x^5 + 6x^4 + 5x^3$
   b. $13x^6 + 11x^5 + 9x^4$
   c. $42x^5 + 30x^4 + 20x^3$
   d. $6x^5 + 5x^4 + 4x^3$
8. Find the fifth derivative of $f(x) = e^{ab}$
   a. e^{ab}
   b. 0
   c. $(ab)^5 e^{ab}$
   d. 1
9. What is the value of 'x' if $\begin{bmatrix} 2 & 4 \\ 4 & x \end{bmatrix}$ is singular matrix?
   a. 0
   b. 2
   c. 6
   d. 8
10. $A = \begin{bmatrix} 2 & 4 \\ 4 & 2 \end{bmatrix}$ is a
    a. Singleton
    b. Singular
    c. Non-singular
    d. Null
11. $2sin45°cos45° = ?$
    a. $\sqrt{2}$
    b. $\frac{\sqrt{3}}{2}$
    c. 1
    d. $\frac{1}{\sqrt{2}}$

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12. $r^2 = g^2 + f^2 - c$ represents:
    a. Circle
    b. Point circle
    c. None
    d. Ellipse

13. If $a = x + y$ and $b = x - y$ then the value of ab =?
    a. $x^2 - y^2$
    b. $x^2 + y^2$
    c. xy
    d. $x^2 + y^2 - 2xy$

14. What is the probability of getting a red card from an ordinary deck of cards?
    a. $\frac{1}{52}$
    b. $\frac{1}{26}$
    c. $\frac{1}{2}$
    d. $\frac{1}{9}$

15. If a curve is given by $x^2 - \frac{y^2}{5} = 1$, find the coordinates of foci
    a. $(\pm\sqrt{3}, 0)$
    b. $(\pm\sqrt{5}, 0)$
    c. $(\pm 1, 0)$
    d. $(\pm\sqrt{6}, 0)$

16. $\int \frac{cosx}{\sqrt{sinx}} dx$ =?
    a. $\sqrt{sinx} + c$
    b. $2\sqrt{sinx} + c$
    c. $\frac{1}{2\sqrt{sinx}} + c$
    d. $\frac{1}{2}\sqrt{sinx} + c$

17. $\frac{d}{dx} e^{x^3}$ =?
    a. e^{x^3}
    b. $3x^2 e^{x^3}$
    c. $3x^2 e^{x^2}$
    d. $x^2 e^{x^3}$

18. Find the sum of first 'n' odd integers:
    a. n^2
    b. $(2sn + 1)$
    c. $\frac{(2n+1)}{2}$
    d. $\frac{n(n+1)}{2}$

19. Evaluate: $\begin{vmatrix} xyz^2 & x^2yz & xy^2z \\ \frac{x}{y} & \frac{y}{z} & \frac{z}{x} \\ \frac{y}{x} & \frac{z}{y} & \frac{x}{z} \end{vmatrix}$
    a. 0
    b. 1
    c. $x^2y^2z^2(x^2 - y^2)(z^2 - x^2)(y^2 - z^2)$
    d. $x^2y^2 + y^2z^2 + z^2x^2 - x^4 - y^4 - z^4$

20. How many tangents can be drawn to circle if a point lies outside the circle?
    a. 1
    b. 2
    c. 0
    d. None

21. $sin15°$ =?
    a. $\frac{\sqrt{6}-\sqrt{2}}{4}$
    b. $\frac{\sqrt{6}+\sqrt{2}}{4}$
    c. $\frac{-\sqrt{6}-\sqrt{2}}{4}$
    d. $\frac{-\sqrt{6}+\sqrt{2}}{4}$

22. $\int x^2 e^x dx$ =?

