NTS TESTS WITH EXPLANATORY ANSWERS

NTS TEST NO. 1

◆ Select the correct answer for each question and blacken the corresponding circle in the answer sheet.

Q1. The area of the circle that is inscribed in a square of area 4, is:

(A) $\frac{\pi}{2}$ (B) π

(C) $\frac{\pi}{3}$ (D) 4π

Q2. If the angles of a five-sided polygon are in the ratio of 2 : 3 : 4 : 4 : 5, what is the measure of the smallest angle?

(A) 30° (B) 60°

(C) 45° (D) 210°

Q3. In a certain city, x gallons of gasoline are needed per month for each car. How long will y gallons last at this rate given that there are z cars in the town?

(A) $\frac{x}{zr}$ (B) $\frac{yz}{x}$

(C) $\frac{z}{xy}$ (D) $\frac{y}{zx}$

Q4. What is fraction of two weeks with 36 minutes?

(A) $\frac{1}{840}$ (B) $\frac{1}{120}$

(C) $\frac{1}{20160}$ (D) $\frac{1}{560}$

Q5. Let T = total area of five circles of radius r and let S = total area of three circles of radius u. If $T = S$, then $\frac{r}{u} =$

(A) $\sqrt{\frac{5}{3}}$ (B) $\frac{3}{5}$

(C) $\frac{\sqrt{3}}{\sqrt{5}}$ (D) 3π

Q6. A sum of Rs. 7000 is divided among A, B and C in such a way that shares of A and B are in the ratio 2 : 3 and those of B and C are in the ratio 4 : 5. The amount received by C is:

(A) Rs. 3900 (B) Rs. 3000

(C) Rs. 2800 (D) Rs. 2600

Q7. If $x : y = 2 : 5$, then $(3x + 4y) : (4x + 5y) =$

(A) 6 : 20 (B) 9 : 21

(C) 26 : 33 (D) 16 : 20

Q8. If the postal charges for a package are 62 cents for the first five ounces and 8 cents for each additional ounce, what is the weight of a package for which the charges are \$1.66? (16 ounces = one pound approx):

(A) 1.125 pounds (B) 1.1 pounds

(C) 1.3 pounds (D) 0.8 pounds

Q9. **Which of the following must be true?**

I. $(36 - 81) = (6 - 9)(6 + 9)$

II. $5(16 + 7) = 5(16) + 5(7)$

III. $5 \div (10 - 1) = (5 \div 10) - (5 \div 1)$

(A) I only (B) II only

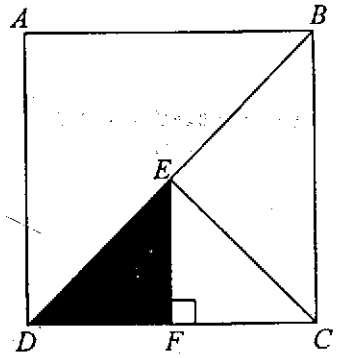
(C) I and II only (D) II and III only

Q10. **Two candidates contested an election. One got 65% of the votes and won by 300 votes. The total number of votes polled is:**

(A) 1200 (B) 1000

(C) 800 (D) 600

Q11. **In square ABCD below, if DE = EB and DF = FC, then, what is the fraction of the area of the shaded region to the area of square region ABCD?**



(A) $\frac{1}{3}$ (B) $\frac{1}{8}$

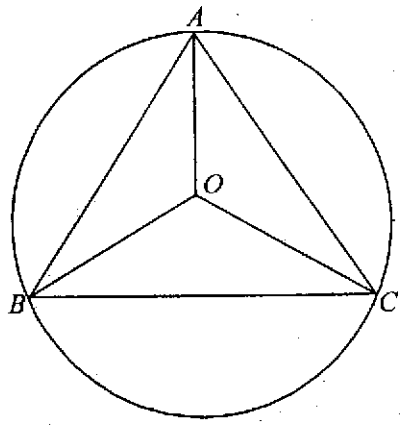
(C) $\frac{1}{16}$ (D) $\frac{1}{6}$

Q12. **In a certain pizza, two straight cuts of different radii succeed in removing $\frac{4}{15}$ of the total pizza. What is the central angle in degrees of the piece cut?**

(A) 85 (B) 92

(C) 96 (D) 60

Q13. **In the figure below, *O* is the centre of the circle. If $\angle OBC = 25^\circ$, then $\angle BAC$ is equal to:**



(A) 150° (B) 65°

(C) 30° (D) 25°

Q14. If $x : y$ is 7 : 6 and $3y : 2z$ is 2 : 3, what is $\frac{z}{x}$?

(A) $\frac{14}{27}$ (B) $\frac{27}{14}$

(C) $\frac{7}{9}$ (D) $\frac{6}{7}$

Q15. Fatima is having a party, at 7:00 P.M., guests begin arriving at a uniform rate of 8 people every 15 minutes. If this pattern continues, how many guests will have arrived at 9:00 P.M.?

