NU-FAST
CS & ENGG
PAST PAPERS
Part-3

ANEES HUSSAIN

47. Expand the series upto three terms $(1-x^2)^9$

    A. $1+9x+36x^4$

    B. $1+9x-36x^4$

    C. $1+9x+36x^2$

    D. $1-9x^2+36x^4$

48. $y=\ln\left(\dfrac{1}{x}\right)$ then $\dfrac{d^2y}{dx^2}=?$

    A. $\dfrac{3x}{4}$

    B. $3x^2$

    C. $\dfrac{3}{x^4}$

49. $\int \sin\dfrac{x}{2}\,dx=?$

    A. $11\sin\dfrac{1}{2}x^2+c$

    B. $4\sin\dfrac{1}{2}x^2+c$

    C. $-2\cos\dfrac{x}{2}+c$

    D. $4\sin\dfrac{x}{2}+c$

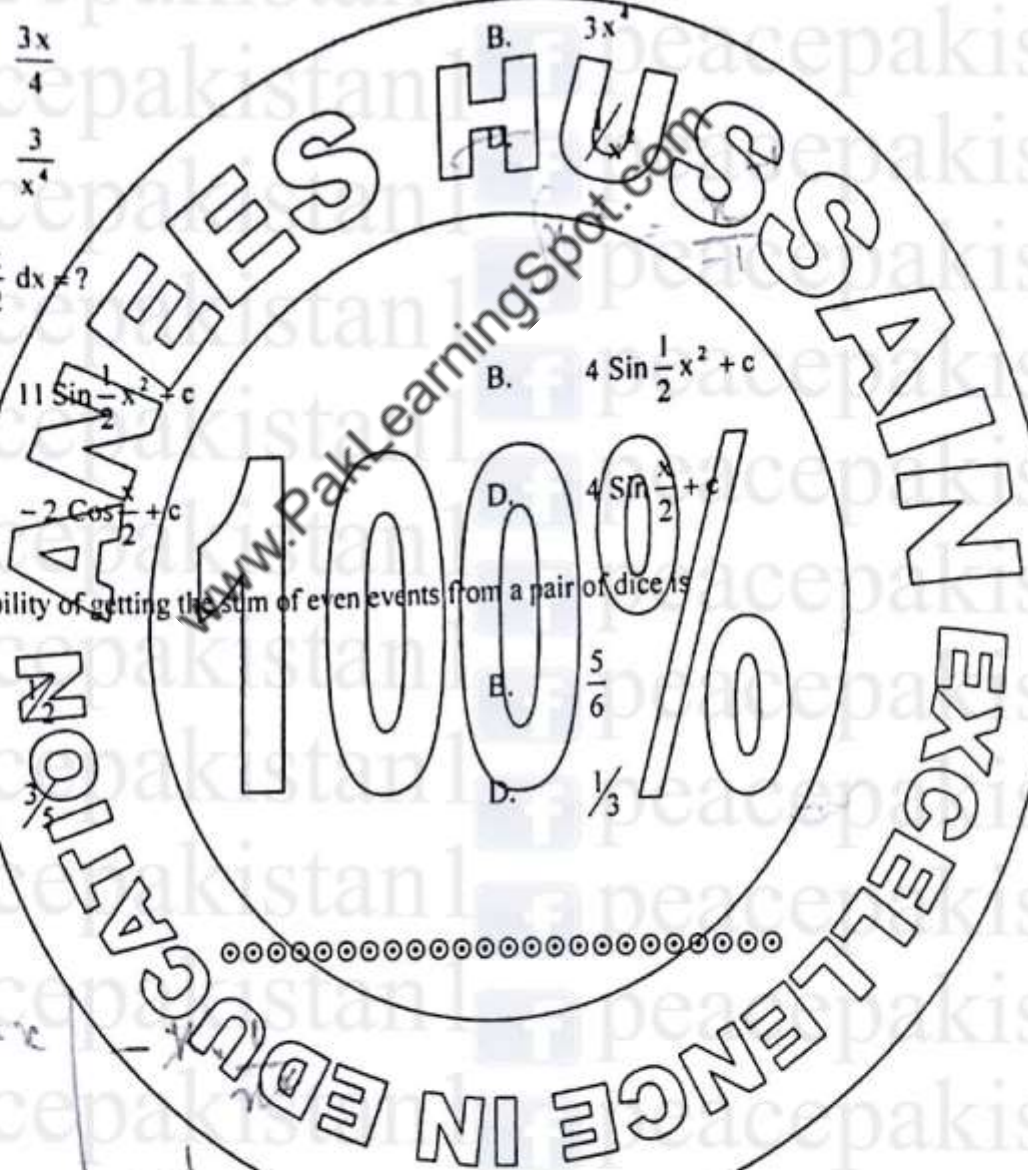**50.** Probability of getting the sum of even events from a pair of dice is
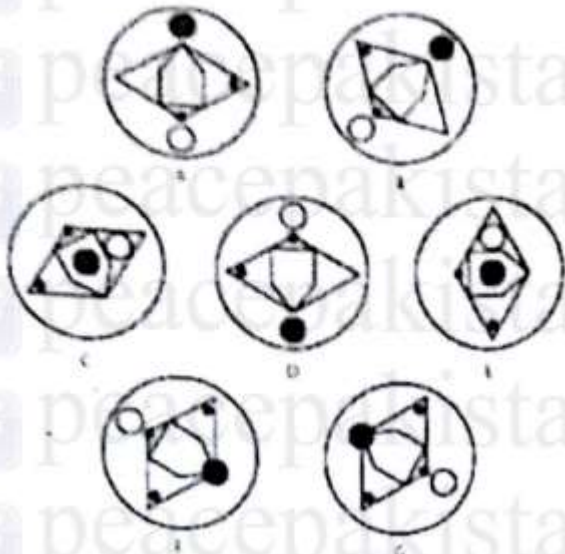
    A. $\dfrac{1}{2}$

