## Statement Test 7

**1. A bag contains certain number of bottles out of which 21 bottles are empty and rest bottles are full of water. If two bottles are randomly drawn from the bag, then the probability that both the bottles drawn are full of water is 1/6. Find the number of bottles in the bag.** A.21 B.36 C.42 D.50 E.24

**2. A is twice as efficient as B and takes 70 days to complete the work. When they work together, they complete z% work in 40 days. Find the value of z.**
(a) 14.28 (b) 42.84 (c) 56.75 (d) 85.71 (e) None of these

**5. The marked price of an article is Rs.550. The shopkeeper gives a discount of 12% on the marked price yet he gains 20%. Cost price of the particle is approximately what percent of the marked price?**
**A**.72.443% **B**.71.327% **C**.73.327% **D**.73.532% **E**.none of these

**4. A shopkeeper sells one transistor for Rs. 840 at a gain of 20% and another for Rs. 960 at a loss of 4%. His total gain or loss percent is:**
(a) 5 15/17%loss (b) 5 15/17%gain (c) 6 2/3%gain (d) 6 1/2% Loss (e) None

**5. A dealer buys a table listed at Rs. 600 and gets successive discount of 10% and 20%. What is his profit or loss percent if he sells at Rs. 540?**
(a)25% (b) 20% (c)15% (d) 17 1/2% (e) None of these

**6. On a Rs. 10,000 payment order, a person has a choice between three successive discounts of 10%, 10% and 30% and three successive discounts of 40%, 5% and 5%. By choosing the better offer, he can save?**
(a)Rs. 200 (b)Rs. 225 (c)Rs. 400 (d) Rs. 433 (e) None of these

**7. A, B and C completed a work costing Rs. 1800. A worked for 6 days, B for 4 days and C for 9 days. If their daily wages are in the ratio of 5 : 6 : 4, how much amount will be received by A?**
(a) Rs. 800 (b) Rs. 600 (c) Rs. 900 (d) Rs. 750 (e) None of these

**8. A 10 hectare field is reaped by 2 men, 3 women and 4 children together in 10 days. If working capabilities of a man, a woman and a child are in the ratio 5 : 4 : 2, then a 16 hectare field will be reaped by 6 men, 4 women and 7 children in**
(a) 5 days (b) 6 days (c) 7 days (d) 8 days (e) None of these

**9. A can do a certain work in the same time in which B and C together can do it. If A and B together could do it in 10 days and C alone in 50 days, then B alone could do the work in.** (a) 15 days (b) 20 days (c) 25 days (d) 30 days (e) None

**10. If Rs. 3000 amounts to Rs. 4320 at compound interest in a certain time, then Rs. 3000 amount to what in half of the time?**
(a)Rs. 3400 (b) Rs. 3600 (c) Rs. 38000 (d) Rs. 3520 (e)None of these

**11. A sum of Rs. 8448 is to be divided between X and Y who are respectively 18 and 19 yr old, in such a way that if their shares be invested at 6.25% per annum at compound interest, they will receive equal amounts on attaining the age of 21 yr. The present share of X is.**
(a)Rs. 4225 (b) Rs. 4352 (c) Rs. 4096 (d) Rs. 4000 (e) None of these

**12. During the first year, the population of a village is increased by 5% and in second year it is diminished by 5%. At the end of the second year, its population was 47880. What was the population at the beginning of the first year?**
(a)45500 (b) 48000 (c) 43500 (d) 53000 (e) None of these

**13. An article was sold at a discount of 20% and there was a profit of 20%. If the profit earned was Rs. 65 less than the discount offered, then find the selling price of the article?**
**A**.Rs. 680 **B**.Rs. 540 **C**.Rs. 470 **D**.Rs. 780 **E**.None of these

**14. Two dice are rolled one after another such that the sum of the numbers appeared on them is 7. Find the probability that number on first dice is more than the number on second dice?**
(A) 1/3 (B) 1/4 (C) 1/2 (D) 2/3 (E) None of these

**15. A sum of money triples itself in 7 years. In how many years it amounts to 9 times of itself, if the interest is compounded annually?**
A. 10 years 6 months B. 14 years 6 months C. 14 years D. 21 years

**16. The cost of 1 litre of milk is Rs. 20, what amount of water should be added to 1 litre of mixture to gain 25% profit, if the mixture is being sold at Rs. 20/litre?**
A. 150 ml B. 250 ml C. 200 ml D. 300 ml

