**20 Feb 2018 Math morning shift**

**QUESTION.** 1 - Which of the following statement(s) is/are TRUE?

I. $33^3 > 3^{33}$
II. $333 > (3^3)^3$

**Options:**
1) Only I
2) Only II
3) Both I and II
4) Neither I nor II

**QUESTION.** 2 - If P = $2^2 + 6^2 + 10^2 + 14^2 + \ldots 94^2$ and Q = $1^2 + 5^2 + 9^2 + \ldots 81^2$, then what is the value of P – Q?

**Options:**
1) 24645
2) 26075
3) 29317
4) 31515

**QUESTION.** 3 - If A = (1/0.4) + (1/0.04) + (1/0.004) + … upto 8 terms, then what is the value of A?

**Options:**
1) 27272727.5
2) 25252525.5
3) 27777777.5
4) 25555555.5

**QUESTION.** 4 - If M = $0.1 + (0.1)^2 + (0.01)^2$ and N = $0.3 + (0.03)^2 + (0.003)^2$, then what is the value of M + N?

**Options:**
1) 0.411009
2) 0.413131
3) 0.313131
4) 0.131313

**QUESTION.** 5 -

If $P = \dfrac{96}{95 \times 97}$, $Q = \dfrac{97}{96 \times 98}$ and $R = \dfrac{1}{97}$,

then which of the following is **TRUE**?

यदि $P = \dfrac{96}{95 \times 97}$, $Q = \dfrac{97}{96 \times 98}$ तथा $R = \dfrac{1}{97}$

हैं, तो निम्नलिखित में से कौन सा **सत्य** है?

**Options:**
1) P < Q < R
2) R < Q < P
3) Q < P < R
4) R < P < Q

**QUESTION.** 6 -

Which of the following statement(s) is/are **TRUE**?

I. $11\dfrac{1}{2}+17\dfrac{3}{4}-5\dfrac{1}{5}-2\dfrac{1}{10}=\dfrac{439}{20}$

II. $\dfrac{9}{1078}>\dfrac{11}{1127}>\dfrac{12}{1219}$

III. $\dfrac{149}{151}>\dfrac{153}{155}>\dfrac{157}{159}$

निम्नलिखित में से कौन सा/से कथन **सत्य** है/हैं?

I. $11\dfrac{1}{2}+17\dfrac{3}{4}-5\dfrac{1}{5}-2\dfrac{1}{10}=\dfrac{439}{20}$

II. $\dfrac{9}{1078}>\dfrac{11}{1127}>\dfrac{12}{1219}$

III. $\dfrac{149}{151}>\dfrac{153}{155}>\dfrac{157}{159}$

**Options:**
1) Only I
2) Only II
3) Only III
4) None is true.

**QUESTION.** 7 -

## Which of the following statement(s) is/are TRUE?

I. $\dfrac{2}{3\sqrt{5}} < \dfrac{3}{2\sqrt{5}} < \dfrac{5}{4\sqrt{3}}$

II. $\dfrac{3}{2\sqrt{5}} < \dfrac{2}{3\sqrt{3}} < \dfrac{7}{4\sqrt{5}}$

## निम्नलिखित में से कौन सा/से कथन **सत्य** है/हैं?

I. $\dfrac{2}{3\sqrt{5}} < \dfrac{3}{2\sqrt{5}} < \dfrac{5}{4\sqrt{3}}$

II. $\dfrac{3}{2\sqrt{5}} < \dfrac{2}{3\sqrt{3}} < \dfrac{7}{4\sqrt{5}}$

**Options:**
1) Only I
2) Only II
3) Both I and II
4) Neither I nor II

**QUESTION.** 8 - Which of the following statement(s) is/are TRUE?

I. The total number of positive factors of 72 is 12.
II. The sum of first 20 odd numbers is 400.
III. Largest two digit prime number is 97.

**Options:**
1) Only I and II
2) Only II and III
3) Only I and III
4) All are true.

**QUESTION.** 9 - If M = (3/7) ÷ (6/5) × (2/3) + (1/5) × (3/2) and N = (2/5) × (5/6) ÷ (1/3) + (3/5) × (2/3) ÷ (3/5), then what is the value of M/N?

**Options:**
1) 207/560

2) 339/1120
3) 113/350
4) 69/175

**QUESTION.** 10 - M is the largest 4 digit number, which when divided by 4, 5, 6 and 7 leaves remainder as 2, 3, 4, and 5 respectively. What will be the remainder when M is divided by 9?

**Options:**
1) 2
2) 1
3) 3
4) 6
**Correct Answer:** 1

**QUESTION.** 11 - Which of the following statement(s) is/are TRUE?

I. $\sqrt{11} + \sqrt{7} < \sqrt{10} + \sqrt{8}$.
II. $\sqrt{17} + \sqrt{11} > \sqrt{15} + \sqrt{13}$

**Options:**
1) Only I
2) Only II
3) Both I and II
4) Neither I nor II

**QUESTION.** 12 -

Which of the following statement(s) is/are **TRUE**?