    B. $\dfrac{5}{6}$

    C. $\dfrac{3}{5}$

    D. $\dfrac{1}{3}$

7. Which of these is the odd one out?

8. What number should replace the question mark? 61, 54, 62, ?, 63, 56, 64

A. 50
B. 52
C. 53
D. 55
E. 57

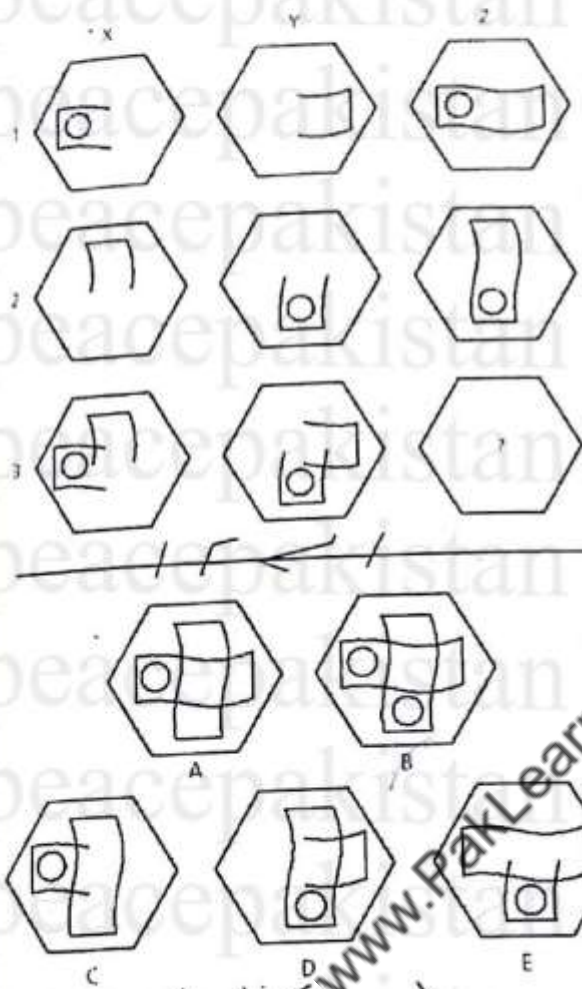9. Which of A, B, C, D or E fits into the blank circle to carry on a logical sequence?

10. Which of the following words means FLICKERING?

A. Flaccid
B. Mendacious
C. Influential
D. Vital
E. Lambent

11. Which word means the same as NEOPHYTE?

A. Scallywag　　B. Junta　　C. Gimrack

D. Novice　　E. Gingham

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

13. What number should replace the question mark?

7	6	4	52
9	3	5	60
10	5	4	60
8	7	3	?

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. Indolence

A. Sloth   B. Poverty   C. Latitude D.   Aptitude

2. Innocuous

A. Not capable   B. Not dangerous C.   Not eager D.   Not frank

3. Romans expected to conquer Carthage.

A. It was expected by Romans to conquer Carthage.
B. It was expected by Romans that they would conquer Carthage.
C. It was expected by Romans that they could conquer Carthage.
D. Romans expected that they would conquer Carthage

4. Point out the word with incorrect spelling:

A. nausea   B. carpentar
C. Anathema   D. toothache

5. According to the Christian Bible, When the disciples saw Jesus after he had risen from the dead, they said.

A. It is him   B. It is He
C. It is his   D. It is himself

Directions: In question 6 -7. Each of the following sentences has a blank. From the choices given below choose the phrase or word that best completes the sentence

6. It is generally believed that an MBA degree is good preparation for a career in _____

A. A business   B. Business
C. Businesses   D. One business

7. John looks ----- his father.

A. like   B. from   C. at   D. for

Comprehension:

Lighthouses are towers with strong lights that help mariners plot their position, inform them that land is near, and warn them of dangerous rocks and reefs. They are placed at prominent points on the coast and on islands, reefs, and sandbars.