**17. Suyash purchased a home theatre set at a discount of 18% on its marked price of Rs. 15000. He spent Rs. 80 on its transport and Rs. 320 on its repair. At what price it can be sold to obtain a profit of 15%?**
**A**.Rs. 14505 **B**.Rs. 13405 **C**.Rs. 13395 **D**.Rs. 15355 **E**.Rs. 14605

**18. The ratio of the weights of A and B is 3:4 and the ratio of the weight of A and C is 2:3. The sum of the weights of A and C is 180kg. The weight of D is 25% less than that of B. Find the sum of weight of C and D ?**
a.210 b.195 c.150 d.180 e.165

**19. The ratio of two numbers is 3:4 and their LCM is 96. Find the sum of the square of the two numbers ?** a.1200 b.2000 c.1400 d.1800 e.1600

**20. An article having cost price of Rs 3500 and is marked 30% above its cost price . Find the selling price of the article if the discount offered on the same article is Rs 230 more than the profit earned on it ?**
a.3910 b.4010 c.4140 d.4240 e.3810

**21. From a well-shuffled pack of 52 cards , a card is drawn at random. Find the probability that it is either a spade or king ?**
a.**7 1/3** b.**5 1/3** c.**3 1/** d.**2 1/3** e.None of these

**22. If due to 16% decrease in the price of rice, Arun can buy 8kg more rice in Rs 200, then find the new price per kg of rice ?**
a.9 b.6 c.4 d.5 e.7

**23. A metal box of dimension 44cm×48cm×60cm is melted and recast into N hemispherical balls of radius 4cm. What is the value of N ?**
a.945 b.984 c.994 d.816 e.566

**24. A shopkeeper bought a cell phone at a successive discount of 10% and 3% respectively. The marked price is Rs 2000 when he bought. He also spent Rs. 154 on mobile case. He sold the whole set for Rs.2280. What will be his profit %?**
**A**.20% **B**.25% **C**.15% **D**.5% **E**.None of these

**25. Raju can do as much work in 5 days as Binod can do in 4 days and Binod can do as much work in 3 days as Chandan in 2 days. In what time will Binod do a piece of work which Raju can do in a week ?**
a. **6 3/5** b. **2 4/5** c. **5 3/5** d. **4 2/** e. **5 1/5**

**26. In a class there are 16 boys and 13 girls. Average weight of each boy and each girls is 35kg and 27kg respectively. If the sum of weight of all the students and a teacher is 987kg, then find the weight of the teacher?**
a.86kg b.80kg c.78kg d.76kg e.74kg

**27. Vanu's present age is four times of Soham's age and 2/3rd of Rohan's age. If the age difference of the Rohan and Soham is 50 years. Find the age of Vanu after 5 years.** **A**.25 **B**.55 **C**.35 **D**.45 **E**.none of these

**1.Solution**

Let the total number of bottles in the bag be 'x'.

So the number of bottles full of water = x – 21

According to question: ${}^{x-21}C_2/{}^{x}C_2 = 1/6$

$(x – 21)(x – 22)/x(x – 1) = 1/6$

$x^2 – x = 6x^2 – 258x + 2772$

$5x^2 – 257x + 2772 = 0$

$5x^2 – 180x – 77x + 2772 = 0$

$5x(x – 36) – 77(x – 36) = 0$

$(5x – 77)(x – 36) = 0$

$x = 36, 77/5$

Number of bottles can't be in fraction.

So, the total number of bottles in the bag = 36

Hence, option b.

**2) (d)**

A's 1 day work = 2 units

B's 1 day work = 1 unit

Total work = 140 units

Work done by A and B in 40 days = 120

Z% = (120/140) * 100% = 85.71%

Z = 85.71

**3. Answer: C**

we know that

cp x (100 + %profit) = mp x (100 – %discount)

=> cp x (100 + 20) = 550 x 88

=> cp = 550 x 88/120 = Rs. 403.30

Required percentage = 403.30/550 x 100 = 73.327%

**4.**

**(b);** CP of 1st item $= \frac{840}{1.2} = \text{Rs. } 700$ [gain of 20%]

CP of 2nd item $= \frac{960}{0.96} = \text{Rs. } 1000$ [loss of 4%]