I. $\sqrt{12} > \sqrt[3]{16} > \sqrt[4]{24}$

II. $\sqrt[3]{25} > \sqrt[4]{32} > \sqrt[6]{48}$

III. $\sqrt[4]{9} > \sqrt[3]{15} > \sqrt[6]{24}$

निम्नलिखित में से कौन सा/से कथन सत्य है/हैं?

I. $\sqrt{12} > \sqrt[3]{16} > \sqrt[4]{24}$

II. $\sqrt[3]{25} > \sqrt[4]{32} > \sqrt[6]{48}$

III. $\sqrt[4]{9} > \sqrt[3]{15} > \sqrt[6]{24}$

**Options:**
1) Only I and II
2) Only I and III
3) Only I

4) All are true.

**QUESTION. 13** - If $x + y + z = 22$ and $xy + yz + zx = 35$, then what is the value of $(x - y)^2 + (y - z)^2 + (z - x)^2$?

**Options:**
1) 793
2) 681
3) 758
4) 715

**QUESTION. 14** - If $(x + y)/z = 2$, then what is the value of $[y/(y - z)] + [x/(x - z)]$?

**Options:**
1) 0
2) 1
3) 2
4) $-1$
**Correct Answer:** 2

**QUESTION. 15** - If $\alpha$ and $\beta$ are the roots of equation $x^2 - 2x + 4 = 0$, then what is the equation whose roots are $\alpha^3/\beta^2$ and $\beta^3/\alpha^2$?

**Options:**
1) $x^2 - 4x + 8 = 0$
2) $x^2 - 32x + 4 = 0$
3) $x^2 - 2x + 4 = 0$
4) $x^2 - 16x + 4 = 0$

**QUESTION. 16** - If one root of the equation $Ax^2 + Bx + C = 0$ is two and a half times the others, then which of the following is TRUE?

**Options:**
1) $7B^2 = 3 CA$
2) $7B^2 = 4 CA$
3) $7B^2 = 36 CA$
4) $10B^2 = 49 CA$

**QUESTION. 17** - If $x^2 - 12x + 33 = 0$, then what is the value of $(x - 4)^2 + [1/(x - 4)^2]$?

**Options:**
1) 16
2) 14
3) 18
4) 20

**QUESTION. 18** - If $a^4 + 1 = [a^2/b^2] (4b^2 - b^4 - 1)$, then what is the value of $a^4 + b^4$?

**Options:**
1) 2
2) 16
3) 32
4) 64

**QUESTION.** 19 -

If $3\sqrt{\dfrac{1-a}{a}}+9=19-3\sqrt{\dfrac{a}{1-a}}$, then what is the value of $a$?

यदि $3\sqrt{\dfrac{1-a}{a}}+9=19-3\sqrt{\dfrac{a}{1-a}}$ है, तो $a$ का मान क्या है?

**Options:**
1) 3/10, 7/10
2) 1/10, 9/10
3) 2/5, 3/5
4) 1/5, 4/5

**QUESTION.** 20 -

If $a + b = 10$ and $\sqrt{\dfrac{a}{b}}-13=-\sqrt{\dfrac{b}{a}}-11$, then what is the value of $3ab + 4a^2 + 5b^2$?

यदि $a + b = 10$ तथा $\sqrt{\dfrac{a}{b}}-13=-\sqrt{\dfrac{b}{a}}-11$ हैं, तो $3ab + 4a^2 + 5b^2$ का मान क्या है?

**Options:**
1) 450
2) 300
3) 600

4) 750

**QUESTION.** 21 - If 3x + 4y – 2z + 9 = 17, 7x + 2y + 11z + 8 = 23 and 5x + 9y + 6z – 4 = 18, then what is the value of x + y + z – 34?

**Options:**
1) – 28
2) – 14
3) – 31
4) – 45

**QUESTION.** 22 -

If $x + 3y - \dfrac{2z}{4} = 6$, $x + \dfrac{2}{3}(2y + 3z) = 33$ and

$\dfrac{1}{7}(x + y + z) + 2z = 9$, then what is the

value of 46x + 131y?

यदि $x + 3y - \dfrac{2z}{4} = 6$, $x + \dfrac{2}{3}(2y + 3z) = 33$

तथा $\dfrac{1}{7}(x + y + z) + 2z = 9$ हैं, तो 46x +

131y का मान क्या है?

**Options:**
1) 414
2) 364
3) 384
4) 464

**QUESTION.** 23 -

**Options:**
1) 1 : 1
2) 1 : 4
3) 2 : 3
4) None of these

**QUESTION.** 24 -

**Options:**
1) 6
2) 4
3) 2
4) 3

**QUESTION.** 25 -

**Options:**
1) 4√10
2) 2√10
3) 6√10
4) 3√5

**QUESTION.** 26 - In a trapezium, one diagonal divides the other in the ratio 2 : 9. If the length of the larger of the two parallel sides is 45 cm, then what is the length (in cm) of the other parallel side?