Every lighthouse has a distinctive pattern of light known as its characteristic. There are five basic characteristics: fixed, flashing, occulting group flashing, and group occulting. A fixed signal is a steady beam. A flashing signal has periods of darkness longer than periods of light, while an occulting signal's periods of light are longer. A group-flashing light gives off two or more flashes at regular intervals. Some lighthouses use lights of different colors as well, and today, most lighthouses are also equipped with radio beacons. The three types of apparatus used to produce the signals are the catoptric, in which metal is used to reflect the light; the dioptric, in which glass is used; and the catadioptric, in which both glass and metal are used.

In the daytime, lighthouses can usually be identified by their structure alone. The most typical structure is a tower tapering at the top, but some, such as the Bastion Lighthouse off the Florida Coast, are skeletal towers of steel. Where lighthouses might be confused in daylight, they can be distinguished by day-marker patterns-designs of checks and stripes painted in vivid colors on lighthouse walls.

38

40. $\begin{vmatrix} 1 & 1 & \omega \\ 1 & 1 & \omega^2 \\ \omega & \omega^2 & 1 \end{vmatrix} = ?$

A. 2

B. 3

C. 1

D. None of these

41. For the G. Series with $a = 4$, $r = 2$ and $n = 10$, find $S_{10} = ?$

A. 2092

B. 5024

C. 4092

D. 4125

42. The matrix $\begin{bmatrix} 5 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 5 \end{bmatrix}$ is called

A. Square

B. Diagonal

C. Scalar

D. All of these

43. $f(x) = \ln e^x$, find $f'(x)$

A. x

B. 1

C. 0

D. Does not exist

44. $\bar{A} = 3i + 2j + k$, $\bar{B} = 1i - 2j + k$, then $|\bar{A} \times \bar{B}| = ?$

A. $\sqrt{65}$

B. $\sqrt{84}$

C. $\sqrt{120}$

D. $\sqrt{90}$

45. $A' \cap A = ?$

A. A

B. A'

C. ϕ

D. None of these

46. $\int \dfrac{dx}{x\sqrt{x^2 - a^2}} = ?$

A. $Sin^{-1} \dfrac{x}{a} + c$

B. $\dfrac{1}{a} Sec^{-1} \dfrac{x}{a} + c$

C. $\dfrac{1}{a} Cos^{-1} \dfrac{x}{a} + c$

D. $Tan^{-1} \dfrac{x}{a} + c$

8. $\lim\limits_{x \to \infty} \dfrac{5x^2 + 2x + 1}{4x^2 + 3x - 7} = ?$

A. $\dfrac{5}{4}$

B. $\dfrac{1}{4}$

C. ∞

D. $\dfrac{2}{7}$

9. The ratio between the ages of Omar, Ali, and Zaid is 1:2:3. If age of Ali is 40 yrs, then the age of Zaid is?

A. 40

B. 20

C. 60

D. 30

10. An iron is sold for Rs.76, the gain is 52%. Find the profit when the iron is to be sold for Rs.74?

A. 50

B. 26

C. 15

D. 24

11. $\lim\limits_{x \to 0} \dfrac{\sin x}{\cos x}$

A. 1

B. Zero

C. Infinity

D. Not exist

12. There are 3 consecutive numbers, one of them is 15 and the sum of other two is 30, then the numbers are?

A. 15, 16, 17

B. 13, 14, 15

C. 14, 15, 16

D. 16, 17, 18

13. If $\theta = \sin^{-1} \sqrt{3}$ and θ is in 4th Quadrant, then the value of $\cot\theta$ is?
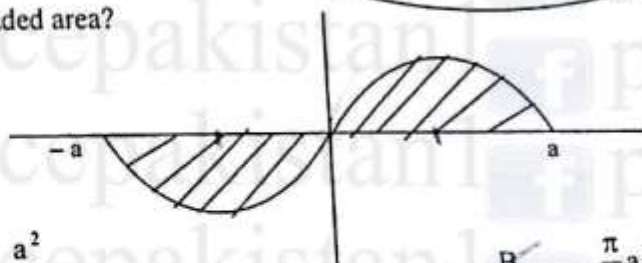
A. $\dfrac{1}{\sqrt{3}}$

B. $-\dfrac{1}{\sqrt{3}}$

C. $\dfrac{\sqrt{3}}{2}$

D. $\dfrac{2}{\sqrt{3}}$

14. Find shaded area?

A. $\dfrac{a^2}{4}$

B. $\dfrac{\pi}{4}a^2$

C. $a^2 + 4$

D. $\dfrac{\pi}{4}$

8. Car X starts at 9 a.m. and travels at 60 m/h. Car Y starts from the same point towards car X at 11 a.m. and travels at 80 m/h. At what time will Car Y overtake Car X?
   A. 5 p.m.
   B. 6 p.m.
   C. 7 p.m.
   D. 8 p.m.

