

## Model QuEST Global Placement Test Question Paper

### SET I

**Q1.** A three digit number consists of 9,5 and one more number . When these digits are reversed and then subtracted from the original number the answer yielded will be consisting of the same digits arranged yet in a different order. What is the other digit?

#### **Solution:**

*Let the digit unknown be  $n$ .*

*The given number is then  $900+50+n=950+n$ .*

*When reversed the new number is  $100n+50+9=59+100n$ .*

*Subtracting these two numbers we get  $891-99n$ .*

*The digit can be arranged in 3 ways or 6 ways.*

*We have already investigated 2 of these ways.*

*We can now try one of the remaining 4 ways. One of these is  $n$  95*

$$100n+90+5=891-99n$$

$$\text{or } 199n = 796$$

$$\text{so, } n=4$$

*the unknown digit is 4.*

**Q2.** A farmer built a fence around his 17 cows, in a square shaped region. He used 27 fence poles on each side of the square. How many poles did he need altogether?

**ANS:** 104 poles

#### **Solution:**

## Model QuEST Global Placement Test Question Paper

*Here 25 poles Must be there on each side .And around four corners 4 poles will be present.*

$$4*25+4=100+4=104 \text{ poles.}$$

**Q3.** On the first test of the semester, kiran scored a 60. On the last test of the semester, kiran scored 75% By what percent did kirans score improve?

**ANS:** 25%

**Solution:**

*In first test kiran got 60*

*In last test he got 75.*

$$\% \text{ increase in test } (60(x+100))/100=75$$

$$0.6X+60=75$$

$$0.6X=15$$

$$X=15/0.6=25\%$$

**Q4.** A group consists of equal number of men and women. Of them 10% of men and 45% of women are unemployed. If a person is randomly selected from the group. Find the probability for the selected person to be an employee.

**ANS:** 29/40

**Solution:**

### Model QuEST Global Placement Test Question Paper

*Assume men=100,women=100 then employed men & women r  
(100-10)+(100-45)=145*

*So probability for the selected person to be an  
employee=145/200=29/40*

**Q5. Randys chain of used car dealership sold 16,400 cars in 1998. If the chain sold 15,744 cars in 1999, by what percent did the number of cars sold decrease?**

**ANS: 4%**

**Solution:**

Let percentage of decrease is  $x$  , then

$$16400(100-x)/100=15744$$

$$16400-15744=164x$$

$$x=656/164=4\%$$

**Q6. A radio when sold at a certain price gives a gain of 20%. What will be the gain percent, if sold for thrice the price?**

**A) 260%**

**B) 150%**

**C) 100%**

**D) 50%**

**E) None of these**

**ANS: 260%**

**Solution:**

## Model QuEST Global Placement Test Question Paper

*Let  $x$  be original cost of the radio.*

*The selling price =  $(100+20)x=120x$*

*If , it is sold for thrice the price ,then  $3*120x=360x$*

*So, gain percent is  $(360-100)=260\%$ .*

**Q7.** If the Arithmetic mean is 34 and geometric mean is 16 then what is greatest number in that series of numbers?

**ANS:** 64

**Solution:**

*Let two numbers be  $x, y$ ;*

*Arithmetic mean =  $34 \Rightarrow (x+y)/2=34$*

*$x+y=68$*

*geometric mean =  $16 \Rightarrow (xy)^{1/2}=16$*

*$xy=16*16=256$*

*By trial and error  $16*16=64*4$*

*And  $64+4/2=34$*

*So the greatest number in that series is 64.*

**Q8.** The diameter of the driving wheel of a bus is 140cm. How many revolutions per minute must the wheel make in order to keep a speed of 66 kmph?

**ANS:** 250

**Solution:**

*Distance to be covered in 1 min =  $(66*1000)/60$  m = 1100m*

### Model QuEST Global Placement Test Question Paper

*Circumference of the wheel =  $(2 * 22/7 * 0.70)m = 4.4m$ .*

*So, Number of revolutions per min =  $1100/4.4 = 250$ .*

**Q9.** The boys and girls in a college are in the ratio 3:2. If 20% of the boys and 25% of the girls are adults, the percentage of students who are not adults is:?