FAST ENTRY TEST PAST PAPERS PLSPOT

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a. $e^x(x^2-2x+2)+c$
b. $e^x(2x^2-1)+c$
c. $e^x(2x+1)+c$
d. $2xe^x x^2+c$

23. If the focus of parabola is $(0,-3)$ then it is:
a. Cup up parabola
b. Cup down parabola
c. Left open parabola
d. Right open parabola

24. $\frac{1}{1-sin^2\theta}+\frac{1}{1+sin^2\theta}=?$
a. $\frac{1}{1+sin^2\theta}$
b. $\frac{2}{1-sin^2\theta}$
c. $\frac{2}{1-sin^4\theta}$
d. $\frac{1}{1+tan^2\theta}$

25. $\frac{d}{dx}tan^2x=?$
a. $2tanx\ sec^2x$
b. sec^2x
c. $tanx\ sec^2x$
d. $2tan^2x\ sec^2x$

26. $\int_0^{lne^2} x^2e^{3x^3}=?$
a. $\frac{1}{9}(e^{24}-1)$
b. $9e^{3x^2}$
c. $\frac{1}{9}(e^{41}-2)$
d. e^{3x^2}

27. Find the distance between $(2,-6)$ and $(6,-3)$
a. 25
b. 4
c. 5
d. 16

28. Slope of line $\frac{5x}{2}+\frac{7y}{2}=\frac{49}{10}$ is:
a. 6
b. $-\frac{5}{7}$
c. $\frac{7}{5}$
d. 11

29. Standard equation of hyperbola if centre is at (0,0):
a. $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$
b. $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$
c. $\frac{x^2}{a^2}+y^2=1$
d. $\frac{x^2}{a^2}-y^2=1$

30. Find the equation of tangent to the curve $3x^2-4y^2=12$ at $(4,-3)$:
a. $x+y=1$
b. $x-y=-1$
c. $x+y=-1$
d. $x-y=1$

31. $\frac{d}{dx}[f(x).g(x)]^2=?$
a. $[f(x).g(x)]^2$
b. $2[f(x).g(x)]\left[f(x).\frac{d}{dx}g(x)+g(x).\frac{d}{dx}f(x)\right]$
c. $[f(x).g(x)]^{-1}$
d. $\left[f(x).\frac{d}{dx}g(x)+g(x).\frac{d}{dx}f(x)\right]$

32. If $z=-7+\sqrt{3}i$ then find $(z-\bar{z})^3$
a. 343
b. -343
c. $-12\sqrt{3}i$
d. $-24\sqrt{3}i$

33. If $f(x)=x^3+\cos x$ then f(x) is?
a. An odd function
b. A even function
c. Neither odd nor even
d. A constant function

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34. $\lim_{x\to 3} \frac{3x^2-7x-6}{x^2-8x+15} =$

a. 0
b. $\frac{11}{15}$
c. ∞
d. $-\frac{11}{2}$

35. Find f'(x), if f(x) = $\sin^3 x$

a. 3 $\sin^2$ x cos x
b. 3 $\sin^2 x \cos^2$ x
c. 3sin x cos x
d. ½ $\sin^2 x \cos^2$ x

36. If dy = lnx dx and the slope at (x, y) is same as when it is parallel to x axis find x?

a. 0
b. 1
c. e
d. $\frac{1}{e}$

37. The derivative of $\cos^2 3x$

a. -6 cos3x sin x
b. 6 cos3x sin x
c. -2 cos3 x sin x
d. None

38. Curve $y = x^2 - 8$ has:

I. Maximum value II. Minimum value III. No extreme value

a. I only
b. II only
c. I and II only
d. III only

39. The equation of the line which is parallel to x axis and 5 units above it is?

a. y = 5
b. y = -5
c. x = -5
d. x = 5

40. The derivative of the function y = cos x is equal to?

a. sin x
b. –tan x
c. –sin x
d. cos x

41. If α, β are the roots of $x^2 - 2x + 1 = 0$, then $(\alpha + \beta)^2$ is equal to

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

42. The possible number of root(s) of the equation $x^{\frac{2}{3}} = 9$ is/are

A. one.
B. two.
C. no roots.
D. infinite many roots.

43. The real quadratic equation whose coefficients are rational and whose one root is $\sqrt{2} + \sqrt{9}$, is

A. $x^2 - 7x - 11 = 0$
B. $x^2 - 6x + 7 = 0$
C. $-x^2 + 2x - 1 = 0$
D. $x^2 - 13x - 15 = 0$

44. ω being the complex cube roots of unity then consider the following statements

I. $\omega^2 = \frac{1}{\omega}$
II. $\omega^{3n} = \frac{1}{\omega}; n \in$ integer
III. $\omega^n + \omega^{n+1} + \omega^{n+2} = 0; n \in$ integer