9. A mixture of milk and water has 80% pure milk. 100 litres of pure milk are added to this mixture which increases the percentage concentration of milk to 85%. What is the quantity of the new mixture?
   A. 200
   B. 300
   C. 400
   D. 500

10. 30 Men can complete a building in 100 days. After 10 days have passed, 10 more men arrive. In how many days will the remaining work be completed?
    A. 67.5
    B. 62.5
    C. 77.5
    D. 72.5

11. If a person bought a carpet for Rs. 20,000 and sold it for Rs. 25,000. What percentage profit did he make on his cost price?
    A. 20%
    B. 75%
    C. 30%
    D. 50%

12. The integral part of logarithm is called.
    A. Characteristic
    B. Mantissa
    C. Solution
    D. root

13. What is the average of positive integers from 1 to 100 inclusive?
    A. 49
    B. 49.5
    C. 50.5
    D. 50

14. Aslam is now 3 times as old as Javed, but 5 years ago, he was 5 times as Javed was. How old is Aslam now?
    A. 10
    B. 12
    C. 24
    D. 30

15. If x % of y is 10, what is y?
    A. $10/x$
    B. $100/x$
    C. $1000/x$
    D. $x/100$

16. The length of the arc cut off on a circle of radius 6 cm by a central angle of $2\pi/3$ radians.
    A. 10.033 cm
    B. 12.566 cm
    C. 9.156 cm
    D. 12.113 cm

47

15. $\int Sin x \ dx$

$\left[\cos x \right]_{-a} \Rightarrow -\left[\cos a - \cos(-a) \right]$

A. $-2 \cos(a)$

B. Zero

C. $-2 \sin a$

D. $2 \cos a$

16. If $e^y = x^x$ then $\dfrac{dy}{dx}$ is?

$y = x \ln x$

A. $\ln x - 1$

B. $1 + \ln x$

C. $\ln x$

D. $x \ln x$

17. $\int_{-1}^{1}(2x^2 + 4)^3 \cdot 4x \ dx$

A. 7

B. 4

C. Zero

D. 3

18. The matrix $\begin{vmatrix} 4 \\ 2 \\ 8 \end{vmatrix}$ is ____ matrix.

A. Singleton

B. Row

C. Column

D. Singular

19. If $(a + b) + c = (a + c) + b$, then this property is.

A. Commutative

B. Associative

C. Distributive

D. None of these

20. Radius of e-circle is?

A. $r = \dfrac{\Delta}{s}$

B. $r = \dfrac{\Delta}{s}$

C. $r = \dfrac{\Delta}{s + a}$

D. $r = \dfrac{s}{\Delta}$

21. The distance between $(0, 5)$ and $(2, 3)$ is?

$4 + 4$

A. 4

B. $3\sqrt{2}$

C. $2\sqrt{2}$

D. 7

22. If $A = i + 2j + 3k$; $B = i - 3j + k$ then $3A - B = ?$

$3i + 6j + 9k$

A. $2i - 8j + k$

B. $2i + 9j + 8k$

C. $2i - 2j + 4k$

D. $2i + 9j - 8k$

NU ANSWER SHEET

ANSWER SHEET

STUDENT'S NAME _____   DATED: _____

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

W		W		W		W	
R		R		R		R	

8. Which of the following is NOT mentioned in the passage as one of the functions of lighthouses?

   A   To help sailors determine their location
   B   To warn of danger from rocks and reefs
   C   To notify sailors that bad weather is approaching
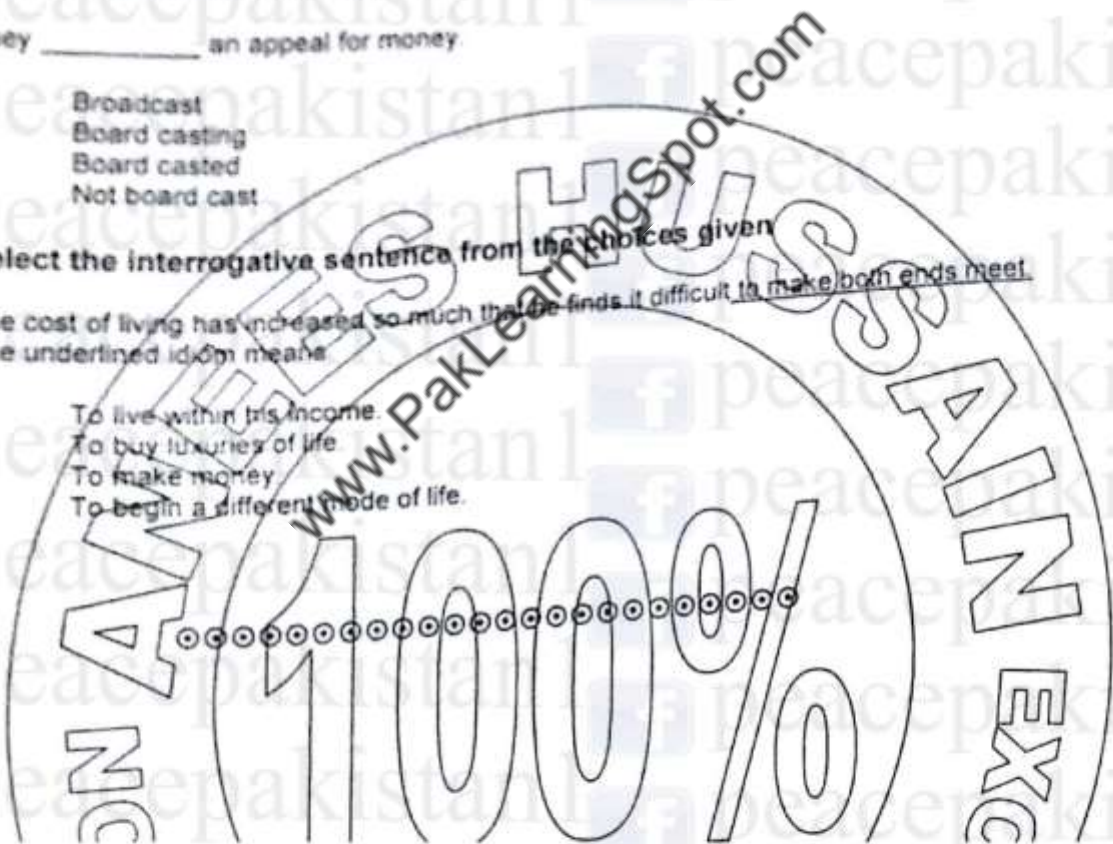   D   To indicate that land is near