**ANS:** 78%

**Solution:**

*Suppose boys =  $3x$  and girls =  $2x$*

*Not adults =  $(80 * 3x/100) + (75 * 2x/100) = 39x/10$*

*Required percentage =  $(39x/10) * (1/5x) * 100 = 78\%$*

**Q10.** Vivek travelled 1200km by air which formed  $2/5$  of his trip. One third of the whole trip, he travelled by car and the rest of the journey he performed by train. The distance travelled by train was?

**ANS:** 800km

**Solution:**

*Let the total trip be  $x$  km.*

*Then  $2x/5 = 1200$*

*$x = 1200 * 5/2 = 3000$  km*

*Distance travelled by car =  $1/3 * 3000 = 1000$  km*

*Journey by train =  $[3000 - (1200 + 1000)] = 800$  km.*

## Model QuEST Global Placement Test Question Paper

**Q11.** In a college , $\frac{1}{5}$  th of the girls and  $\frac{1}{8}$  th of the boys took part in a social camp. What of the total number of students in the college took part in the camp?

**ANS:**  $\frac{2}{13}$

**Solution:**

*Out of 5 girls 1 took part in the camp  
out of 8 boys 1 took part in the camp  
so, out of 13 students 2 took part in the camp.  
So,  $\frac{2}{13}$  of the total strength took part in the camp.*

**Q12.** On sports day, if 30 children were made to stand in a column, 16 columns could be formed. If 24 children were made to stand in a column , how many columns could be formed?

**ANS:** 20

**Solution:**

*Total number of children =  $30 \times 16 = 480$   
Number of columns of 24 children each =  $480 / 24 = 20$ .*

**Q13.** Two trains 200mts and 150mts are running on the parallel rails at this rate of 40km/hr and 45km/hr. In how much time will they cross each other if they are running in the same direction.

## Model QuEST Global Placement Test Question Paper

**ANS:** 252sec

**Solution:**

*Relative speed =  $45 - 40 = 5 \text{ km/hr} = 25/18 \text{ mt/sec}$*

*Total distance covered = sum of lengths of trains = 350mts.*

*So, time taken =  $350 * 18 / 25 = 252 \text{ sec}$ .*

**Q14.** 5/9 part of the population in a village are males. If 30% of the males are married, the percentage of unmarried females in the total population is:

**ANS:** (250/9)%

**Solution:**

*Let the population =  $x$  Males =  $(5/9)x$*

*Married males = 30% of  $(5/9)x = x/6$*

*Married females =  $x/6$*

*Total females =  $(x - (5/9)x) = 4x/9$*

*Unmarried females =  $(4x/9 - x/6) = 5x/18$*

*Required percentage =  $(5x/18 * 1/x * 100) = (250/9)\%$*

**Q15.** From height of 8 mts a ball fell down and each time it bounces half the distance back. What will be the distance travelled

**ANS:** 24

**Solution:**

## Model QuEST Global Placement Test Question Paper

$$8+4+4+2+2+1+1+0.5+0.5+ \text{ and etc } .. =24$$

Q16. First day of 1999 is Sunday what day is the last day

**ANS:** Monday

Q17. Increase area of a square by 69% by what percent should the side be increased

**ANS:** 13

**Solution:**

*Area of square =  $x^2$*

*Then area of increase =  $100+69=169$*

*square root of 169 i.e 13 .*

Q18. Ten years ago, Chandrawathi's mother was four times older than her daughter. After 10 years, the mother will be twice older than daughter. The present age of Chandrawathi is:

