#### **Unisys Model Paper Questions**

### Q1. Find the 55th word of SHUVANK in dictionary.

## ANS: AHSNKUV

### **Explanation:**

Arranging the letters in alphabetical order we get: A H K N S U V Now Total words start with A are 6! Total words start with H are 5a! = 120 Now Total words start with AHK are 4! = 24 Total words start with AHN are 4! = 24 Total words start with AHSK are 3! = 6 Now AHSNKUV will be the last word required.

Q2. A cow and horse are bought for Rs.2,00,000. The cow is sold at a profit of 20% and the horse is sold a t a loss of 10%. The overall gain is Rs.4000, the Cost price of cow?

a) 130000 b) 80000 c) 70000 d) 120000

**ANS:** Overall profit = 400020000 - 100=2% By applying alligation rule, we get

So cost price of the cow =  $2/5 \times 200000 = 80,000$ 

Q3. A circle has 29 points arranged in a clock wise manner from o to 28. A bug moves clockwise manner from 0 to 28. A bug moves clockwise on the circle according to following rule. If it is at a point i on the circle, it moves clockwise in 1 sec by (1 + r) places, where r is the remainder (possibly 0) when i is divided by 11. If it starts in 23rd position, at what position will it be after 2012 sec.

**ANS:** After 1st second, it moves 1 + (23/11)r = 1 + 1 = 2, So 25th position After 2nd second, it moves 1 + 25/11 = 1 + 3 = 4, So 29th position = 0 After 3rd second, it moves 1 + 0/11 = 1 + 0 = 1, So 1st position After 4th second, it moves 1 + 1 = 3rd position after 5th, 1 + 3/11 = 4 So 7th After 6th, 1 + 7/11 = 8 so 15th After 7th, 1 + 15/11 = 5 so 20th After 8th, 1 + 20/11 = 10th, So 30th = 1st So it is on 1st after every 3 + 5n seconds. So it is on 1st position after 2008 seconds ( $3 + 5 \times 401$ ) So on 20th after 2012 position.

Q4. In a city 100% votes are registered, in which 60% vote for congress and 40% vote for BJP. There is a person A, who gets 75% of congress votes and 8% of BJP votes. How many votes got by A?

ANS: Assume total votes are 100. So A got 75% of 60 = 45 8% of 40 = 3.2 A total of 48.2 %

Q5. Mean of 3 numbers is 10 more than the least of the numbers and 15 less than greatest of the 3. If the median of 3 numbers is 5, Find the sum of the 3 numbers?

**ANS:** Median is when the given numbers are arranged in ascending order, the middle one. Let the numbers are x, 5, y where x is the least and y is greatest. Given that x+5+y3=x+10and x+5+y3=y-15Solving we get x = 0 and y = 25. So sum of the numbers = 0 + 5 + 25 = 30

Q6. A and B start from house at 10am. They travel from their house on the MG road at 20kmph and 40 kmph. There is a Junction T on their path. A turns left at T junction at 12:00 noon, B reaches T earlier, and turns right. Both of them continue to travel till 2pm. What is the distance between A and B at 2 pm.

**ANS:** Distance between House and T junction =  $20 \times 2 = 40$ . ie., B reached T at 11 am. B continued to right after 11 am and travelled upto 2. So distance covered by him =  $3 \times 40 = 120$  A reached T at 12 noon and travelled upto 2 So distanced travelled by him =  $2 \times 20 = 40$ So total distance between them = 120 + 40 = 160 km

Q7. In a particular year, the month of January had exactly 4 Thursdays, and 4 Sundays. On which day of the week did January 1st occur in the year.

- a) Monday b) Tuesday
- c) Wednesday
- d) Thursday

**ANS:** If a month has 31 days, and it starts with Sunday, Then Sundays, Mondays, Tuesdays are 5 for that month. If this month starts with Monday, then Mondays, Tuesdays, and Wednesdays are 5 and remaining days are 4 each. so this month start with Monday.

Q8. A, E, F, and G ran a race. A said I did not finish 1st /4th. E said I did not finish 4th. F said I finished 1st. G said I finished 4th. If there were no ties and exactly 3 children told the truth, when who finishes 4th?

a) A

- b) E c) F
- d) G

# ANS: D

Q9. A child was looking for his father. He went 90 m in the east before turning to his right. He went 20 m before turning to his right afain to lok for his father at his uncles place 30 m from this point. His father was not there. From there he went 100 m north before meeting his

father in a street. How far did the son meet his father from the starting point.

- a) 90
- b) 30
- c) 80
- d) 100

# <u>ANS:</u>



From the diagram, AB = 90 - 30 = 60 and BD = 100 - 20 = 80

AD = AB2 + BD2 = Sqrt of (602+802) =100

Q10. In an office, at various times during the day the boss gives the secretary a letter to type, each time putting the letter on top of the pile in the secretarys inbox. Secretary takes the top letter and types it. Boss delivers in the order 1, 2, 3, 4, 5. Which cannot be the order in which secretary types?

a) 2, 4, 3, 5, 1 b) 4, 5, 2, 3, 1 c) 3, 2, 4, 1, 5 d) 1, 2, 3, 4, 5

## <u>ANS:</u> b

Q11. At 12.00 hours, J starts to walk from his house at 6 kmph. At 13.30, P follows him from Js house on his bicycle at 8 kmph. When will J be 3 km behind P?