(A) 80 (B) 64

(C) 40 (D) 20

Q16. For positive integers x and y, if $x^2 + 2y^2 = 41$, and $2x^2 + y^2 = 34$, then $x^2 =$

(A) $\frac{41}{2}$ (B) 9

(C) $\frac{27}{2}$ (D) 20

Q17. The value of $\left[\frac{(0.05)^2 + (0.41)^2 + (0.073)^2}{(0.005)^2 + (0.041)^2 + (0.0073)^2}\right]$ is:

(A) 0.1 (B) 10

(C) 100 (D) 1000

Q18. Aslam sells a chair at a gain of $7\frac{1}{2}$%. If he had bought it at a $12\frac{1}{2}$% less and sold it for Rs. 5 more, he would have gained 30%. The cost price of the chair is:

(A) Rs. 72 (B) Rs. 80

(C) Rs. 88 (D) Rs. 96

Q19. For developing pictures, Modern Photo Lab., charges a service fee of \$6 for every order it receives in addition to a printing fee. If the order consists of 12 pictures or less, the printing fee per picture is \$0.24. If the order consists of more than 12 pictures, the printing fee per picture is \$0.16. What is the total cost per picture for an order consisting of 30 pictures.

(A) \$0.44 (B) \$0.16

(C) \$4.8 (D) \$0.36

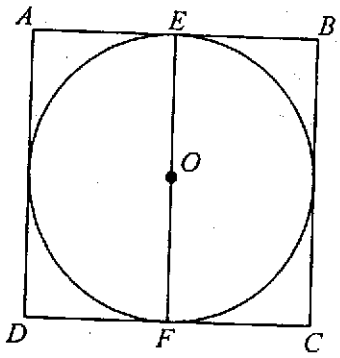
Q20. If the interior angle of a regular polygon is 11 times its exterior angle, the number of sides of the polygon is:

(A) 11 (B) 18

(C) 24 (D) 22

Explanatory Answers

Q1. (B) First of all, we draw a diagram



Since the area of square ABCD is 4

$\therefore$ AD = 2. Also, diameter EF = 2 and

radius OE = OF = $\frac{2}{2} = 1$

Area of the circle = $\pi r^2 = \pi(1)^2 = \pi$

Hence the correct answer is choice B.

Q2. (B) The sum of the angles of a five-sided polygon is $(5 - 2) \times 180 = 3 \times 180 = 540$.

Now, $540 = 2x + 3x + 4x + 4x + 5x \Rightarrow 18x = 540$

$\Rightarrow x = 30$

The measure of the smallest angle is $= 2 \times 30 = 60^\circ$

Hence the correct answer is choice B.

Q3. (D) Each car needed gasoline = x gallons

z cars needed gasoline = zx gallons

y gallons required at this rate = $\frac{y}{zx}$

Hence the correct answer is choice D.

Q4. (D) There are 24 hours in a day, and 24×14

= 336 hours in two weeks, also 336×60

= 20,160 minutes in two weeks. Thus the fraction with 36 minutes is $\frac{36}{20,160} = \frac{1}{560}$.

Hence the correct answer is choice D.

Q5. (C) Since T is the total area of the 5 circles,

therefore, $T = 5(\pi r^2)$

Now, S is the total area of the 3 circles of radius u, therefore $S = 3(\pi u^2)$

$\because T = S$ (given)

$5\pi r^2 = 3\pi u^2$

$\Rightarrow \frac{r^2}{u^2} = \frac{3\pi}{5\pi} \Rightarrow \frac{r^2}{u^2} = \frac{3}{5}$

$\Rightarrow \frac{r}{u} = \sqrt{\frac{3}{5}} = \frac{\sqrt{3}}{\sqrt{5}}$

Hence the correct answer is choice C.

Q6. (B) A : B = 2 : 3 and B : C = 4 : 5

$= \frac{3}{4} \times 4 : \frac{3}{4} \times 5 = 3 : \frac{15}{4}$

$\therefore A : B : C = 2 : 3 : \frac{15}{4} = 8 : 12 : 15$

$\therefore$ C's share = Rs. $\left[7000 \times \frac{15}{35}\right]$ = Rs. 3000

Hence the correct answer is choice B.

Q7. (C) Given that $\frac{x}{y} = \frac{2}{5}$

Now, $\frac{3x+4y}{4x+5y} = \frac{3\left(\frac{x}{y}\right)+4}{4\left(\frac{x}{y}\right)+5}$

$= \frac{3\times\frac{2}{5}+4}{4\times\frac{2}{5}+5} = \frac{\frac{6}{5}+4}{\frac{8}{5}+5}$

$= \frac{\frac{6+20}{5}}{\frac{8+25}{5}} = \frac{26}{33}$

Hence, $(3x + 4y) : (4x + 5y) = 26 : 33$

Thus, correct answer is choice C.