Fill the blanks with the correct verb

9. They _____ an appeal for money.

   A   Broadcast
   B   Board casting
   C   Board casted
   D   Not board cast

Select the interrogative sentence from the choices given

10. The cost of living has increased so much that he finds it difficult to make both ends meet.
    The underlined idiom means

   A   To live within his income.
   B   To buy luxuries of life
   C   To make money
   D   To begin a different mode of life.

23. If $C_1^n = \dfrac{9 \times 8}{2!}$ then $n = ?$

A. 36
B. 45
C. 16
D. 25

24. $Sin^{-1}x + Cos^{-1}x = ?$

A. π
B. 2π
C. $\pi/2$
D. 0

25. $\left[\sqrt{7} + \sqrt{7}\,\omega + \sqrt{7}\,\omega^2\right] = ?$

A. 7
B. 1
C. 0
D. $2\sqrt{7}$

26. $(0.03\,y + 0.04\,x)(0.03\,x - 0.04\,y) = ?$

A. $0.03x - 0.04y$
B. $(0.03x)^2 + (0.04x)^2$
C. $0.1x + 0.1y$
D. $(0.03x)^2 - (0.04y)^2$

27. If $9x^2 + 9y^2 = 36$ then diameter is?

A.
B.
C. 9
D. 3

28. If A' is the complement of A in the universal set U, then $A' \cap A$ is?

A. $A' \cup A$
B. 0
C. $\cup$
D. ϕ

29. If $z = 3 + 4i$, then $|z|^2 = ?$

A. 20
B. 16
C. 9
D. 25

30. If $x^2 + 8x - 7 = 0$, then ratio of sum of roots to the products of the roots is?

A. 7:8
B. 5:3
C. 8:7
D. 4:5

31. Matrix multiplication satisfy commutative property.

A. Yes
B. No
C. Depends on matrix
D. None of these

17. One of the angle of a triangle is 82 degree. The others two angles are in the ratio 2:5. Find the number of degree in the smallest angle of the triangle.