**Options:**
1) 10
2) 5
3) 18
4) 14

**QUESTION.** 27 -

**Options:**
1) [(5√3) – 3]
2) [(4√3) – 2]
3) [(2√5) – 1]
4) [(2√6) – 1]

**QUESTION.** 28 -

**Options:**
1) 5√10
2) 4√10
3) 8√5
4) 16√2

**QUESTION.** 29 -

**Options:**

1) 4.25
2) 3.75
3) 3.5
4) 4.55

**QUESTION.** 30 -

**Options:**

1) 35.33
2) 37.33
3) 41.33
4) 43.33

**QUESTION.** 31 -

**Options:**

1) 1 : 4
2) 2 : 5
3) 1 : 3
4) 2 : 7

**QUESTION.** 32 - The distance between the centres of two circles is 61 cm and their radii are 35 cm and 24 cm. What is the length (in cm) of the direct common tangent to the circles?

**Options:**

1) 60
2) 54
3) 48
4) 72

**QUESTION.** 33 -

**Options:**

1) (64√3)/3
2) (177√3)/2
3) (135√3)/2
4) (98√3)/3

**QUESTION.** 34 - PQR is a triangle, whose area is 180 cm$^2$. S is a point on side QR, such that PS is the angle bisector of ∠QPR. If PQ : PR = 2 : 3, then what is the area (in cm2) triangle PSR?

**Options:**

1) 90
2) 108

3) 144

4) 72

**QUESTION.** 35 -

**Options:**

1) 98

2) 196

3) 122.5

4) 171.5

**QUESTION.** 36 - ABCDEF is a regular hexagon of side 12 cm. What is the area (in cm²) of the triangle ECD?

**Options:**

1) 18√3

2) 24√3

3) 36√3

4) 42√3

**QUESTION.** 37 - PQRS is a square whose side is 16 cm. What is the value of the side (in cm) of the largest regular octagon that can be cut from the given square?

**Options:**

1) 8 – 4√2

2) 16 + 8√2

3) 16√2 – √16

4) 16 – 8√2

**QUESTION.** 38 -

**Options:**

1) 21 + 14√2

2) 21 – 14√2

3) Both 21 + 14√2 and 21 – 14√2

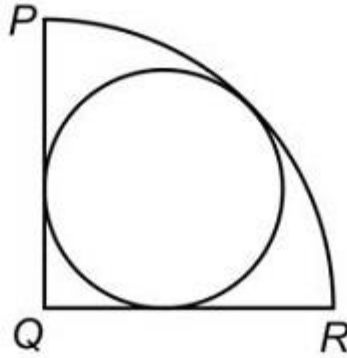21 + 14√2 तथा  21 – 14√2 दोनों

4) None of these

**QUESTION.** 39 -

In the given figure, *PQR* is a quadrant whose radius is 7 cm. A circle is inscribed in the quadrant as shown in the figure. What is the area (in cm²) of the circle?

दी गई आकृति में, *PQR* एक वृत्त-खण्ड है जिसकी त्रिज्या 7 से.मी. है। जैसा कि आकृति में दर्शाया गया है कि वृत्त-खण्ड में एक वृत्त को अंकित किया गया है। वृत्त का क्षेत्रफल (से.मी.² में) क्या है?



**Options:**
1) 385 – 221√2
2) 308 – 154√2
3) 154 – 77√2
4) 462 – 308√2

**QUESTION.** 40 - A prism has a regular hexagonal base with side 6 cm. If the total surface area of prism is 216√3 cm², then what is the height (in cm) of prism?

**Options:**
1) 3√3
2) 6√3
3) 6
4) 3

**QUESTION.** 41 - The radius of base of solid cone is 9 cm and its height is 21 cm. It cut into 3 parts by two cuts, which are parallel to its base. The cuts are at height of 7 cm and 14 cm from the base respectively. What is the ratio of curved surface areas of top, middle and bottom parts respectively?

**Options:**
1) 1 : 4 : 8
2) 1 : 3 : 5

3) 1 : 3 : 9
4) 1 : 6 : 12

**QUESTION.** 42 - A right circular cylinder has height as 18 cm and radius as 7 cm. The cylinder is cut in three equal parts (by 2 cuts parallel to base). What is the percentage increase in total surface area?

**Options:**
1) 62
2) 56
3) 48
4) 52

**QUESTION.** 43 - The ratio of curved surface area and volume of a cylinder is 1 : 7. The ratio of total surface area and volume is 187 : 770. What is the respective ratio of its base radius and height?

**Options:**
1) 5 : 8
2) 4 : 9
3) 3 : 7
4) 7 : 10

**QUESTION.** 44 - The ratio of total surface area and volume of a sphere is 1 : 7. This sphere is melted to form small spheres of equal size. The radius of each small sphere is 1/6th the radius of the large sphere. What is the sum (in $cm^2$) of curved surface areas of all small spheres?
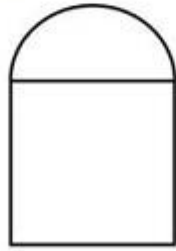
**Options:**
1) 31276
2) 36194
3) 25182
4) 33264

**QUESTION.** 45 -

A hemisphere is kept on top of a cube. Its front view is shown in the given figure. The total height of the figure is 21 cm. The ratio of curved surface area of hemisphere and total surface area of cube is 11 : 42. What is the total volume (in cm³) of figure?