A. I only
B. II only
C. I and II
D. I and III

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45. If one root of $5x^2 + 7abdx - t^2 + 196 = 0$ is zero then t is equal to
   A. -14
   B. 0
   C. ± 14
   D. -14

46. $\frac{x+1}{x(x+2)^2} =$
   A. $\frac{A}{x} + \frac{B}{x+2}$
   B. $\frac{A}{x} + \frac{B}{x+2} + \frac{C}{(x+2)^2}$
   C. $\frac{A}{x} + \frac{B}{x+2} + \frac{Cx+D}{(x+2)^2}$
   D. $\frac{A}{x} + \frac{Bx+C}{(x+2)^2}$

47. $\sqrt{x+2} = -1$ then real root(s) of the equation is/are
   A. one
   B. two
   C. three
   D. no roots

48. If α, β are the roots of $3x^2 + 2x + 5 = 0$ then sum of $\frac{\alpha+1}{\alpha}$ and $\frac{\beta+1}{\beta}$ is equal to
   A. $-\frac{8}{9}$
   B. $\frac{8}{5}$
   C. $-\frac{2}{3}$
   D. $\frac{5}{3}$

49. If the equation $7x^2 + 15x + k = 0$ has roots $\sqrt{\alpha}$ and $\frac{1}{\sqrt{\alpha}}$, then k is equals to
   A. -11
   B. 2
   C. 7
   D. 15

50. If the sum of a number and its reciprocal is $\frac{41}{20}$, then the number is
   A. $\frac{5}{4}$
   B. $-\frac{5}{4}$
   C. $-\frac{4}{5}$
   D. $\frac{1}{5}$

FAST PAST PAPER 1

BASIC MATH

1. The 180 students in a group are to be seated in rows so that there is equal number of students in each row. Each of the following could be the number of rows EXCEPT

(A) 4
(B) 20
(C) 30
(D) 40
(E) 90

2. A parking garage rents parking spaces for $10 per week or $30 per month. How much does a person save in a year by renting by the month rather than by the week?

(A) $140
(B) $160
(C) $220
(D) $240
(E) $260

3. If $y = 5x^2 - 2x$ and $x = 3$, then $y =$

(A) 24
(B) 27
(C) 39
(D) 51
(E) 219

4. Of the following, which is the best approximation to $\sqrt{0.0026}$?

(A) 0.05
(B) 0.06
(C) 0.16
(D) 0.5
(E) 0.6

5. At a certain diner, a hamburger and coleslaw cost $3.59, and a hamburger and french fries cost $4.40. If french fries cost twice as much as coleslaw, how much do french fries cost?

(A) $0.30
(B) $0.45
(C) $0.60
(D) $0.75

6. If $\angle XYZ$ in the figure above is a right angle, what is the value of x?

(A) 155
(B) 145
(C) 135
(D) 125
(E) 110

$$\frac{\left(\frac{a}{b}\right)}{c}$$

7. In the expression above, a, b, and c are different numbers and each is one of the numbers 2, 3, or 5. What is the least possible value of the expression?

(A) $\frac{1}{30}$
(B) $\frac{2}{15}$
(C) $\frac{1}{6}$
(D) $\frac{3}{10}$
(E) $\frac{5}{6}$

8. A certain culture of bacteria quadruples every hour. If a container with these bacteria was half full at 10:00 a.m., at what time was it one-eighth full?

(A) 9:00 a.m.
(B) 7:00 a.m.
(C) 6:00 a.m.
(D) 4:00 a.m.

(E) 2:00 a.m.

9. Al, Lew, and Karen pooled their funds to buy a gift for a friend. Al contributed \$2 less than $\frac{1}{3}$ of the cost of the gift and Lew contributed \$2 more than $\frac{1}{4}$ of the cost. If Karen contributed the remaining \$15, what was the cost of the gift?

(A) \$24
(B) \$33
(C) \$36
(D) \$43
(E) \$45

10. What is the total number of integers between 100 and 200 that are divisible by 3?

(A) 33
(B) 32
(C) 31
(D) 30
(E) 29

11. Which of the following inequalities is equivalent to $10 - 2x > 18$?

(A) $x > -14$
(B) $x > -4$
(C) $x > 4$
(D) $x < 4$
(E) $x < -4$

12. In 1979 approximately $\frac{1}{3}$ of the 37.3 million airline passengers traveling to or from the United States used Kennedy Airport. If the number of such passengers that used Miami Airport was $\frac{1}{2}$ the number that used Kennedy Airport and 4 times the number that used Logan Airport, approximately how many millions of these passengers used Logan Airport that year?