A.   14   B.   25
C.   28   D.   38

18. Sum of two numbers is 32 and the sum of there squares is 904. Find the greater number.

A.   50   B.   40
C.   35   D.   30

19. Alam is twice as old as Maqsood, who is 5 years older than Shami. If their total age is 27 year, how old is Shami?

A.   3   B.   4
C.   9   D.   30

20. The diagonal of a rectangle is 26m and its perimeter is 68m, find its area.

A.   34   B.   68
C.   120   D.   240
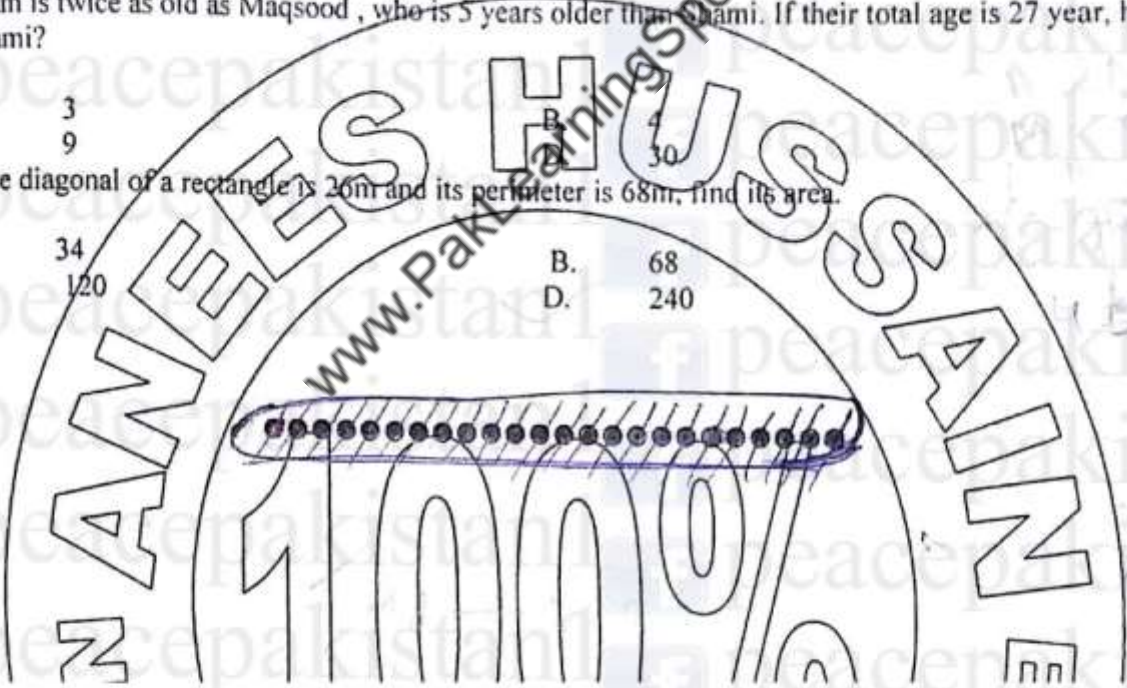
19. Sequence

Which option below continues the above sequence?

20. LOB is to ORE
     as ORB is to?

A. RBO   B. RUB   C. REB
D. URE   E. EUB

BASIC MATH

1. In the figure on the right, what is the perimeter of triangle QRS?

   A. 12
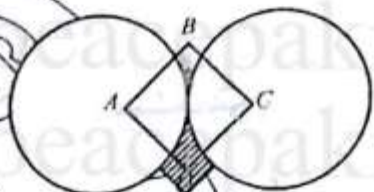
   B. $6\sqrt{6}$

   C. 6

   D. $6\sqrt{2}$
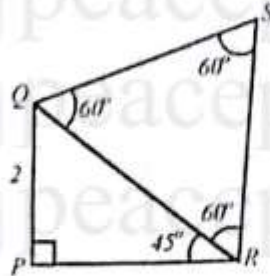
2. In the figure below, circle with centers A and C are tangent to each other and are intersected by square ABCD. If the circles are equal and the circumference of each is 16π, what is the area of the shaded region?

   A. $32(4-2\pi)$

   B. $32(4-\pi)$

   C. $32(4-\frac{\pi}{2})$

   D. $32(2-\frac{\pi}{2})$

3. A certain copy machine produces 13 copies every 10 seconds. If the machine operates without interruption, how many copies will it produce in an hour?

   A. 78

   B. 468

   C. 1800

   D. 4680

4. If 60 feet of uniform wire weighs 80 pounds, what is the weight of 2 yards of the same wire?

   A. $2\frac{2}{3}$

   B. 6

   C. 2400

   D. 8

5. A gear 50 inches in diameter turns a smaller gear 30 inches in diameter. If the larger gear makes 15 revolutions, how many revolutions does the smaller gear make in that time?

   A. 9

   B.

   C. 20

   D. 25

6. If x men can do a job in h days, how long would y men take to do the same job?

   A. $\frac{x}{h}$

   B. $\frac{xh}{y}$

   C. $\frac{hy}{x}$
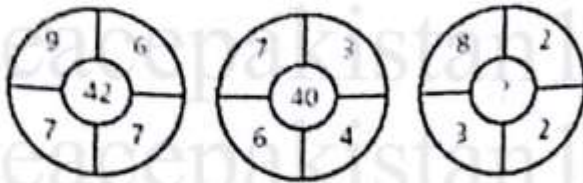
   D. $\frac{xy}{h}$

7. 10 painters can paint 100 houses in 20 days working 6 hours daily. In how many days would 15 painters paint 600 houses working 8 hours daily?