Total CP = 700 + 1000 = Rs. 1700

SP = 840 + 960 = Rs. 1800

$$\%\text{profit} = \frac{100}{1700} \times 100 = 5\frac{15}{17}\%$$

**5.**

**(a);** Given MP = Rs. 600

Hence on giving successive discounts of 10% and 20%,

$$CP = 600 \times \frac{90}{100} \times \frac{80}{100} = \text{Rs. } 432$$

$$\%\text{profit} = \frac{108}{432} \times 100 = 25\%$$

**6**

**(e);** Let us assume payment order be Rs. 100

**Case – 1:** Successive discount of 10%, 10%, 30%

$$\Rightarrow 100 \times \frac{90}{100} \times \frac{90}{100} \times \frac{70}{100} = \text{Rs. } 56.7$$

**Case – 2:** Successive discount of 40%, 5%, 5%

$$\Rightarrow 100 \times \frac{60}{100} \times \frac{95}{100} \times \frac{95}{100} = \text{Rs. } 54.15$$

For Rs. 100, person can save Rs. (56.7 – 54.15)

= Rs. 2.55

Hence, for Rs. 10000, he can save

$$= \text{Rs. } \frac{2.55}{100} \times 10000 = \text{Rs. } 255$$

**7**

**(b);** Total money = Rs. 1800

Ratio of wages of A, B and C, respectively

$= 5 \times 6 : 6 \times 4 : 4 \times 9 = 30 : 24 : 36 = 5 : 4 : 6$

$\therefore$ Amount received by A

$$= \frac{A}{A+B+C} \times \text{Total money} = \frac{5}{5+4+6} \times 1800 = \frac{5}{15} \times 1800 = \text{Rs. } 600$$

**8**

**(d);** Ratio of the working capabilities of a man, a woman and a child

$= 5 : 4 : 2$

$\therefore$ Ratio of man, woman and child equivalence

$$= \frac{1}{5} : \frac{1}{4} : \frac{1}{2} = \frac{1}{5} \times 20 : \frac{1}{4} \times 20 : \frac{1}{2} \times 20 = 4 : 5 : 10$$

Or 4 men = 5 women = 10 children  4 men = 10 children

$\therefore$ 2 men = 5 children $\Rightarrow$ and 6 men = 15 children

5 women = 10 children

$\therefore$ 3 women = 6 children $\Rightarrow$ 4 women = 8 children

$\therefore$ 2 men + 3 women + 4 children = 15 children

6 men + 4 women + 7 children = 30 children

By the Formula

$$\frac{M_1D_1}{W_1} = \frac{M_2D_2}{W_2} \Rightarrow \frac{15 \times 10}{10} = \frac{30 \times x}{16}$$

$$x = \frac{15 \times 10 \times 16}{10 \times 30} \Rightarrow x = 8 \text{ days}$$

**9**

(c); A's 1 day's work = (B + C)'s 1 days' work

(A + B)'s 1 days' work = $\frac{1}{10}$

C's 1 days' work = $\frac{1}{50}$

(A + B + C)'s day's work = $\frac{1}{10}+\frac{1}{50}=\frac{5+1}{50}=\frac{6}{50}=\frac{3}{25}$

(A+B + C)'s 1 day's work = $\frac{3}{25}$

A's 1 days' work = $\frac{3}{50}$

B's 1 days work = $\frac{1}{10}-\frac{3}{50}=\frac{5-3}{50}=\frac{2}{50}=\frac{1}{25}$

Hence, B alone will complete the work in 25 days.

**10**

**(b);** Let rate = R% and time = n year

Then, $4320 = 3000\left(1+\frac{R}{100}\right)^n$

$\Rightarrow \left(1+\frac{R}{100}\right)^n = \frac{4320}{3000} = 1.44$

$\therefore \left(1+\frac{R}{100}\right)^{n/2} = \sqrt{1.44} = 1.2$

$\therefore$ Required amount for $\frac{n}{2}$ year

$= 3000\left(1+\frac{R}{100}\right)^{n/2} = 3000 \times 1.2 = \text{Rs. } 3600$

**11**

**(c);** Let shares of X and Y be Rs. x and Rs. (8448 – x), respectively.

Amount got by X after 3 years = Amount got by Y after 2 years

$x\left(1+\frac{6.25}{100}\right)^3 = (8448-x)\times\left(1+\frac{6.25}{100}\right)^2$

$\Rightarrow 1+\frac{6.25}{100}=\frac{8448-x}{x} \Rightarrow 1+\frac{1}{16}=\frac{8448-x}{x}$