Q8. (A) Since charges on first five ounces = 62 cents. Now, 1.66 dollars = 100 + 66 = 166 cents. Thus, first 62 cents are charged for five ounces, then by remaining cents will be 166 – 62 = 104. Since 8 cents are received for additional ounce. Therefore, 104 is received for $\frac{104}{8}$ = 13 ounces. The total package is

$13 + 5 = 18$ ounces.

$\because$ 16 ounces = 1 pound

1 ounces $= \frac{1}{16}$ pound

18 ounces $= \frac{1}{16} \times 18$ pounds

$= 1.125$ pounds

Hence the correct answer is choice "A".

Q9. (C) Take I, $(36 - 81) = (6 - 9)(6 + 9)$ is true because $[(6)^2 - (9)^2] = (6 - 9)(6 + 9)$, as $a^2 - b^2 = (a + b)(a - b)$

Take II, $5(16 + 7) = 5(16) + 5(7)$ is also true, because according to distributive property of multiplication over addition

$x(a + b) = xa + xb$

Now, take III, $5 \div (10 - 1) = (5 \div 10) - (1 \div 5)$ is not a true statement. Hence the correct answer is choice C.

Q10.(B) Let the total number of votes polled be x.

Then 65% of x – 35% of x = 300

$\Rightarrow$ 30% of x = 300

$\therefore \frac{30}{100} \times x = 300$ or $x = \frac{300 \times 100}{30} = 1000$

Hence the correct answer is choice B.

Q11.(B) $\because$ DE = EB and DF = FC, the area of the shaded region is one-fourth the area of triangular region BCD, since BD divides square ABCD into two equal triangular regions, the shaded region is $\left(\frac{1}{2}\right)\left(\frac{1}{4}\right)$, or $\frac{1}{8}$, of the area of square region ABCD. Hence, the best answer is B.

Q12.(C) Let x be the total prize and let y be the required angle then setting the proportion, we have

$x : 360 :: \frac{4}{15}x : y$

$\frac{x}{360} = \frac{4x}{15} \quad \Rightarrow xy = \frac{4x}{15} \times 360$

$\Rightarrow y = 4 \times 24 = 96^\circ$

Hence the correct answer is choice C.

Q13.(B) OB = OC $\Rightarrow \angle OCB = \angle OBC = 25^\circ$

So, $\angle BOC = [180 - (25 + 25)] = 130^\circ$

$\therefore \angle BAC = \frac{1}{2}\angle BOC$

$= 65^\circ$

Hence the correct answer is choice B.

Q14.(B) $x : y = 7 : 6 \quad \Rightarrow \frac{x}{y} = \frac{7}{6}$ ...(i)

also $3y : 2z = 2 : 3 \Rightarrow \frac{3y}{2z} = \frac{2}{3}$

$\Rightarrow \frac{y}{z} = \frac{4}{9}$ ...(ii)

$\Rightarrow \frac{z}{y} = \frac{9}{4}$ ...(iii)

dividing equation (iii) by (i), we get

$$\frac{\frac{z}{y}}{\frac{x}{y}} = \frac{\frac{9}{4}}{\frac{7}{6}}$$

$\Rightarrow \frac{z}{y} \times \frac{y}{x} = \frac{9}{4} \times \frac{6}{7}$

$\Rightarrow \boxed{\frac{z}{x} = \frac{27}{14}}$

Hence the correct answer is choice B.

Q15.(B) Guests will arrive according to the following schedule:

7 : 15	_____	8
7 : 30	_____	8
7 : 45	_____	8
8 : 00	_____	8
8 : 15	_____	8
8 : 30	_____	8
8 : 45	_____	8
9 : 00	_____	8
Total guests		64

Hence the correct answer is choice B.

Q16.(B) $x^2 + 2y^2 = 41$ ...(i)

$2x^2 + y^2 = 34$ ...(ii)

Subtracting equation (i) from (ii), we get

$2x^2 + y^2 = 34$

$$\underline{x^2 + 2y^2 = 41}$$
$$x^2 - y^2 = -7 \quad \ldots(iii)$$

adding (ii) and (iii), we get

$$2x^2 + y^2 = 34$$
$$x^2 - y^2 = -7$$
$$3x^2 = 27$$
$$x^2 = \frac{27}{3}$$
$$\Rightarrow \boxed{x^2 = 9}$$

Hence the correct answer is choice B.

Q17.(C) Given that, Let $a = .05$, $b = 0.41$ and $c = .073$

$$= \frac{a^2 + b^2 + c^2}{\left(\frac{a}{10}\right)^2 + \left(\frac{b}{10}\right)^2 + \left(\frac{c}{10}\right)^2}$$
$$= \frac{100(a^2 + b^2 + c^2)}{(a^2 + b^2 + c^2)} = 100$$

Hence the correct answer is choice C.