एक अर्धगोला एक घन पर रखा गया है। इसके सामने का दृश्य आकृति में दर्शाया गया है। आकृति की कुल ऊँचाई 21 से.मी. है। अर्धगोले के वक्र पृष्ठीय क्षेत्रफल तथा घन के कुल पृष्ठीय क्षेत्रफल का अनुपात 11 : 42 हैं। आकृति का कुल आयतन (से.मी.³ में) क्या है?



**Options:**
1) 3318.33
2) 3462.67
3) 3154.67
4) 3248.33

**QUESTION.** 46 - A solid cube has side 8 cm. It is cut along diagonals of top face to get 4 equal parts. What is the total surface area (in cm²) of each part?

**Options:**
1) 96 + 64√2
2) 80 + 64√2
3) 96 + 48√2
4) 80 + 48√2

**QUESTION.** 47 - A regular pyramid has a square base. The height of the pyramid is 22 cm and side of its base is 14 cm. Volume of pyramid is equal to the volume of a sphere. What is the radius (in cm) of the sphere?

**Options:**
1)

$$\sqrt[3]{49}$$

2) 7
3) 14
4)

$$\sqrt[3]{98}$$

**QUESTION. 48** - What is the value of [sin (y − z) + sin (y + z) + 2 sin y]/[sin (x − z) + sin (x + z) + 2 sin x]?

**Options:**
1) cos x sin y
2) (sin y)/(sin x)
3) sin z
4) sin x tan y

**QUESTION. 49** - What is the value of {[sin (x + y) − 2 sin x + sin (x − y)]/[cos (x − y) + cos (x + y) − 2 cos x]} × [(sin 10x − sin 8x)/(cos 10x + cos 8x)]?

**Options:**
1) 0
2) tan2 x
3) 1
4) 2 tan x

**QUESTION. 50** - What is the value of [sin (90o − 10θ) − cos (p − 6θ)]/ [cos (p/2 − 10θ) − sin (p − 6θ)]?

**Options:**
1) tan 2θ
2) cot 2θ
3) cot θ
4) cot 3θ

**QUESTION. 51** - If sec θ (cos θ + sin θ) = √2, then what is the value of (2 sin θ)/(cos θ − sin θ)?

**Options:**
1) 3√2
2) 3/√2
3) 1/√2
4) √2

**QUESTION.** 52 -

What is the value of

$$\frac{1}{\sin^4(90-\theta)} + \frac{1}{\left[\cos^2(90-\theta)\right]-1}?$$

$$\frac{1}{\sin^4(90-\theta)} + \frac{1}{\left[\cos^2(90-\theta)\right]-1}$$

का मान क्या है?

**Options:**
1) tan2 θ sec2 θ
2) sec4 θ
3) tan4 θ
4) tan2 θ sin2 θ

**QUESTION.** 53 - What is the value of [tan (90 – A) + cot (90 – A)]²/[2 sec² (90 – 2A)]?

**Options:**
1) 0
2) 1
3) 2
4) – 1

**QUESTION.** 54 - What is the value of {sin (90 – x) cos [π – (x – y)]} + {cos (90 – x) sin [π – (y – x)]}?

**Options:**
1) -cos y
2) -sin y
3) cos x
4) tan y

**QUESTION.** 55 - The angle of elevation of an aeroplane from a point on the ground is 60o. After flying for 30 seconds, the angle of elevation changes to 30o. If the aeroplane is flying at a height of 4500 m, then what is the speed (in m/s) of aeroplane?

**Options:**
1) 50√3
2) 100√3
3) 200√3
4) 300√3

**QUESTION.** 56 - A kite is flying in the sky. The length of string between a point on the ground and

kite is 420 m. The angle of elevation of string with the ground is 30o. Assuming that there is no slack in the string, then what is the height (in metres) of the kite?

**Options:**
1) 210
2) 140√3
3) 210√3
4) 150

**QUESTION.** 57 - A balloon leaves from a point P rises at a uniform speed. After 6 minutes, an observer situated at a distance of 450√3 metres from point P observes that angle of elevation of the balloon is 60o. Assume that point of observation and point P are on the same level. What is the speed (in m/s) of the balloon?

**Options:**
1) 4.25
2) 3.75
3) 4.5
4) 3.45

**QUESTION.** 58 -

The table given below shows the information about bats manufactured by 6 different companies. Each company manufactures only plastic and wooden bats. Each company labels these bats as Brand *A* or Brand *B*. The table shows the number of plastic bats as a percentage of total bats manufactured by each company. It also shows the ratio of wooden bats labeled *A* and *B*. Each company manufactured a total of 550000 bats.