$\Rightarrow \frac{17}{16}=\frac{8448-x}{x} \Rightarrow 17x = 135168 - 16x \Rightarrow$

x = Rs. 4096

**12. Answer: D**

Let the cost price be x,
Selling price = (120/100)*x = 6x/5
Marked price*(80/100) = 6x/5
MP = 3x/2
Profit = Discount – 65
According to the question,
= > (3x/2 – 6x/5) – (6x/5 – x) = 65
= > 3x/10 – x/5 = 65=> x = 650
Cost price = Rs. 650
Selling price = 650*(120/100) = Rs. 780

**13. A**

For each selection of two persons there will be one handshake.
Hence, no. of handshakes in the party = $^nC_2$ where n is the no. of persons.
Acc. to question
$^nC_2 = 210$
or, $\frac{n(n-1)}{2} = 210$
or, n = 21

**14. Ans. (C)**

On rolling 2 dice, Sum = 7 □ (1, 6),(6, 1), (2, 5), (5, 2), (3, 4), (4, 3) □ 6
Number on 1st dice is more than 2nd dice = (6, 1), (5, 2), (4, 3) □ 3
Probability = 3/6 = 1/2

**15. C**

Let the rate of interest be R% and the time after which it becomes 9 times be t years.

Assume the principal be x

We have,

$3x = x\left(1+\frac{R}{100}\right)^7$

$(3)^{1/7} = \left(1+\frac{R}{100}\right)$ .....eq. (i)

Also, $9x = x\left(1+\frac{R}{100}\right)^t$

$(9)^{1/t} = \left(1+\frac{R}{100}\right)$

$(3)^{2/t} = \left(1+\frac{R}{100}\right)$ .....eq. (ii)

From eq(1)& eq(2),we get

$(3)^{1/7} = (3)^{2/t}$

or, $\frac{1}{7}=\frac{2}{t}$

or, t = 14 years.

Hence, option C is correct.

**16. C**

C.P of milk = Rs. 20

S.P of milk mixture = Rs. 20

Profit % = 25%

Thus, C.P of mixture = $\frac{4}{5}\times 20 = \text{Rs. } 16$

We can find amount of milk in mixture by mixture & allegations

Price of milk : Price of water

20 0

\ /

16

/ \

16 – 0 4

16 4

$\frac{\text{ratio of water}}{\text{ratio of mixture}} = \frac{4}{16+4} = \frac{4}{20} = \frac{1}{5}$

Therefore, the amount of water in 1 kilolitre of mixture

= 1 × 1000 = 200 ml

5

Hence, option C is correct.

**17. Answer: E**

CP of home theatre for Suyash = {(100-18)/100}*15000 = Rs.12300
Final price after transportation and repairing = 12300+80+320 = Rs.12700
SP to earn 15% profit = 12700*{(100+15)/100}
= Rs.14605

**18. (d)**

Ratio of weight A,B and C=6:8:9
A+C=180
15unit=180
1unit=12
A=72
B=96
C=108
D=72
Required Sum=72+108

**19. (e)**

First number=3t
Second number=4t
LCM of two numbers=12t
12t=96
T=8
Hence two number are 24 and 32
Required sum=$\mathbf{24^2+32^2}$
=576+1024

**20. (a)**

Cp=3500
MP=4550
Profit earned =x
Discount offered=x+230
X+x+230=1050
2x=820
X=410
SP=3500+410
=3090

**21. (e)**

Probability of getting spade=13/52
Probability of getting king=4/52
Required probability=$\mathbf{13/52+4/52-1/52}$
=$\mathbf{4/13}$

**22. (c)**

New price of sugar=$\mathbf{16*200/8*100}$
=$\mathbf{3200/800}$

**23. (a)**

Volume of N balls= Volume of Box
$\boldsymbol{N*23*\pi\ r3=L*B*H}$
$\boldsymbol{N}$=$\mathbf{(44*48*60)/(2/3*22/7*4*4*4)}$
$\boldsymbol{N}$=$\mathbf{(44*48*60*3*7)/(2*22*64)}$

**24. Answer: A**

90% of 2000 = 1800
97% of 1800 = 1746
New CP = 1746 + 154 = 1900
P% = [(2280 – 1900) / 1900] * 100
P% = 20%

**25. (c)**

R:B=5:4
B:C=3:2
R:B:C=15:12:8
Time taken by Raju=7 days
Time taken by Binod=$\mathbf{12*7/15}$

**26. (d)**

Total Boy=16
Total Girl=13
Total weight=16*35+13*27
=911
Teacher weight=987-911
=76

**27. Answer: D**

The ratio of the age of Vanu, Soham and Rohan = 4:1:6
= > 5's = 50
= > 4's = 40
Vanu's present age = 40
After 5 years, age will be = 40+5 =45