Q18.(B) Let C.P = Rs. 100. Then, first S.P = Rs. 107.50

New C.P = Rs. 87.50 and gain on it = 30%

$\therefore$ Second S.P = 130% of 87.50 = 113.75

Difference in two selling prices = Rs. (113.75 – 107.50)

= Rs. 6.25

$\therefore$ Actual S.P = Rs. $\left[\frac{100}{6.25} \times 5\right]$

= Rs. 80

Hence the correct answer is choice B.

Q19.(D) Service fee = \$6

Charges of 30 pictures @, \$0.16 per picture = 30 × 0.16 = 4.8

Total charges = \$(6 + 4.8) = \$10.8

Cost per picture = $\frac{10.8}{30}$ = \$0.36

Hence the correct answer is choice D.

Q20.(C) Each exterior angle $= \frac{360}{n}$, and

Each interior angle $= \left[180 - \frac{360}{n}\right]$

$$\therefore \quad 180 - \frac{360}{n} = 11 \times \frac{360}{n}$$
$$\Rightarrow \quad \frac{180n - 360}{n} = \frac{11 \times 360}{n}$$
$$\Rightarrow \quad 180n - 360 = 3960$$
$$\Rightarrow \quad 180n = 3960 + 380 \Rightarrow n = \frac{4340}{180}$$
$$\Rightarrow \quad \boxed{n = 24}$$

NTS TEST NO. 2

◆ Select the correct answer for each question and blacken the corresponding circle in the answer sheet.

Q1. The sum of the lengths of all the edges of a cube is 4 centimeters. What is the volume in cubic centimeters of the cube?

(A) $\frac{1}{8}$ (B) $\frac{1}{27}$
(C) 64 (D) 27

Q2. A 6-foot long cylindrical pipe has an inner diameter of 8 feet and outer diameter of 10 feet. If the total surface area (including inside, outside and ends) is $x\pi$, what is the value of x?

(A) 20 (B) 118
(C) 100 (D) 109

Q3. November is the busiest month at Panorama centre, Lahore, where sale in November is 40 percent higher than the average. If sale in March is typically 20 percent lower than the average, what is the ratio of the March sale to November sale?

(A) 2 : 3 (B) 2 : 1
(C) 3 : 2 (D) 4 : 7

Q4. How many 3-digit numbers are there that consist of only odd digits?

(A) 125 (B) 625
(C) 12500 (D) 225

Q5. If $(x+y):(x-y) = 1:5$, then $(x^2-y^2):(x^2+y^2)$ equals:

(A) 2 : 3 (B) 1 : 2
(C) 5 : 13 (D) 1 : 10

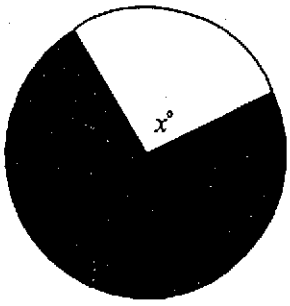
Q6. What annual payment will discharge a debt of Rs. 580 due in 5 years, the rate being 8% per annum?

(A) Rs. 120 (B) Rs. 100
(C) Rs. 65.60 (D) Rs. 166.40

Q7. Amina found an easy way to add up a sequence of positive even integers with an even number of terms. She forms pairs of equal sums by adding the first integer to the last, the second integer to the next-to-last, and so on. She then computed the total by adding these equal sums. If the total that Amina obtained was 930, how many terms were there in the sequence of positive even integers if the sequence started with the number 2?

(A) 39 (B) 24
(C) 30 (D) 25

Q8. In the following figure, the area of the shaded sector is 75% of the area of the entire circle, what is the value of x?

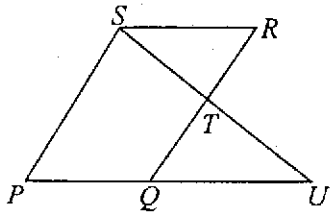


(A) 25 (B) 90°
(C) 270 (D) 45

Q9. **Ali goes to a park and runs in the following manner:**
From the starting point, he goes west 25 *m*, then to north 60m, then to east 80 *m* and finally to south 12 *m*. The distance between the starting point and the finishing point is:

(A) 73 *m* (B) 83 m
(C) 103 *m* (D) 177 m

Q10. **PQRS is a parallelogram and T is the midpoint of QR. ST and PQ when produced meet at U. Then**



(A) $PU = \frac{3}{2}PQ$ (B) $PU = 2PQ$
(C) $PU = 3PQ$ (D) $PU^2 = 2PQ^2$

Q11. **The diameter of a circle is 105 cms less than the circumference. The radius of the circle is:**