नीचे दी गई तालिका 6 विभिन्न कंपनियों द्वारा उत्पादित बल्लों के बारे में जानकारी को दर्शाती है। प्रत्येक कंपनी केवल प्लास्टिक तथा लकड़ी के बल्लों का उत्पादन करती है। प्रत्येक कंपनी इन बल्लों को ब्राण्ड *A* अथवा ब्राण्ड *B* के रूप में लेबल करती है। तालिका में प्रत्येक कंपनी द्वारा उत्पादित कुल बल्लों के प्रतिशत के रूप में प्लास्टिक के बल्लों की संख्या को दर्शाया गया है। यह *A* तथा *B* ब्राण्ड के लकड़ी के बल्लों के अनुपात को भी दर्शाती है। प्रत्येक कंपनी का उत्पादन कुल 550000 बल्ले हैं।

| Company / कंपनी | Plastic bats / प्लास्टिक के बल्ले | Brand *A* : Brand *B* / ब्राण्ड *A* : ब्राण्ड *B* |
|---|---|---|
| R | 55% | 21 : 4 |
| S | 70% | 8 : 7 |
| T | 45% | 6 : 19 |
| U | 75% | 41 : 14 |
| V | 60% | 7 : 15 |
| W | 40% | 5 : 6 |

What is the total number of wooden bats of brand A manufactured by company T?

**Options:**
1) 23420
2) 22990
3) 68920
4) 72600

**QUESTION. 59 -**

The table given below shows the information about bats manufactured by 6 different companies. Each company manufactures only plastic and wooden bats. Each company labels these bats as Brand A or Brand B. The table shows the number of plastic bats as a percentage of total bats manufactured by each company. It also shows the ratio of wooden bats labeled A and B. Each company manufactured a total of 550000 bats.

नीचे दी गई तालिका 6 विभिन्न कंपनियों द्वारा उत्पादित बल्लों के बारे में जानकारी को दर्शाती है। प्रत्येक कंपनी केवल प्लास्टिक तथा लकड़ी के बल्लों का उत्पादन करती है। प्रत्येक कंपनी इन बल्लों को ब्राण्ड A अथवा ब्राण्ड B के रूप में लेबल करती है। तालिका में प्रत्येक कंपनी द्वारा उत्पादित कुल बल्लों के प्रतिशत के रूप में प्लास्टिक के बल्लों की संख्या को दर्शाया गया है। यह A तथा B ब्राण्ड के लकड़ी के बल्लों के अनुपात को भी दर्शाती है। प्रत्येक कंपनी का उत्पादन कुल 550000 बल्ले हैं।

| Company / कंपनी | Plastic bats / प्लास्टिक के बल्ले | Brand A : Brand B / ब्राण्ड A : ब्राण्ड B |
|---|---|---|
| R | 55% | 21 : 4 |
| S | 70% | 8 : 7 |
| T | 45% | 6 : 19 |
| U | 75% | 41 : 14 |
| V | 60% | 7 : 15 |
| W | 40% | 5 : 6 |

N = Wooden bats of Brand B manufactured by U.
M = Total wooden bats manufactured by R and W together.
What is the value of N/M?

**Options:**
1) 0.043
2) 0.061
3) 0.125
4) 0.087

**QUESTION. 60 -**

The table given below shows the information about bats manufactured by 6 different companies. Each company manufactures only plastic and wooden bats. Each company labels these bats as Brand A or Brand B. The table shows the number of plastic bats as a percentage of total bats manufactured by each company. It also shows the ratio of wooden bats labeled A and B. Each company manufactured a total of 550000 bats.

नीचे दी गई तालिका 6 विभिन्न कंपनियों द्वारा उत्पादित बल्लों के बारे में जानकारी को दर्शाती है। प्रत्येक कंपनी केवल प्लास्टिक तथा लकड़ी के बल्लों का उत्पादन करती है। प्रत्येक कंपनी इन बल्लों को ब्राण्ड A अथवा ब्राण्ड B के रूप में लेबल करती है। तालिका में प्रत्येक कंपनी द्वारा उत्पादित कुल बल्लों के प्रतिशत के रूप में प्लास्टिक के बल्लों की संख्या को दर्शाया गया है। यह A तथा B ब्राण्ड के लकड़ी के बल्लों के अनुपात को भी दर्शाती है। प्रत्येक कंपनी का उत्पादन कुल 550000 बल्ले हैं।

| Company / कंपनी | Plastic bats / प्लास्टिक के बल्ले | Brand A : Brand B / ब्राण्ड A : ब्राण्ड B |
| --- | --- | --- |
| R | 55% | 21 : 4 |
| S | 70% | 8 : 7 |
| T | 45% | 6 : 19 |
| U | 75% | 41 : 14 |
| V | 60% | 7 : 15 |
| W | 40% | 5 : 6 |

P = Sum of wooden bats of Brand B manufactured by S and wooden bats of Brand A manufactured by W.

Q = Difference of Brand B wooden bats and Brand A wooden bats manufactured by U.

What is the value P – Q?

**Options:**
1) 67500
2) 177700
3) 159500
4) 123500

**QUESTION.** 61 -

The table given below shows the information about bats manufactured by 6 different companies. Each company manufactures only plastic and wooden bats. Each company labels these bats as Brand A or Brand B. The table shows the number of plastic bats as a percentage of total bats manufactured by each company. It also shows the ratio of wooden bats labeled A and B. Each company manufactured a total of 550000 bats.