(A) 18.6
(B) 9.3
(C) 6.2
(D) 3.1
(E) 1.6

13. A certain basketball team that has played $\frac{2}{3}$ of its games has a record of 17 wins and 3 losses. What is the greatest number of the remaining games that the team can lose and still win at least $\frac{3}{4}$ of all of its games?

(A) 7
(B) 6
(C) 5
(D) 4
(E) 3

14. Dan and Karen, who live 10 miles apart meet at a cafe that is directly north of Dan's house and directly east of Karen's house. If the cafe is 2 miles closer to Dan's house than to Karen's house, how many miles is the cafe from Karen's house?

(A) 6
(B) 7
(C) 8
(D) 9
(E) 10

15. If n is an integer and $n = \frac{2 \cdot 3 \cdot 5 \cdot 7 \cdot 11 \cdot 13}{77k}$ then which of the following could be the value of k?

(A) 22
(B) 26
(C) 35
(D) 54
(E) 60

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16. There were 36.000 hardback copies of a certain novel sold before the paperback version was issued. From the time the first paperback copy was sold until the last copy of the novel was sold. 9 times as many paperback copies as hardback copies were sold. If a total of 441.000 copies of the novel were sold in all, how many paperback copies were sold?

(A) 45.000
(B) 360.000
(C) 364.500
(D) 392.000
(E) 396.900

17. In the formula $w = \frac{p}{\sqrt[t]{v}}$, integers p and t are positive constants. If $w = 2$ when $v = 1$ and if $w = \frac{1}{2}$ when $v = 64$, then $t =$

(A) 1
(B) 2
(C) 3
(D) 4
(E) 16

18. Last year Mrs. Long received $160 in dividends on her shares of Company X stock, all of which she had held for the entire year. If she had had 12 more shares of the stock last year, she would have received $15 more in total annual dividends. How many shares of the stock did she have last year?

(A) 128
(B) 140
(C) 172
(D) 175
(E) 200

Month	Average Price per Dozen
April	$1.26
May	$1.20
June	$1.08

19. The table above shows the average (arithmetic mean) price per dozen of the large grade A eggs sold in a certain store during three successive months. If $\frac{2}{3}$ as many dozen were sold in April as in May, and twice as many were sold in June as in April, what was the average price per dozen of the eggs sold over the three-month period?

(A) $1.08
(B) $1.10
(C) $1.14
(D) $1.16
(E) $1.18

20. If $y \neq 3$ and $\frac{3x}{y}$ is a prime integer greater than 2, which of the following must be true?

I. $x = y$
II. $y = 1$
III. x and y are prime integers.

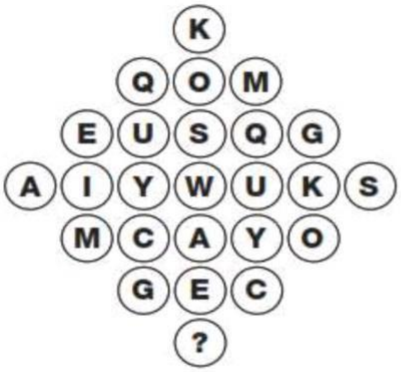
(A) None
(B) I only
(C) II only
(D) III only
(E) I and III

FAST PAST PAPER 1

IQ

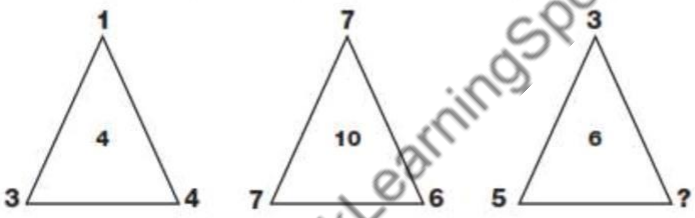
QUESTION 1

Which of the lower circles replaces the question mark?