(A) 24.5 cm (B) 24 cm
(C) 23 cm (D) 22 cm

Q12. **The perimeter of a square whose area is equal to that of a circle with perimeter $2\pi x$ is:**

(A) $4\sqrt{\pi}\,x$ (B) $4\sqrt{\pi x}$
(C) $\sqrt{\pi}\,x$ (D) $2\pi x$

Q13. **A can do a piece of work in 35 days while B can complete it in 45 days. They start the work together, but A drops out after 7 days. In how many days will B take to finish the remaining work?**

(A) 29 (B) 36
(C) 45 (D) None of these

Q14. **If $\frac{3}{5}$ of the employees in Dogar Publishers are not college graduates, what is the ratio of the number of college graduates to those who are not college graduates?**

(A) 1 : 3 (B) 3 : 2
(C) 1 : 5 (D) 2 : 5

Q15. **If $\frac{3a-1}{25} = \frac{a+5}{11}$, what is the value of a?**

(A) 13 (B) 136
(C) $\frac{5}{6}$ (D) 17

Q16. **The sum of the six consecutive integers is T, what is the largest of those integers in terms of T?**

(A) $\frac{T+10}{5}$ (B) $\frac{T+6}{5}$
(C) $\frac{T+5}{6}$ (D) $\frac{T+15}{6}$

Q17. **If $\frac{1}{2}y$ years ago, Rizwan was 10, and $\frac{1}{2}y$ years from now he will be $2y$ years old, how old will he be $3y$ years from now?**

(A) 54 (B) 60

(C) 34 (D) 30

Q18. **If xyz = 1, then $\left(\frac{1}{1+x+y^{-1}}+\frac{1}{1+y+z^{-1}}+\frac{1}{1+z+x^{-1}}\right)$ is equal to:**

(A) 0 (B) $\frac{1}{xy}$

(C) xy (D) 1

Q19. **A man spends 75% of his income. His income is increased by 20% and he increased his expenditure by 10%. His savings are increased by:**

(A) 10% (B) 25%

(C) 37.5% (D) 50%

Q20. **Electricity tax is increased by 20% and its consumption is decreased by 20%. The change in the expenditure is:**

(A) nil (B) 5% decrease

(C) 4% increase (D) 4% decrease

Explanatory Answers

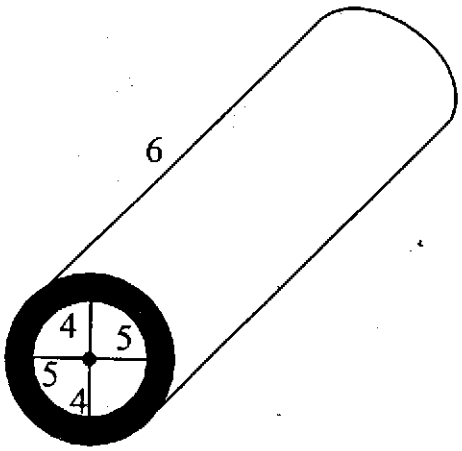
Q1. (B) Since a cube has 12 edges, therefore

$12e = 4 \Rightarrow e = \frac{1}{3}$

As $v = e^3 \Rightarrow v = \left(\frac{1}{3}\right)^3$

$\Rightarrow v = \frac{1}{27}$

Q2. (B)



According to above diagram, surface area of the cylinder is, A = 2πrh. Thus the area of the outer edge is = 2π(5)(6) = 60π, and the surface area of the inner side = 2π(4)(5) = 40π. Now

Area of the shaded end = Area of the outer circle – the area of the inner circle

$= \pi r^2 - \pi r^2 = \pi(5)^2 - \pi(4)^2$

$= 25\pi - 16\pi = 9\pi$

Now the total surface area $= 60\pi + 40\pi + 9\pi + 9\pi$

$= 118\pi = x\pi$

$\boxed{\Rightarrow x = 118}$

Hence the correct answer is choice B.

Q3. (D) Let the average sale be 100, then sale in November = 100 + 40 = 140 and the sale in March = 100 – 20 = 80. Then ratio between the sale of March to November is 80 : 140 ⇒ 4 : 7

Q4. (A) At unit place, there could be only 5 odd digits, *i.e.*, 1, 3, 5, 7 and 9.

Also, at tenth place there could be only 5 odd numbers and at last, at 100th place, there could be 5 odd integers. Then by-product rule

$$5 \times 5 \times 5 = 125$$

Hence the correct answer is choice A.