नीचे दी गई तालिका 6 विभिन्न कंपनियों द्वारा उत्पादित बल्लों के बारे में जानकारी को दर्शाती है। प्रत्येक कंपनी केवल प्लास्टिक तथा लकड़ी के बल्लों का उत्पादन करती है। प्रत्येक कंपनी इन बल्लों को ब्राण्ड A अथवा ब्राण्ड B के रूप में लेबल करती है। तालिका में प्रत्येक कंपनी द्वारा उत्पादित कुल बल्लों के प्रतिशत के रूप में प्लास्टिक के बल्लों की संख्या को दर्शाया गया है। यह A तथा B ब्राण्ड के लकड़ी के बल्लों के अनुपात को भी दर्शाती है। प्रत्येक कंपनी का उत्पादन कुल 550000 बल्ले हैं।

| Company / कंपनी | Plastic bats / प्लास्टिक के बल्ले | Brand A : Brand B / ब्राण्ड A : ब्राण्ड B |
| --- | --- | --- |
| R | 55% | 21 : 4 |
| S | 70% | 8 : 7 |
| T | 45% | 6 : 19 |
| U | 75% | 41 : 14 |
| V | 60% | 7 : 15 |
| W | 40% | 5 : 6 |

Taking all 6 companies together, how many wooden bats of Brand A have been produced?

**Options:**
1) 691000
2) 724000
3) 683000
4) 716000

**QUESTION.** 62 -

The table given below shows the information about bats manufactured by 6 different companies. Each company manufactures only plastic and wooden bats. Each company labels these bats as Brand *A* or Brand *B*. The table shows the number of plastic bats as a percentage of total bats manufactured by each company. It also shows the ratio of wooden bats labeled *A* and *B*. Each company manufactured a total of 550000 bats.

नीचे दी गई तालिका 6 विभिन्न कंपनियों द्वारा उत्पादित बल्लों के बारे में जानकारी को दर्शाती है। प्रत्येक कंपनी केवल प्लास्टिक तथा लकड़ी के बल्लों का उत्पादन करती है। प्रत्येक कंपनी इन बल्लों को ब्राण्ड *A* अथवा ब्राण्ड *B* के रूप में लेबल करती है। तालिका में प्रत्येक कंपनी द्वारा उत्पादित कुल बल्लों के प्रतिशत के रूप में प्लास्टिक के बल्लों की संख्या को दर्शाया गया है। यह *A* तथा *B* ब्राण्ड के लकड़ी के बल्लों के अनुपात को भी दर्शाती है। प्रत्येक कंपनी का उत्पादन कुल 550000 बल्ले हैं।

| Company / कंपनी | Plastic bats / प्लास्टिक के बल्ले | Brand *A* : Brand *B* / ब्राण्ड *A* : ब्राण्ड *B* |
|---|---|---|
| R | 55% | 21 : 4 |
| S | 70% | 8 : 7 |
| T | 45% | 6 : 19 |
| U | 75% | 41 : 14 |
| V | 60% | 7 : 15 |
| W | 40% | 5 : 6 |

X = Average of plastic bats manufactured by V, U and T.
Y = Wooden bats of Brand A manufactured by V.
What is the value X – Y?

**Options:**
1) 197600
2) 432890
3) 260000
4) 293300

**QUESTION.** 63 - A drum contains 80 litres of ethanol. 20 litres of this liquid is removed and replaced with water. 20 litres of this mixture is again removed and replaced with water. How much water (in litres) is present in this drum now?

**Options:**
1) 45
2) 40
3) 35
4) 44

**QUESTION.** 64 - An alloy is made by mixing metal A costing Rs 2000/kg and metal B costing Rs 400/kg in the ratio A:B = 3:1. What is the cost (in Rs) of 8 kilograms of this alloy?

1) 1600
2) 9800
3) 6400
4) 12800

**QUESTION.** 65 - A, B and C invest to start a restaurant. The total investment was Rs 3 lakhs. B invested Rs 50,000 more than A and C invested Rs 25,000 less than B. If the profit at the end of the year was Rs 14,400 then what is C's share of the profit (in Rs)?

**Options:**
1) 3600
2) 4800
3) 6000
4) 7200

**QUESTION.** 66 - Two businessmen A and B invest in a business in the ratio 5 : 8. They decided to reinvest 30% of the profit they earned back into the business. The remaining profit they distributed amongst themselves. If A's share of the profit was Rs 87,500 then how much profit (in Rs) did the business make?

**Options:**
1) 227000
2) 250000
3) 375000
4) 325000

**QUESTION.** 67 - Working alone A can do the task in 27 hours and B can do it in 54 hours. Find C's share (in Rs) if A, B and C get paid Rs 4,320 for completing a task in 12 hours on which they worked together.

**Options:**
1) 1440
2) 960
3) 1920
4) 1280

**QUESTION.** 68 - If A had worked alone he would have taken 63 hours to do the task. What is B's share, if A and B work together on a task finishing it in 36 hours and they get paid Rs 5,950 for it?