   A. 10

   B. 15

   C. 20

   D. 25

**14.** What number should replace the question mark?

15. Each of the nine squares in the grid marked 1A to 3C should incorporate all the lines and symbols that are shown in the squares of the same letter and number immediately above and to the left. For example, 2B should incorporate all the lines and symbols that are in 2 and B.
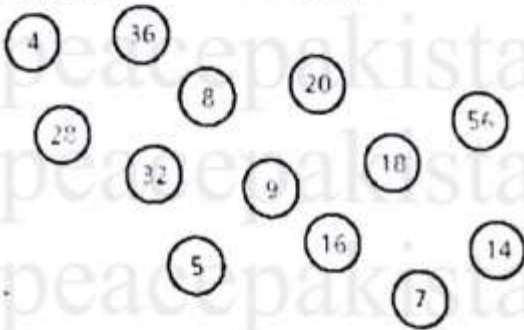
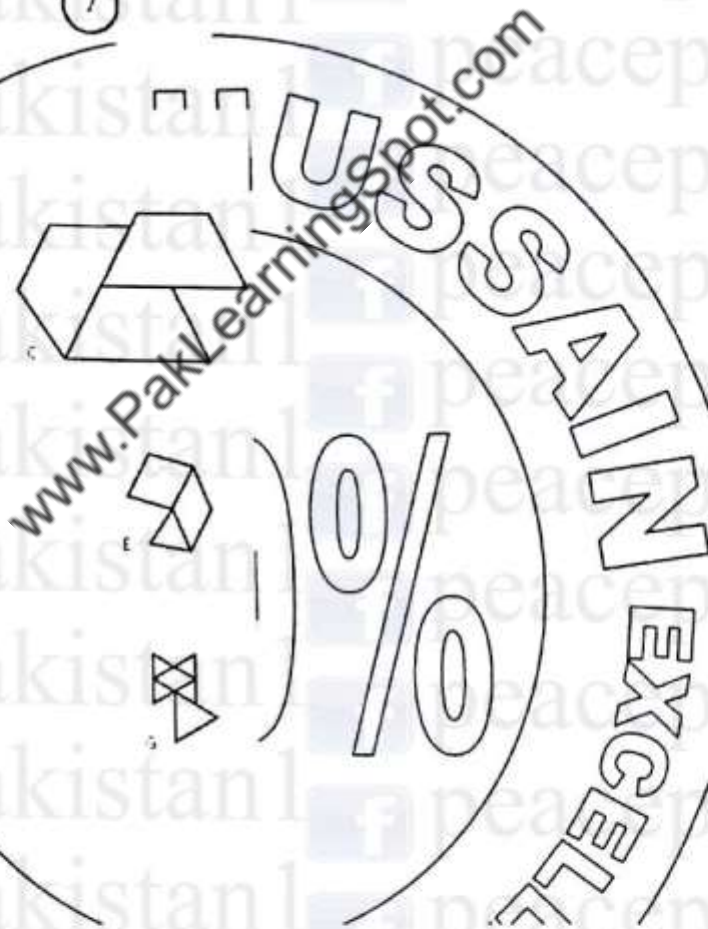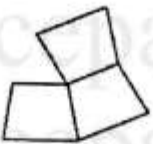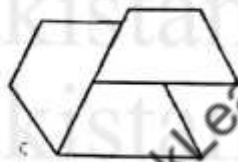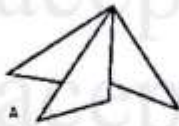One of the squares is incorrect. Which one is it?

16.
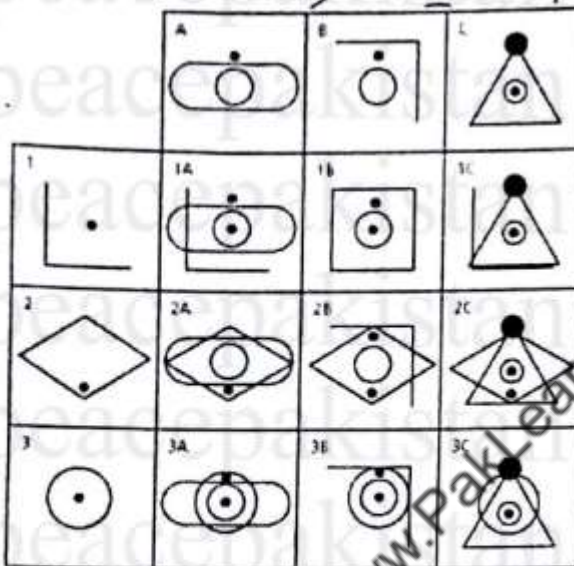
Which option below continues the above sequence?
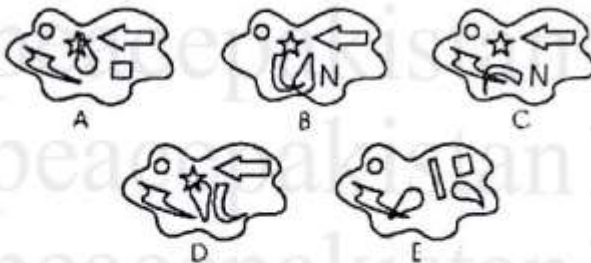
17. Which number is the odd one out?