Q5. (C) $\frac{x+y}{x-y} = \frac{1}{5} \Leftrightarrow \frac{x+y+x-y}{x+y-x+y} = \frac{1+5}{1-5}$

(By Commend & Divendo)

$$\Rightarrow \frac{x}{y} = \frac{6}{-4} \qquad \Rightarrow \frac{x}{y} = \frac{-3}{2}$$

$$\Rightarrow \frac{x^2}{y^2} = \frac{9}{4} \Rightarrow \frac{x^2-y^2}{x^2+y^2} = \frac{9-4}{9+4}$$

$$\Rightarrow \frac{x^2-y^2}{x^2+y^2} = \frac{5}{17}$$

Hence the correct answer is choice C.

Q6. (B) Let the annual payment be Rs. x. Then (Amount of x for 4 years) + (Amount of x for 3 years) + (Amount of x for 2 years) + (Amount of x for 1 year) + x = 580

$$\Rightarrow \left(x + \frac{x \times 4 \times 8}{100}\right) + \left(x + \frac{x \times 3 \times 8}{100}\right) + \left(x + \frac{x \times 2 \times 8}{100}\right) + \left(x + \frac{x \times 1 \times 8}{100}\right) + x = 580$$

$$\Rightarrow \quad 5x + \frac{32x + 24x + 16x + 8x}{100} = 580$$

$$\Rightarrow \quad \frac{500x + 80x}{100} = 580$$

$$\Rightarrow \quad \frac{580x}{100} = 580$$

$$\Rightarrow \quad \boxed{x = 100}$$

Hence the correct answer is choice B.

Q7. (C) The sequence of the even numbers are in the form of

2 + 4 + 6 + ...

Using the formula for sum of integers

$$Sn = \frac{n}{2}\{2a + (n-1)d\}$$

Here n = ?, Sn = 930, $d = 4 - 2 = 2$

and a = 2 *i.e.*, first term. Now

$$930 = \frac{n}{2}\{2 \times 2 + (n-1)2\}$$

$$\Rightarrow \quad 930 \times 2 = n\{4 + 2n - 2\}$$

$$\Rightarrow \quad 1860 = 2n^2 + 2n$$

$\Rightarrow \quad 930 = n^2 + n$

$\Rightarrow \quad n^2 + n - 930 = 0$

$\Rightarrow \quad n^2 + 31n - 30n - 930 = 0$ (Factorizing)

$\Rightarrow n(n+31) - 30(n+31) = 0$

$\Rightarrow \quad (n-30)(n+31) = 0$

$\Rightarrow \quad n = 30$ or -31

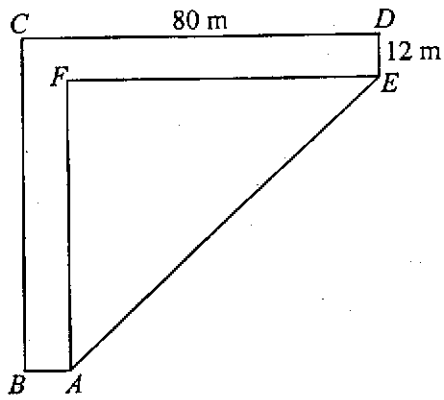
Since n is always positive so the correct answer is choice C.

Q8. (B) Since the shaded area of the given circle is 75% of the entire circle, thus the white area is 25% (100 – 75) of the circle. Now x is the 25% of 360°.

$$\Rightarrow x = 360 \times \frac{25}{100} = 90^\circ$$

Hence, the correct answer is choice B.

Q9. (A) Here, we draw the following diagram:



$$\begin{aligned} AE &= \sqrt{FE^2 + AF^2} \\ &= \sqrt{(80-25)^2 + (60-12)^2} \\ &= \sqrt{(55)^2 + (48)^2} \\ &= 73\text{m} \end{aligned}$$

Hence the correct answer is choice A.

Q10.(B) In ΔTRS and ΔTUQ, we have

$\angle SRT \cong \angle TQU$ ($\because$ alternative angles)

and $\angle STR \cong \angle UTQ$ (vertical opposite angles)

and $TR = QT$

$\therefore$ $\Delta TRS \cong TUQ$, so $SR = QU$

$\therefore$ $PU = PQ + QU$

$= PQ + SR$

$\Rightarrow$ $PU = 2PQ$ ($\because$ in || gram $PQ = RS$)

Hence the correct answer is choice B.

Q11.(A) Here,

$2\pi r - 2r = 105$

$\Rightarrow 2r(\pi - 1) = 105$

$\Rightarrow r = 105 \times \frac{7}{15} \times \frac{1}{2}$

$= 24.5$ cm

Hence the correct choice is choice A.

Q12.(A) Since, given area $= 2\pi x$

But, the area of a circle $= 2\pi r$

$\Rightarrow$ radius, r $= 2\pi$

$\therefore$ Area of square = Area of circle $= \pi x^2$

$\therefore$ Perimeter $= 4 \times$ side

$= 4\sqrt{\pi x^2}$

$= 4x\sqrt{\pi}$

Hence, the correct answer is choice A.