QUESTION 2

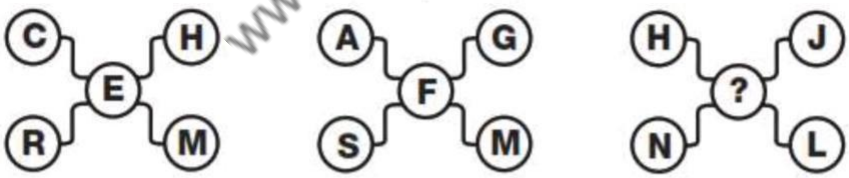
Which number replaces the question mark and completes the puzzle?



4, 6, 8, 9

QUESTION 3

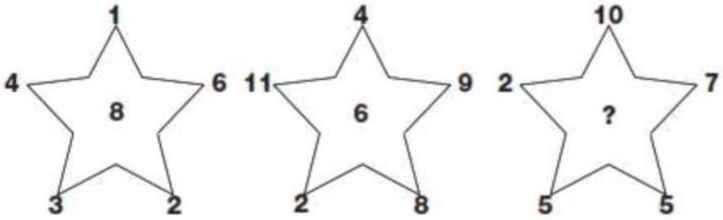
Which letter completes the puzzle?



A, B, E, F

QUESTION 4

What is missing from the last star?

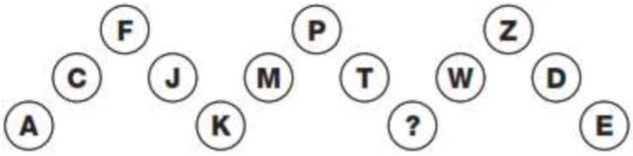


4, 5, 7, 9

QUESTION 5

FAST PAST PAPER 1

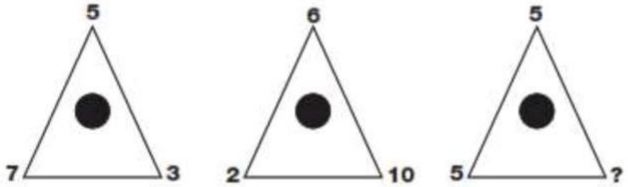
Which letter completes the puzzle?



A, U, V, W

QUESTION 6

Which number replaces the question mark and completes the puzzle?



5, 6, 4, 3

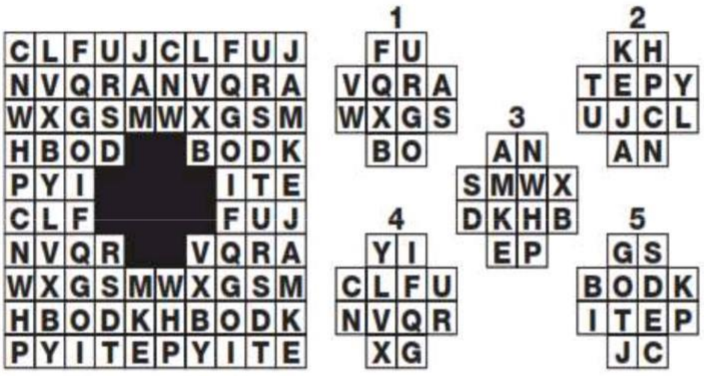
QUESTION 7

Which number replaces the question mark and completes the puzzle?

22, 29, 12, 3

QUESTION 8

Which segment completes the puzzle?



QUESTION 9

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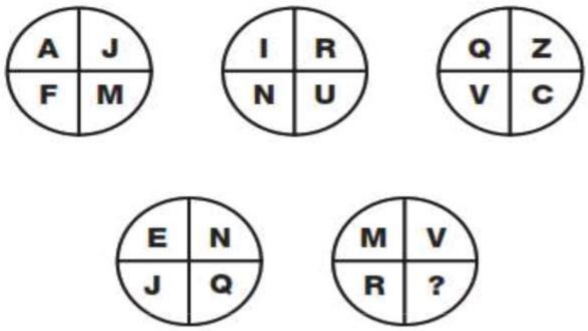
Which letter replaces the question mark and completes the puzzle?



A, Y, Z, Q

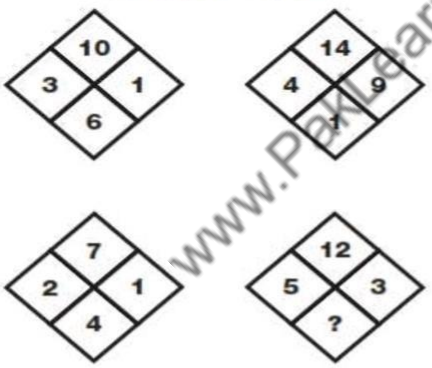
QUESTION 10

Which letter follows the sequence to complete the puzzle?