(4) (36) (8) (20) (29) (56) (32) (18) (9) (5) (16) (14) (7)

18. Which is the odd one out?

ANEES HUSSAIN

EXCELLENCE IN EDUCATION SINCE 1989

10 %

NU-FAST (CS) # 3

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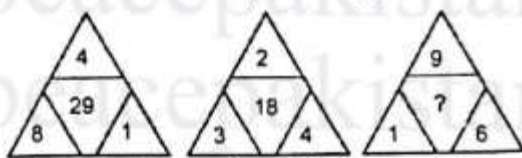Ph: 0303-2267893, 021-34921180, 021-34943939

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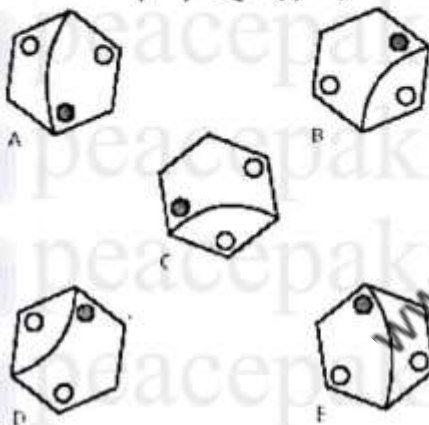
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ANALYTICAL SKILLS & I.Q

1. Which word is opposite in meaning to the SIGNIFICANT ?

   A. volatile   B. stupid   C. valuable   D. petty   E. dull

2. FELINE : CAT is to VULPINE :

   A. ferret   B. fox   C. deer
   D. wolf   E. sheep

3. What number should replace the question mark?

4. Which of A, B, C, D or E is the odd one out?

5. Which two numbers come next in this sequence?

   38, 24, 62, 12, 74,

   A. 30, 104   B. 28, 102   C. 26, 100
   D. 86, 56   E. 86, 36

6. Which of the following is the odd-one out?

   ROOSTER, BUCK, GANDER, PEN, RAM

ADVANCED MATHEMATICS

1. If $f(x) = x + 2$; $g(x) = x - 2$ the $(f \cdot g)_{(2)} = ?$

    A.   3   B.   2

    C.   1   D.   4

2. $\sin^{-1}(\tan 45^\circ) = ?$

    A. $\pi/3$ B. $\pi/4$

    C. $\pi/6$ D. $\pi/2$

3. Find the coordinate of the point which divide the join of $(2,3)$ & $(5,4)$ in $2:3$?

    A. $(16,17)$ B. $(5,4)$

    C. $\left(\dfrac{16}{5}, \dfrac{17}{5}\right)$ D. $(5,3)$

4. $\dfrac{8! \times 6!}{9! \times 5!} = ?$

    A. $\dfrac{1}{12}$ B. $\dfrac{1}{3}$

    C. $\dfrac{2}{3}$ D. $\dfrac{2}{3}$

5. The total number of terms in the expansion of $\left[1 - (1+x)^5\right]$ is?

    A.   6   B.   7

    C.   8   D.   5

6. If $f(x) = \ln(\ln x)$, then $f'(x) = ?$

    A. $\ln(\ln x)$ B. $\dfrac{1}{x \ln x}$

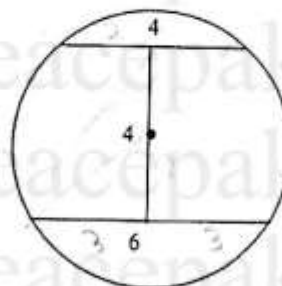   C. $\ln x + 1$ D. $\dfrac{1}{\ln x}$

7. The radius of the circle is?

    A. $4\sqrt{2}$ B. $2\sqrt{2}$

    C. $3\sqrt{2}$ D.   4

32. H.C.F of (x^2+4); (x^2-x+6) and $(x-2)$ is?

   A.   1   B.   2

   C.   0   D.   x

33. Two dice are rolled simultaneously, the probability of obtaining the same faces?

   A. $\frac{1}{6}$ B. $\frac{3}{5}$

   C.   0   D.   1

34. If $f(x)=3x+2$ and $g(x)=x+7$, then $(f \circ g)^{-1}\,x=$?

   A. $\dfrac{x-3}{4}$ B. $\dfrac{x+9}{3}$

   C. $\dfrac{x-9}{3}$ D. $\dfrac{x-4}{2}$

35. $B(1,3)$ divide the join of $A(2,3)$ and "C" in 2:1, then coordinate of "C" is?

   A. $\left(\frac{1}{2},3\right)$ B. $\left(-3,\frac{1}{2}\right)$

   C. $\left(\frac{3}{2},3\right)$ D. $\left(\frac{1}{2},3\right)$

36. $Sin^{-1}(0.866)=$?

   A. 30^0 B. 60^0

   C. 0^0 D. 45^0

37. Find $\triangle$ ABC if

   A.   8 square units   B.   6 square units

   C.   24 square units   D.   4 square units

38. $\displaystyle \lim_{x\to 0}\frac{x^2+9}{x+3}$

   A.   0   B.   2

   C. ∞ D.   3

39. Fine the numbers of arrangements formed from the letters of the word "SSYET"

   A.   25   B.   45

   C.   60   D.   80