Q13.(A) (A + B)'s 7 days work $= 7 \times \left(\frac{1}{35} + \frac{1}{45}\right)$

$= \frac{16}{45}$

Remaining work $= 1 - \frac{16}{45} = \frac{29}{45}$

B will finish $\frac{29}{45}$ of the work in $\frac{29}{45} \times 45$ days *i.e.,* in 29 days.

Q14.(B) Since for every 5 employees, three are not college graduates, and (5 – 3) = 2 are college graduates. So the ratio of the graduates to non-graduates is 2 : 3.

Hence the correct answer is choice B.

Q15.(D) $\frac{3a-1}{25} = \frac{a+5}{11}$

$11(3a-1) = 25(a+5)$

$33a - 11 = 25a + 125$

$33a - 25a = 125 + 11$

$\Rightarrow 8a = 136$

$\Rightarrow \boxed{a = 17}$

Q16.(D) Let the six consecutive integers be $n, n+1, n+2, n+3, n+4, n+5$. Then

$T = n + (n+1) + (n+2) + (n+3) + (n+4) + (n+5)$

$T = 6n + 15 \Rightarrow 6n = T - 15$

$\Rightarrow n = \frac{T-15}{6}$

Since n is the smallest of the integers, the largest is

$n + 5 = \frac{T-15}{6} + 5$

$= \frac{T - 15 + 30}{6}$

$\Rightarrow n + 5 = \frac{T+15}{6}$

Hence the correct answer is choice D.

Q17.(D) Because, $\frac{1}{2}y$ years ago, Rizwan was 10, he is now $10 + \frac{1}{2}y$. Now, $\frac{1}{2}y$ years from now, he will be 10 +

$\frac{1}{2}y + \frac{1}{2}y = 10 + y$. But given that at that time he will be $2y$ years old. Thus, $10 + x = 2x \Rightarrow x = 5$. Thus he is now, 10 + 5 = 15, and $3y$ or 15 years from now he will be 15 + 15 = 30 years. Hence the correct answer is choice D.

Q18.(D) Given that, $\frac{y}{y+xy+1} + \frac{1}{1+y+xy} + \frac{xy}{xy+1+y}$ $(\because z = \frac{1}{xy})$

$$= \left(\frac{y+1+xy}{y+1+xy}\right) = 1$$

Hence the correct answer is choice D.

Q19.(D) Let income = 100. Then, expenditure = 75 and saving = 25.

New income = 120, new expenditure = 110% of 75

= 82.5

New saving = (120 – 82.5) = 37.5

Increase in saving $= \left(\frac{12.5}{25} \times 100\right)\%$

= 50%

Q20.(D) Let Tax = Rs. 100 per unit and consumption = 100 units

Original Expenditure = Rs. (100 × 100) = Rs. 10000

New Tax = Rs. 120 per unit and New consumption = 80 units

∴ New expenditure = Rs. (120 × 80) = Rs. 9600

∴ Decrease in expenditure $= \left(\frac{400}{10000} \times 100\right)\%$

= 4%

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NTS TEST NO. 3

◆ **Select the correct answer for each question and blacken the corresponding circle in the answer sheet.**

Instructions (1-10): In this part of test, you have 10 MCQs about English. Each sentence below has one or two blanks, each blank shows that something has been omitted. Choose the correct answer from the four answer choices given with each question, numbered *(A), (B), (C), (D)*.

1. ***He laboured _____ the hill; sat watching the city; then ran _____ the hill.***

(A) Along; Towards (B) Down; Up
(C) Up; Down (D) Towards; From

2. ***Put the milk _____ the table and cover it _____ a cloth.***

(A) On; With (B) Near; By
(C) On; By (D) In; With

3. ***Consumers refused to buy meat products from the company because of rumors that the water supply at the meat processing plant was _____; the rumors, however, were quite _____, with no hard evidence to back them up.***

(A) Un-inspected, reckless
(B) Contaminated, unsubstantiated
(C) Impure, damaging
(D) Misdirected, scandalous

4. ***Consumption of red meat has _____ because its fat content has become a worrisome and _____ matter.***

(A) Abated, Dubious (B) Skyrocketed, Stressful

(C) Abounded, Divisive (D) Declined, Controversial

5. *Florence Nightingale was _____ in the development of modern medicine, _____ such practices as sanitization of hospital wards and isolation of actively infected patients.*
   (A) A collaborator, Rejecting
   (B) A maverick, Protesting
   (C) An innovator, Initiating
   (D) A pioneer, Criticizing

6. *Sofia _____ collect stamps, but now she has other interests.*
   (A) Used to (B) Was used to
   (C) Used to be (D) Using to

7. *Salman finished _____ two of his published compositions before his twelfth birthday.*
   (A) Written (B) Writing
   (C) To write (D) Wrote