X, V, W, Q

QUESTION 11

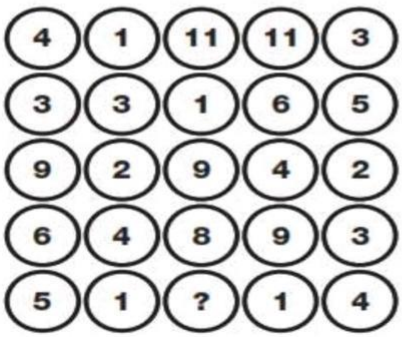
Which number replaces the question mark and completes the sequence?



4, 8, 11, 10

QUESTION 12

Which number replaces the question mark and completes the sequence?

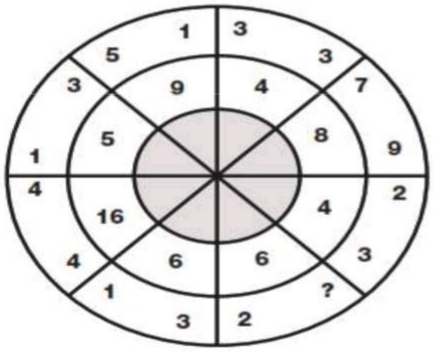


FAST PAST PAPERS

7. 6, 9, 10

QUESTION 13

Which number replaces the question mark and completes the sequence?



8, 7, 10, 13

QUESTION 14

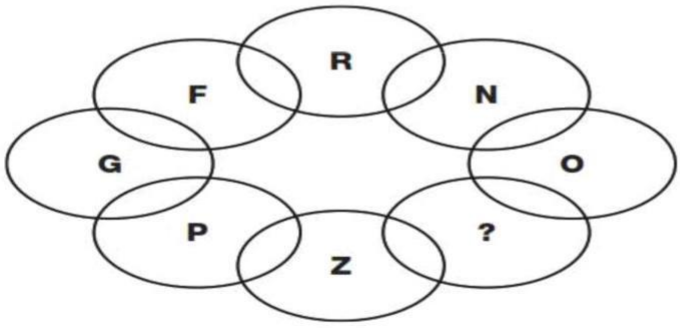
Which letter replaces the question mark and completes the sequence?

13	INC	2
6	QRG	7
4	DOM	8
7	SUI	7
8	AD?	2

K, L, M, N

QUESTION 15

Which letter replaces the question mark and completes the sequence?



H. E, Z, M

QUESTION 16

FAST PAST PAPER 1

Which number replaces the question mark and completes the sequence?

4	2	8	7
6	3	6	6
5	1	5	3

1	0	8	8
7	1	4	2
8	7	2	9

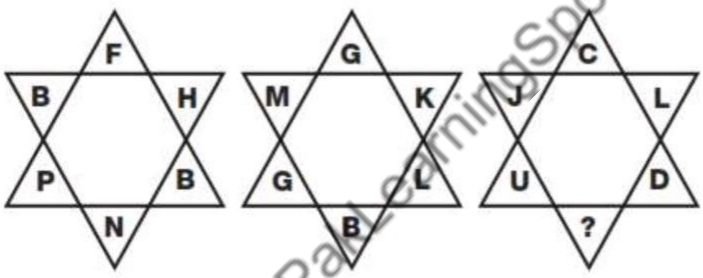
3	2	4	8
2	1	8	9
7	4	9	7

3	0	6	2
4	1	6	4
6	3	?	5

0, 10, 12, 9

QUESTION 17

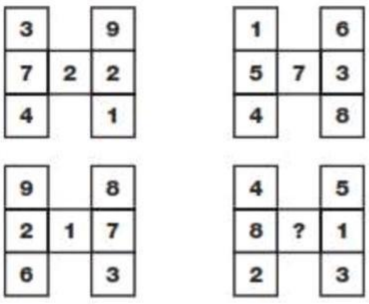
Which letter replaces the question mark and completes the puzzle?