**ANS:** 20 years

**Solution:**

*Let Chandrawathi's age 10 years ago be  $x$  years.*

*Her mother's age 10 years ago =  $4x$*



**Model QuEST Global Placement Test Question Paper**

$$(4x+10)+10=2(x+10+10)$$

$$x=10$$

*Present age of Chandrawathi =  $(x+10) = 20$  years*

**Q19. Finding the wrong term in the given series**

**7, 28, 63, 124, 215, 342, 511**

**ANS: 28**

**Solution:**

*Clearly, the correct sequence is*

*$2^3 - 1, 3^3 - 1, 4^3 - 1, 5^3 - 1, \dots$*

*Therefore, 28 is wrong and should be replaced by  $(3^3 - 1)$  i.e, 26.*

**Q20. If a man walks at the rate of 5kmph, he misses a train by only 7min. However if he walks at the rate of 6 kmph he reaches the station 5 minutes before the arrival of the train. Find the distance covered by him to reach the station.**

**ANS: 6km.**

**Solution:**

*Let the required distance be  $x$  km.*

**Q21. Difference in the times taken at two speeds=12mins=1/5 hr.**

### Model QuEST Global Placement Test Question Paper

Therefore  $x/5 - x/6 = 1/5$  or  $6x - 5x = 6$  or  $x = 6\text{km}$ . Hence ,the required distance is 6 km

#### SET II

Q1) Walking  $5/6$  of its usual speed, a train is 10min late. Find the usual time to cover the journey?

**ANS:** 50 min

**Solution:**

*New speed =  $5/6$  of usual speed*

*New time =  $6/5$  of usual time*

*Therefore, ( $6/5$  of usual time) usual time = 10min*

*Therefore Usual time = 50min*

Q2) A train running at 54 kmph takes 20 seconds to pass a platform. Next it takes 12 seconds to pass a man walking at 6 kmph in the same direction in which the train is going. Find the length of the train and the length of the platform.

**ANS:** length of the train=160m  
length of the platform=140 m.

**Solution:**

*Let the length of the train be  $x$  meters and length of the platform be  $y$  meters.*

*Speed of the train relative to man =  $(54 - 6)$  kmph = 48 kmph.  
=  $(48 * 5/18)$  m/sec =  $40/3$  m/sec.*

### Model QuEST Global Placement Test Question Paper

*In passing a man, the train covers its own length with relative speed.*

*Therefore, length of the train = (Relative speed \* Time)  
=  $(40/3 * 12) \text{ m} = 160 \text{ m}$ .*

*Also, speed of the train =  $(54 * 5/18) \text{ m/sec} = 15 \text{ m/sec}$ .*

*Therefore,  $x + y/2xy = 20$  or  $x + y = 300$  or  $y = (300 - 160 \text{ m}) = 140 \text{ m}$ .*

*Therefore, Length of the platform = 140 m.*

**Q3)** A man is standing on a railway bridge which is 180m long. He finds that a train crosses the bridge in 20seconds but himself in 8 seconds. Find the length of the train and its speed.

**ANS:** length of train = 120m

Speed of train = 54kmph

#### **Solution:**

*Let the length of the train be  $x$  meters*

*Then, the train covers  $x$  meters in 8 seconds and  $(x + 180)$  meters in 20 seconds.*

*Therefore  $x/8 = (x+180)/20$  ó  $20x = 8(x+180)$  ó  $x = 120$*

*Therefore Length of the train = 120m*

*Speed of the train =  $120/8 \text{ m/sec} = 15 \text{ m/sec} = 15 * 18/5 \text{ kmph}$   
= 54kmph*

**Q4)** A man sells an article at a profit of 25%. If he had bought it at 20 % less and sold it for Rs.10.50 less, he would have gained 30%. Find the cost price of the article?

**ANS:** Rs. 50

## Model QuEST Global Placement Test Question Paper

### Solution:

*Let the C.P be Rs.x.*

*1st S.P =125% of Rs.x. =  $125 \times x / 100 = 5x/4$ .*

*2nd C.P=80% of x. =  $80x/100 = 4x/5$ .*

*2nd S.P =130% of  $4x/5$ . =  $(130/100 \times 4x/5) = 26x/25$ .*

*Therefore,  $5x/4 - 26x/25 = 10.50$  or  $x = 10.50 \times 100 / 21 = 50$ .*

*Hence, C.P = Rs. 50.*

Q5)A grosser purchased 80 kg of rice at Rs.13.50 per kg and mixed it with 120 kg rice at Rs. 16 per kg. At what rate per kg should he sell the mixture to gain 16%?