**Options:**
1) 3400
2) 3600
3) 2550
4) 2750

**QUESTION.** 69 - Working together A, B and C can complete a task in 12 days. A and B can do the task in 55 days and 66 days respectively if they worked alone. In how many days can C do the task if he worked alone?

**Options:**

1) 22

2) 44

3) 20

4) 40

**QUESTION.** 70 - B would have taken 10 hours more than what A would have taken to complete a task if each of them worked alone. Working together they can complete the task in 12 hours. How many hours would B take to do 50% of the task?

**Options:**

1) 30

2) 15

3) 20

4) 10

**QUESTION.** 71 - Giving two successive discounts of 20% is same as giving one discount of _____ %.

**Options:**

1) 36

2) 40

3) 44

4) 50

**QUESTION.** 72 - A retailer marks up his goods by 150% and offers 40% discount. What will be the selling price (in Rs) if the cost price is Rs 800?

**Options:**

1) 1200

2) 1500

3) 1000

4) 2000

**QUESTION.** 73 - On a television of brand A the discount is 25% and on television of brand B the discount is 40%. The price of B after discount Rs 2,250 greater than the price of A after discount. What is the marked price of A (in Rs) if marked price of B is Rs 35,000?

**Options:**

1) 18750

2) 21000

3) 25000

4) 17850

**QUESTION.** 74 - If 60% discount is offered on the marked price and selling price becomes equal to cost price then what was the % mark up?

**Options:**

1) 100

2) 250

3) 150

4) 40

**QUESTION.** 75 - If 3A = 6B = 9C; What is A : B : C

**Options:**

1) 6 : 3 : 1

2) 6 : 3 : 2

3) 9 : 3 : 6

4) 9 : 3 : 1

**QUESTION.** 76 - How many job applicants had applied if the ratio of selected to unselected was 19:17. If 1,200 less had applied and 800 less selected, then the ratio of selected to unselected would have been 1:1.

**Options:**

1) 6000

2) 7200

3) 8400

4) 4800

**QUESTION.** 77 - What is the third proportional to 10 and 20?

**Options:**

1) 30

2) 25

3) 50

4) 40

**QUESTION.** 78 - The ratio of the sum of the salaries of A and B to the difference of their salaries is 11:1 and the ratio of the sum of the salaries of B and C to the difference of their salaries is also 11:1. If A's salary is the highest and C's is the lowest then what is B's salary (in Rs) given the total of all their salaries is Rs 1,82,000?

**Options:**

1) 72000

2) 60000

3) 50000

4) 86400

**QUESTION.** 79 - If by increasing the price of a ticket in the ratio 8:11 the number of tickets sold fall in the ratio 23:21 then what is the increase (in Rs) in revenue if revenue before increase in price of ticket was Rs 36,800?

**Options:**

1) 21250

2) 9400

3) 7850

4) 12850

**QUESTION.** 80 - The ratio of ages of the father and mother was 11:10 when their son was born. The ratio of ages of the father and mother will be 19:18 when the son will be twice his present age. What is the ratio of present ages of father and mother?

**Options:**
1) 15 : 14
2) 14 : 13
3) 16 : 15
4) 17 : 16

**QUESTION.** 81 - Of the 3 numbers whose average is 22, the first is 3/8th the sum of other 2. What is the first number?

**Options:**
1) 16
2) 20
3) 22
4) 18

**QUESTION.** 82 - The average of three consecutive odd numbers is 52 more than 1/3rd of the largest of these numbers. What is the smallest of these numbers?

**Options:**
1) 79
2) 75
3) 81
4) 77

**QUESTION.** 83 - A batsman scores 98 runs in the 17th match of his career. His average runs per match increased by 2.5. What is his average before the 17th match?

**Options:**
1) 58
2) 60.5
3) 63
4) 55.5

**QUESTION.** 84 - What is the average of all numbers between 100 and 200 which are divisible by 13?

**Options:**
1) 147.5
2) 145.5
3) 143.5
4) 149.5

**QUESTION.** 85 - A vendor buys bananas at 9 for Rs 8 and sells at 8 for Rs 9. What will be the profit or loss (in %)?

**Options:**
1) 13.28% profit

2) 26.56% loss

3) 26.56% profit

4) 13.28% loss

**QUESTION.** 86 - If a stall sells a pizza at Rs 200 he makes 20% loss if he wants to make 10% profit then at what price (in Rs) should he sell?

**Options:**

1) 250

2) 300

3) 275

4) 325

**QUESTION.** 87 - A wholesaler had 200 dozens of mangoes. He sold some of these mangoes at 20% profit and the rest at 10% profit, so that he made 13% profit on selling all the mangoes. How many mangoes (in dozens) did he sell at 20% profit?

**Options:**

1) 140

2) 60

3) 80

4) 120

**QUESTION.** 88 - If the selling price is tripled and cost price doubled the profit would become 65%. What is the present profit (in %)?