G, H, F, E

QUESTION 18:

Which number replaces the question mark and completes the puzzle?



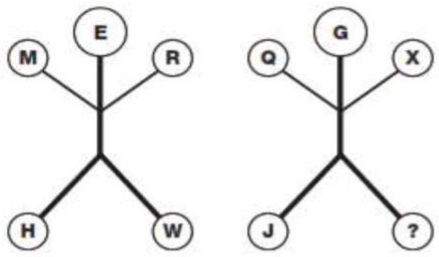
4, 5, 2, 10

QUESTION 19:

FAST PAST PAPERS

FAST PAST PAPER 1

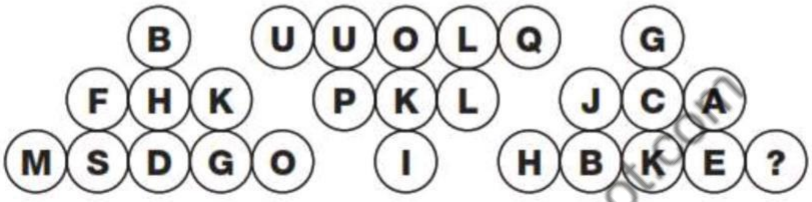
Which letter replaces the question mark and completes the puzzle?



A, W, E, Q

QUESTION 20:

Which letter replaces the question mark and completes the puzzle?



A, B, D, R

FAST PAST PAPER 1

ENGLISH

ANALOGIES

1. BANDAGE : LACERATION
A. ambulance : transportation
B. alcohol : antiseptic
C. cast : fracture
D. transfusion : blood
E. oxygen : shock

2. PEDAL : FOOT
A. thimble : finger
B. crutch : leg
C. knob : hand
D. belt : waist
E. pillow : head

SYNONYMS

3. Synonym of ANTIPATHY
A. abnormal
B. indifference
C. conjoined
D. firm dislike
E. daring

4. Synonym of ENGENDER
A. to put in danger
B. to show composure
C. to improve
D. to produce
E. to admire

ANTONYMS

5. Antonym of NORM
A. linchpin
B. benchmark
C. watershed
D. anomaly
E. mode

6. Antonym of APPREHEND
A. purloin
B. gambol
C. speculate
D. release
E. confer

SENTENCE COMPLETION

7. After having _____ their current level of study, students are typically ready to move on to the next one.
A. investigated
B. studied
C. attempted
D. mastered
E. enjoyed

8. My friend generously offered to _____ my children while I was out, but because we already had a babysitter, I _____ the offer.
A. look after...took
B. look after...rejected
C. monitor...accepted
D. watch...declined
E. take after...agreed

PREPOSITIONS

9. He will appear _____ the magistrate.
A. in front of
B. to
C. before
D. for
E. near

10. I would like to move _____ Marketing.
A. into
B. in
C. through
D. at
E. across

ANEES HUSSAIN
FAST PAST PAPER 1

STUDENT'S NAME _____ DATED: _____

SECTION - I				SECTION - II		SECTION - III		SECTION - IV	
MATHEMATICS				BASIC MATH		IQ		ENGLISH	
1	A	41	D	1	D	1	1	1	C
2	A	42	B	2	B	2	4	2	C
3	A	43	B	3	C	3	B	3	D
4	B	44	D	4	A	4	5	4	D
5	D	45	C	5		5	U	5	D
6	A	46	B	6	C	6	5	6	D
7	C	47	D	7	B	7	22	7	D
8	B	48	B	8	A	8	2	8	B
9	D	49	C	9	C	9	Y	9	C
10	C	50	A	10	A	10	W	10	A
11	C			11	E	11	4		
12	A			12	E	12	7		
13	A			13	D	13	7		
14	C			14	C	14	K		
15	D			15	B	15	H		
16	B			16	C	16	0		
17	B			17	C	17	F		
18	A			18	A	18	5		
19	D			19	D	19	E		
20	B			20	D	20	B		
21	A								
22	A								
23	B								
24	C								
25	A								
26	A								
27	C								
28	B								
29	B								
30	A								
31	B								
32	D								
33	C								
34	D								
35	A								
36	B								
37	D								
38	B								
39	A								
40	C								
W		W		W		W		W	
R		R		R		R		R	

FAST PAST PAPERS