**ANS:** Rs.17.40 per kg.

### Solution:

*C.P of 200 kg of mix. = Rs  $(80 \times 13.50 + 120 \times 16) = \text{Rs.}3000$ .*

*S.P = 116% of Rs 3000= Rs  $(116 \times 3000 / 100) = \text{Rs.}3480$ .*

*Rate of S.P of the mixture = Rs.3480/200.per kg. = Rs.17.40 per kg.*

Q6)Two persons A and B working together can dig a trench in 8 hrs while A alone can dig it in 12 hrs. In how many hours B alone can dig such a trench?

**ANS:** 24hours.

### Solution:

*$(A+B)$ s one hours work =  $1/8$ , As one hours work =  $1/12$*

### Model QuEST Global Placement Test Question Paper

*Therefore, Bs one hours work =  $(1/8 - 1/12) = 1/24$ .*

*Hence, B alone can dig the trench in 24 hours.*

Q7) A and B can do a piece of work in 12 days ; B and C can do it in 20 days. In how many days will A, B and C finishes it working all together? Also, find the number of days taken by each to finish it working alone?

**ANS:** 60 days

**Solution:**

*(A+B)s one days work =  $1/12$ ; (B+C)s one days work =  $1/15$  and (A+C)s one days work =  $1/20$ .*

*Adding, we get:  $2(A+B+C)s$  one days work =  $(1/12 + 1/15 + 1/20) = 1/5$*

*Therefore, (A+B+C)s one days work =  $1/10$*

*Thus, A, B and C together can finish the work in 10 days.*

*Now, As one days work*

*= [(A+B+C)s one days work] - [(B+C)s one days work]*

*=  $1/10 - 1/15$*

*=  $1/30$ .*

*Therefore, A alone can finish the work in 30 days.*

*Similarly, Bs 1 days work =  $(1/10 - 1/20) = 1/20$ .*

*Therefore, B alone can finish the work in 20 days.*

*And, Cs 1 days work =  $(1/10 - 1/12) = 1/60$ .*

*Therefore, C alone can finish the work in 60 days.*

Q8) A is twice as good a workman as B and together they finish a piece of work in 18 days. In how many days will A alone finish the work?

## Model QuEST Global Placement Test Question Paper

**ANS:** 27 days.

**Solution:**

*(As 1 days work): (Bs 1 days work) = 2:1*

*(A + B)s 1 days work = 1/18*

*Divide 1/18 in the ratio 2:1.*

*Therefore As 1 days work =  $1/18 * 2/3 = 1/27$*

*Hence, A alone can finish the work in 27 days.*

**Q9)** 2 men and 3 boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy do the work?

**ANS:** 12 ½ days.

**Solution:**

*Let 1 mans 1 days work = x and 1 boys 1 days work = y*

*Then,  $2x+3y=1/10$  and  $3x+2y=1/8$ .*

*Solving, we get:  $x=7/200$  and  $y=1/100$ .*

*Therefore (2 men + 1 boy)s 1 days work  
= $(2*7/200+1*1/100)=16/200=2/25$*

*So, 2 men and 1 boy together can finish the work in  $25/2 = 12$   
1/2 days.*

**Q10)** What was the day of the week on 12th January, 1979?

**ANS:** Friday

## Model QuEST Global Placement Test Question Paper

### Solution:

*Number of odd days in (1600 + 300) years = (0 + 1) = 1 odd day.*

*78 years = (19 leap years + 59 ordinary years) = (38 + 59) odd days = 6 odd days 12 days of January have 5 odd days.*