**ANS:** By the time P starts J is 1.5 hr x 6 = 9 km away from his house.

J is 3 km behind when P is 3 km ahead of him. ie., P has to cover 12 km. So he takes 12 / (8 - 6) = 6 hrs after 13.30. So the required time is 19.30Hrs

Q12. J is faster than P. J and P each walk 24 km. Sum of the speeds of J and P is 7 kmph. Sum of time taken by them is 14 hours. Then J speed is equal to

- a) 7 kmph
- b) 3 kmph
- c) 5 kmph
- d) 4 kmph

## ANS: Given J > P

J + P = 7, only options are (6, 1), (5, 2), (4, 3) From the given options, If J = 4 the P = 3. Times taken by them = 244+243=14

Q13. In a G6 summit held at London. A french, a German, an Italian, a British, a Spanish, a polish diplomat represent their respective countries.

(i) Polish sits immediately next to British

(ii) German sits immediately next to Italian, British or both

(iii) French does not sit immediately next to Italian

(iv) If Spanish sits immediately next to polish, Spanish does not sit immediately next to Italian Which of the following does not violate the stated conditions?

a) FPBISG b) FGIPBS c) FGISPB d) FSPBGI e) FBGSIP

# <u>ANS:</u> D

Q14. Raj drives slowly along the perimeter of a rectangular park at 24 kmph and completes one full round in 4 min. If the ratio of length to breadth of the park is 3 : 2, what are the dimensions?

a) 450 m x 300 m b) 150 m x 100 m c) 480 m x 320 m d) 100 m x 100 m

#### **ANS:** 24 kmph = 24 - 100060=400 m / min

In 4 minutes he covered 4 x 400 = 1600 m This is equal to the perimeter 2 (I + b) = 1600 But I : b = 3:2

Q15. A calculator has a key for squaring and another key for inverting. So if x is the displayed number, then pressing the square key will replace x by  $x^2$  and pressing the invert key will replace x by 1/x. If initially the number displayed is 6 and one alternatively presses the invert and square key 16 times each, then the final number displayed (assuming no round off or overflow errors) will be?

**ANS:** Even number of inverse key has no effect on the number. For example, Initially the given number is

6. Square key makes it 62 and invert key makes it 162. Now again square key makes it (162)2=164 and invert key makes it 64. Now observe clearly, after pressing square key 2 times, the power of 6 became 4. By pressing the square key, the value got increased like 2, 4, 8, .... Which are in the format of 2n. So after the 16 pressings the power becomes 216

So the final number will be 6216=665536

Q16. The wages of 24 men and 16 women amounts to Rs.11600 per day. Half the number of men and 37 women earn the same amount per day. What is the daily wage of a man?

ANS: Let the wage of a man is m and woman be w. 24m+16w=11600 12m+37w = 11600 Solving we get m = 350

Q17. Two cars start from the same point at the same time towards the same destination which is 420 km away. The first and second car travel at respective speeds of 60 kmph and 90 kmph. After travelling for sometime the speeds of the

two cars get interchanged. Finally the second car reaches the destination one hour earlier than the first. Find the time after which the speeds get interchanged?

**ANS:** Let the total time taken by the cars be a and b Let the time after which the speed is interchanged be t For car A, 60t+90(a-t) = 420, 90a - 30t = 420 .....(1) For car B, 90t + 60(b-t) = 420, 60b + 30t = 420 ....(2) Using both (1) and (2), we get 90a + 60b = 840 But as a - b = 1, 90a + 60(a-1) = 840. Solving a = 6. Substituting in equation 1, we get t = 4

Q18. n is a natural number and n<sup>3</sup> has 16 factors. Then how many factors can n<sup>4</sup> have?

**ANS:** Total factors of a number N=ap.bq.cr... is (p+1)(q+1)(r+1)... As n3 has 16 factors n3 can be one of the two formats given below n3 =a15 n3 = a3.b3 If n3 =a15 then n = a5 and number of factors of n4 = 21 n3 = a3.b3 then n = ab and number of factors n4 = 25

Q19. The sum of three digits a number is 17. The sum of square of the digits is 109. If we subtract 495 from the number, the number is reversed. Find the number.

ANS: Let the number be abc. Then  $a + b + c = 17 \dots(1)$   $a2+b2+c2=109 \dots(2)$   $100a+10b+c -495 = 100c+10b+a \dots(3)$ From 3, we get a - c = 5So the possibilities for (a, c, b) are (6,1,10), (7,2,8), (8,3,6), (9,4,4) From the above, (8,3,6) satisfies the condition.

Q20. How many two digit numbers are there which when subtracted from the number formed by reversing its digits as well as when added to the number formed by reversing its digits, result in a perfect square.

### **ANS:** Let the number xy = 10x + y

Given that, 10x+y - (10y - x) = 9(x-y) is a perfect square So x-y can be 1, 4, 9. -----(1)

So given that 10x+y + (10y + x) = 11(x+y) is a perfect square.

So x+y be 11. Possible options are (9,2), (8,3),(7,4),(6,5) ------(2) From the above two conditions only (6,5) satisfies the condition Only 1 number 56 satisfies.