**Options:**

1) 20

2) 15

3) 25

4) 10

**QUESTION.** 89 - 0.06% of 250% of 1600 is _____.

**Options:**

1) 24

2) 0.24

3) 0.024

4) 2.4

**QUESTION.** 90 - Two numbers are 90% and 75% lesser than a third number. By what % should the first number be increased so that it becomes equal to the second number?

**Options:**

1) 250

2) 200

3) 150

4) 100

**QUESTION.** 91 - When a number is increased by 216, it becomes 140% of itself. What is the number?

**Options:**

1) 540

2) 756

3) 450

4) 675

**QUESTION.** 92 - A man donates 30% of his wealth to charity. 30% and 25% of the remaining wealth to his wife and son respectively. The rest he divides equally between his three daughters. One of his daughter gets Rs 42 lakh as her share. What was the man's wealth (in Rs lakhs)?

**Options:**

1) 280

2) 400

3) 500

4) 350

**QUESTION.** 93 - A bus travels 720 km in 20 hours. Calculate its average speed in meters/second.

**Options:**

1) 12

2) 15

3) 18

4) 10

**QUESTION.** 94 - If a boat goes upstream at a speed of 21 km/h and comes back the same distance at 28 km/h. What is the average speed (in km/hr) for the total journey?

**Options:**

1) 24.5

2) 24

3) 25

4) 25.4

**QUESTION.** 95 - Two runners A and B start running at 12 km/hr and 16 km/hr towards each other. They meet after 1 hour and 30 minutes. How far (in km) were they from each other when they started?

**Options:**

1) 42

2) 36

3) 40

4) 45

**QUESTION.** 96 - Flight A usually takes 1 hour more than Flight B to travel a distance of 7200 km. Due to engine trouble speed of flight B falls by a factor of 1/6th, so it takes 36 minutes more than Flight A to complete the same journey? What is the speed of Flight A (in km/hr)?

**Options:**
1) 800
2) 900
3) 750
4) 720

**QUESTION.** 97 - In how many years will Rs 2,000 yield Rs 662 as compound interest at 10% per annum compounded annually?

**Options:**
1) 3
2) 2
3) 4
4) 5

**QUESTION.** 98 - What is the compound interest earned on Rs 80,000 at 40% per annum in 1 year compounded quarterly?

**Options:**
1) 28317
2) 37128
3) 18732
4) 21387

**QUESTION.** 99 - An investor invested his saving in the stock market. The value of his investments increased by 12% and 9% in the first year and the second year respectively. If the value of his investments after two years became Rs 97,664 then how much had he invested (in Rs)?

**Options:**
1) 81000
2) 75000
3) 80000
4) 72000

**QUESTION.** 100 - What is the rate of interest (in %) if simple interest earned on a certain sum for the 3 years is Rs 6,000 and compound interest earned for 2 years is Rs 4,160?

**Options:**
1) 9
2) 8
3) 12
4) 6

| Questions | Answer | Questions | Answer | Questions | Answer | Questions | Answer | Questions | Answer |
|-----------|--------|-----------|--------|-----------|--------|-----------|--------|-----------|--------|
| 1 | 4 | 2 | 2 | 3 | 3 | 4 | 1 | 5 | 2 |
| 6 | 1 | 7 | 1 | 8 | 4 | 9 | 3 | 10 | 2 |
| 11 | 1 | 12 | 1 | 13 | 3 | 14 | 3 | 15 | 3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 4 | 17 | 2 | 18 | 1 | 19 | 2 | 20 | 2 |
| 21 | 3 | 22 | 1 | 23 | 4 | 24 | 3 | 25 | 1 |
| 26 | 10 | 27 | 4 | 28 | 1 | 29 | 2 | 30 | 2 |
| 31 | 3 | 32 | 1 | 33 | 3 | 34 | 2 | 35 | 2 |
| 36 | 3 | 37 | 3 | 38 | 2 | 39 | 4 | 40 | 1 |
| 41 | 2 | 42 | 2 | 43 | 4 | 44 | 4 | 45 | 2 |
| 46 | 3 | 47 | 2 | 48 | 2 | 49 | 2 | 50 | 2 |
| 51 | 4 | 52 | 1 | 53 | 3 | 54 | 1 | 55 | 2 |
| 56 | 1 | 57 | 2 | 58 | 4 | 59 | 2 | 60 | 3 |
| 61 | 1 | 62 | 3 | 63 | 3 | 64 | 4 | 65 | 2 |
| 66 | 4 | 67 | 1 | 68 | 3 | 69 | 3 | 70 | 2 |
| 71 | 1 | 72 | 1 | 73 | 3 | 74 | 3 | 75 | 2 |
| 76 | 2 | 77 | 4 | 78 | 2 | 79 | 2 | 80 | 1 |
| 81 | 4 | 82 | 4 | 83 | 4 | 84 | 4 | 85 | 2 |
| 86 | 3 | 87 | 2 | 88 | 4 | 89 | 4 | 90 | 3 |
| 91 | 1 | 92 | 2 | 93 | 4 | 94 | 2 | 95 | 42 |
| 96 | 1 | 97 | 1 | 98 | 2 | 99 | 3 | 100 | 2 |