*Therefore, total number of odd days = (1 + 6 + 5) = 5 odd days.*

*Therefore, the desired day was Friday.*

**Q11)** Find the day of the week on 16th july, 1776.

**ANS:** Tuesday

### Solution:

*16th july, 1776 means = 1775 years + period from 1st january to 16th july*

*Now, 1600 years have 0 odd days.*

*100 years have 5 odd days.*

*75 years = 18 leap years + 57 ordinary years*

*= (36 + 57) odd days = 93 odd days*

*= 13 weeks + 2 odd days = 2 odd days*

*Therefore, 1775 years have (0 + 5 + 2) odd days = 0 odd days.*

*Now, days from 1st Jan to 16th july; 1776*

*Jan Feb March April May June July*

*31 + 29 + 31 + 30 + 31 + 30 + 16 = 198 days*

*= (28 weeks + 2 days) odd days*

*Therefore, total number of odd days = 2*

*Therefore, the day of the week was Tuesday*

### Model QuEST Global Placement Test Question Paper

Q12) Find the angle between the minute hand and hour hand of a clock when the time is 7.20?

**ANS:** 100deg

**Solution:**

*Angle traced by the hour hand in 12 hours = 360 degrees.*

*Angle traced by it in 7 hrs 20 min i.e.  $22/3$  hrs =  $[(360/12) * (22/3)] = 220$  deg.*

*Angle traced by minute hand in 60 min = 360 deg.*

*Angle traced by it in 20 min =  $[(360/20) * 20] = 120$  deg.*

*Therefore, required angle =  $(220 - 120) = 100$ deg.*

Q13) The minute hand of a clock overtakes the hours hand at intervals of 65 min of the correct time. How much of the day does the clock gain or lose?

**ANS:** the clock gains  $10 \frac{10}{43}$  minutes

**Solution:**

*In a correct clock, the minute hand gains 55 min. spaces over the hour hand in 60 minutes. To be together again, the minute hand must gain 60 minutes over the hour hand. 55 minutes are gained in 60 min.*

*60 min. are gained in  $[(60/55) * 60]$  min ==  $65 \frac{5}{11}$  min.*

*But they are together after 65 min.*

*Therefore, gain in 65 minutes =  $(65 \frac{5}{11} - 65) = \frac{5}{11}$  min.*

*Gain in 24 hours =  $[(\frac{5}{11}) * (60*24)/65] = 10 \frac{10}{43}$  min.*

*Therefore, the clock gains  $10 \frac{10}{43}$  minutes in 24 hours.*



## Model QuEST Global Placement Test Question Paper

**Q14)** A clock is set right at 8 a.m. The clock gains 10 minutes in 24 hours. What will be the true time when the clock indicates 1 p.m. on the following day?

**ANS:** 48 min. past 12.

### **Solution:**

*Time from 8 a.m. on a day to 1 p.m. on the following day = 29 hours.*

*24 hours 10 min. of this clock = 24 hours of the correct clock.*

*145/6 hrs of this clock = 24 hours of the correct clock.*

*29 hours of this clock =  $[24 * (6/145) * 29]$  hrs of the correct clock*

*= 28 hrs 48 min of the correct clock.*

*Therefore, the correct time is 28 hrs 48 min. after 8 a.m.*

*This is 48 min. past 12.*

**Q15)** At what time between 2 and 3 o'clock will the hands of a clock together?

**ANS:** 10 10/11 min. past 2.

### **Solution:**

*At 2 o'clock, the hour hand is at 2 and the minute hand is at 12, i.e. they are 10 min space apart. To be together, the minute hand must gain 10 minutes over the other hand. Now, 55 minutes are gained by it in 60 min.*

### Model QuEST Global Placement Test Question Paper

*Therefore, 10 min will be gained in  $[(60/55) * 10] \text{ min} = 10 \frac{10}{11} \text{ min}$ .*

*Therefore, the hands will coincide at 10  $\frac{10}{11}$  min. past 2.*

**Q16)** A sum of money amounts to Rs.6690 after 3 years and to Rs.10035 after 6 years on compound interest. Find the sum.

**ANS:** Rs. 4460

**Solution:**

*Let the Sum be Rs. P. Then*

$$P [1 + (R/100)]^3 = 6690..(i)$$

$$P [1 + (R/100)]^6 = 10035..(ii)$$

*On dividing, we get  $[1 + (R/100)]^3 = 10035/6690 = 3/2$ .*

$$P * (3/2) = 6690 \text{ or } P = 4460.$$

*Hence, the sum is Rs. 4460.*

**Q17)** Simple interest on a certain sum is  $16/25$  of the sum. Find the rate percent and time, if both are numerically equal.