8. *Throughout the animal kingdom, _____ bigger than the elephant.*
   (A) Whale is only the (B) Only the whale is
   (C) Is the whale only (D) Only whale is the

9. *Linda Greenhouse's articles for the New York Times are an outstanding example of _____, capsulizing prose into a necessarily limited space.*
   (A) Callousness (B) Brevity
   (C) Intuition (D) Propriety

10. *One of the least effective ways of sorting information is learning _____ it.*
   (A) Repeat (B) Repeating
   (C) To repeat (D) How repeat

Instructions (11-20): Each question below consists of a related pair of words or phrases, followed by four lettered pairs of words or phrases numbered *(A), (B), (C), (D)*. Choose the lettered pair that best expresses a relationship similar to that expressed in the pair given in the question.

11. *ELM: TREE::*
   (A) Whale: Mammal (B) Cart: Horse
   (C) Cloud: Rain (D) Painting: Artist

12. *GULLIBLE: DUPED::*
   (A) Myopic: Misled (B) Careful: Cautioned
   (C) Malleable: Molded (D) Credible: Cheated

13. *IMPLICATE: COMPLICATE::*
   (A) Vitality: Inevitable (B) Empathy: Sympathy
   (C) Importune: Construct (D) Imply: Simplify

14. *AFTERNOON: DUSK::*
   (A) Breakfast: Dinner (B) Yesterday: Tomorrow
   (C) Sunday: Saturday (D) Night: Dawn

15. *MINISTER: PULPIT::*
   (A) Doctor: Patient (B) Judge: Bench
   (C) Student: Teacher (D) Programmer: Logic

16. *AUGER: CARPENTER::*
   (A) Cement: Mason (B) Apron: Chef
   (C) Awl: Cobbler (D) Studio: Sculptor

17. *CONTROVERSY: ARBITRATOR::*
   (A) Peacemaker: Conflict (B) Artifact: Anthropologist
   (C) Game: Referee (D) Dispute: Mediator

18. *Condemnation: Disapproval::*
   (A) Ignorance: Patience (B) Sorrow: Intention
   (C) Optimism: Insight (D) Blasphemy: Irreverence

19. *ASYLUM: SHELTER*
   (A) Harbor: Concealment (B) Palisade: Display

(C) Stronghold: Defense (D) Cloister: Storage

20. *CAPTAIN: SHOAL::*

(A) Soldier: Ambush (B) Lawyer: Litigation
(C) Corporal: Sergeant (D) Pilot: Radar

Read the following passages carefully and answer the questions given at its end:

Passage: The purpose of education is to make the student an expert in his subject. This must be clearly understood, and mere muddling through lessons and lectures and books and passing examinations are relegated to secondary importance as means to end-which is excellence in the field chosen.

But there are so many fields, and no man can become an expert in all the fields. It is necessary to decide which fields are the important ones that a man should know well.

It is clear that one's own work is the most important. This has been realised and modern civilization has accordingly provided vocational education. It is now possible to acquire high professional skill in the various fields, medicine, engineering production, commerce and so on–but with good and bad mixed together, and no standard for guidance.

21. ***The purpose of education is to make the student:***

(A) An expert in all fields
(B) An expert in his subject
(C) Only capable of earning
(D) Confident only

22. ***What, according to the writer, is the end ?***

(A) Excellence in the field chosen
(B) Passing the examination
(C) Earning more and more money
(D) Cramming lectures and books

23. ***The modern civilization has provided:***

(A) Vocational education (B) Art of conversation
(C) Adult education (D) Higher education

Passage: According to Aristotle, the most important question in the physical world was the search for happiness. He was not an idealist preaching impossible ideals and counsels of perfection. His scientific training made him a realist who believed that happiness was the aim of life and every activity, even ethics, was subordinate to it. He tries to explore the nature of happiness and explains it by differentiating man from other animals in that he possesses the thinking faculty by which he masters the earth and surpasses all living beings and its development will give him fulfilment and happiness.

24. ***In the given paragraph:***

(A) Aristotle surpasses the earth and all living beings
(B) Aristotle tries to explore the nature of physical world
(C) Aristotle speaks about all living beings
(D) Aristotle tries to explore the nature of happiness

25. ***Man differs from other animals in having:***

(A) A brain (B) Speaking faculty
(C) Thinking faculty (D) Eating faculty

ANSWERS

1.	(C)	2.	(A)	3.	(B)	4.	(D)	5.	(C)
6.	(A)	7.	(B)	8.	(B)	9.	(B)	10.	(C)
11.	(A)	12.	(C)	13.	(B)	14.	(D)	15.	(B)
16.	(C)	17.	(D)	18.	(D)	19.	(C)	20.	(A)
21.	(B)	22.	(A)	23.	(A)	24.	(D)	25.	(C)

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