**ANS:** Rate = 8% and Time = 8 years

**Solution:**

*Let sum = X. Then S.I. =  $16x/25$*

### Model QuEST Global Placement Test Question Paper

Q18) Let rate =  $R\%$  and Time =  $R$  years. Therefore,  $x * R * R/100 = 16x/25$  or  $R^2 = 1600/25$ ,  $R = 40/5 = 8$   
Therefore, Rate =  $8\%$  and Time =  $8$  years. Find

- i. S.I. on RS 68000 at  $16 \frac{2}{3}\%$  per annum for 9 months.
- ii. S.I. on RS 6250 at  $14\%$  per annum for 146 days.
- iii. S.I. on RS 3000 at  $18\%$  per annum for the period from 4th Feb 1995 to 18th April 1995.

**ANS:**

- i. RS 8500.
- ii. RS 350.
- iii. RS 108.

**Solution:**

i.  $P = 68000$ ,  $R = 50/3\%$  p.a. and  $T = 9/12$  year =  $\frac{3}{4}$  years

Therefore,  $S.I. = (P * Q * R/100)$

= RS  $(68000 * 50/3 * \frac{3}{4} * 1/100) = RS 8500$ .

ii.  $P = RS 6265$ ,  $R = 14\%$  p.a. and  $T = (146/365)$  year =  $2/5$  years.

Therefore,  $S.I. = RS (6265 * 14 * 2/5 * 1/100) = RS 350$ .

iii. Time =  $(24 + 31 + 18)$  days = 73 days =  $1/5$  year

$P = RS 3000$  and  $R = 18\%$  p.a.

Therefore,  $S.I. = RS (3000 * 18 * 1/5 * 1/100) = RS 108$

Q19) A sum at simple interest at  $13 \frac{1}{2}\%$  per annum amounts to RS 2502.50 after 4 years. Find the sum.

**ANS:** sum = RS 1625

## Model QuEST Global Placement Test Question Paper

### Solution:

Let sum be  $x$ . Then,

$$S.I. = (x * 27/2 * 4 * 1/100) = 27x/50$$

$$\text{Therefore, amount} = (x + 27x/50) = 77x/50$$

$$\text{Therefore, } 77x/50 = 2502.50 \text{ or } x = 2502.50 * 50 / 77 = 1625$$

Hence, sum = RS 1625

Q20) A sum of money doubles itself at C.I. in 15 years. In how many years will it become eight times?

**ANS:** 45 years.

### Solution:

$$P [1 + (R/100)]^{15} = 2P [1 + (R/100)]^{15} = 2 \dots\dots\dots (i)$$

$$\text{Let } P [1 + (R/100)]^n = 8P \quad P [1 + (R/100)]^n = 8 = 2^3$$

$$= [1 + (R/100)]^{15}^3.$$

$$\Rightarrow [1 + (R/100)]^n = [1 + (R/100)]^{45}.$$

$$\Rightarrow n = 45.$$

Thus, the required time = 45 years.

Q21) A certain sum amounts to Rs. 7350 in 2 years and to Rs. 8575 in 3 years. Find the sum and rate percent.

**ANS:** Sum = Rs. 5400, Rate =  $16 \frac{2}{3}$  %.

### Solution:

$$S.I. \text{ on Rs. 7350 for 1 year} = \text{Rs. } (8575 - 7350) = \text{Rs. 1225}.$$

### **Model QuEST Global Placement Test Question Paper**

***Therefore, Rate =  $(100 \times 1225 / 7350 \times 1) \% = 16 \frac{2}{3} \%$ .***

***Let the sum be Rs. X. then,  $x[1 + (50/3 \times 100)]^2 = 7350$ .***

***$\Rightarrow x \times 7/6 \times 7/6 = 7350$ .***

***$\Rightarrow x = [7350 \times 36/49] = 5400$ .***

***Therefore, Sum = Rs. 5400.***