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Capgemini Recruitment Process – About the company

Capgemini is a French Multinational company headquartered in Paris. IT consulting, Management consulting, Cloud infrastructure & consulting are some of the major services provided by Capgemini. Capgemini Company was established in 1967. Capgemini is one of the best places to work among the other IT companies. Capgemini has nearly 200,000 employees and has offices in around 40 countries.

Round 1: Online test/Written test

Capgemini conducts a written test based on the basic aptitude abilities of a candidate. This aptitude test has 4 rounds where questions are asked on Mathematics, English, Reasoning and a Pseudo Coding Test.

The online/written test in Capgemini recruitment process consists of 5 sections. The sections are as follows:

- 1) **Quantitative Aptitude Section**
- 2) **Logical Reasoning Section**
- 3) **Essay Writing Section**
- 4) **Pseudo Coding Section**

Round 2: Group Discussion

This round checks a candidate's interpersonal skills. the Candidates are supposed to have a group discussion on any trending or a social topic. This round goes for around 10 minutes and 5 minutes for a conclusion. The candidates should abide by the rules and be punctual and respectful towards the moderator and the group.

Round 3: Technical Interview

The shortlisted candidates are called for this round followed by an HR Interview. The Interview Panel will have experts who will have your performance reports of the conducted aptitude test and will judge your potential based on that. Other than this, the panel will ask questions from your resume. They will also ask about your Final year project. Make sure you are able to answer questions on all things that you list on your resume.

Round 4: HR Interview

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This Interview round is considered the Final round of the Capgemini recruitment process. This round will reflect the overall personality of the candidate. It will include discussion of your internships, work experience, industrial visits, and other HR questions. This round basically evaluates the stability and confidence level of the candidate.

Capgemini Placement Papers (Section wise previously asked questions)

Capgemini Aptitude Questions – set 1

1) A person gains 10% while buying and 10% while selling by using false weights, then what is his total profit percentage?

- (a) 15% (b) 25% (c) 20% (d) 21%

Ans: 21%

Explanation

Here the 10% is successively increased, so $(a+b+ab/100)$ can be used to find the overall percentage gain. %Profit = $(10 + 10 + (10*10)/100) = 21$

2) Seema is 5 years older than her brother Mac. The product of their ages is 204 years. What is the age of Mac?

- (a) 12 years (b) 8 years (c) 6 years (d) 10 years

Ans: 12 years

Explanation

Let the age of Mac will be x yrs. Then Seema age = $x+5$

Acc to question: $(x+5)x = 204$, by solving this we get $x = 12$ years.

3) Lalit marks up his goods by 40% and gives a discount of 10%. Apart from this, he uses a faulty balance also, which reads 1000 gm for 800 gm. What is his net profit percentage?

- (a) 57.5% (b) 57% (c) 61% (d) 62.5%

Ans: 57.5%

Explanation

Let us assume his CP/1000 gm = Rs 100

The SP/kg (800 gm) = Rs 126

So, his CP/800 gm = Rs 80

So, profit = Rs 46

So, profit percentage = $46/80 \times 100 = 57.5\%$

4) In a bag, there are a certain number of toy-blocks with alphabets A, B, C and D written on them. The ratio of blocks A:B:C:D is in the ratio 4:7:3:1. If the number of 'A' blocks is 50 more than the number of 'C' blocks, what is the number of 'B' blocks?

- (a) 120 (b) 350 (c) 240 (d) 210

Ans: 350

Explanation

Let the number of the blocks A,B,C,D be $4x$, $7x$, $3x$ and $1x$ respectively

$4x = 3x + 50 \rightarrow x = 50$. So the number of 'B' blocks is $7*50 = 350$.

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5) If 60 ml of water contains 12% of chlorine, how much water must be added in order to create a 8% chlorine solution?

- (a) 10ml (b) 35ml (c) 20ml (d) 30ml

Ans: 30ml

Explanation

Let x ml of chlorine be present in water.

Then, $12/100 = x/60 \rightarrow x = 7.2$ ml

Therefore, 7.2 ml is present in 60 ml of water.

In order for this 7.2 ml to constitute 8% of the solution, we need to add extra water. Let this be y ml, then $8/100$ of $y = 7.2\text{ml} \rightarrow y = 90$ ml.

So in order to get 8% chlorine solution, we need to add $90 - 60 = 30$ ml of water.

6) If $a : b = 7 : 5$ and $c : d = 2a : 3b$, then $ac : bd$ is :

- (a) 14:15 (b) 50:147 (c) 98:75 (d) 15:14

Ans: 98:75

Explanation

Since a and b are in the ratio 7:5. Then, let $a = 7x$ and $b = 5x$.

$c = 2a = 2 * 7x = 14x$ and $d = 3b = 3 * 5x = 15x$.

$c : d = 14 : 15 \rightarrow ac : bd = 14 * 7 : 15 * 5 = 98 : 75$

7) The average score of a cricketer for ten matches is 38.9 runs. If the average for the first six matches is 42, then find the average for the last four matches.

- (a) 33.25 (b) 33.5 (c) 34.25 (d) 35

Ans: 34.25

Explanation

Total sum of last 4 matches = $(10 \times 38.9) - (6 \times 42)$

$= 389 - 252 = 137$

Average = $137/4 = 34.25$

8) A grocer has a sale of Rs. 6435, Rs. 6927, Rs. 6855, Rs. 7230 and Rs. 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of Rs. 6500?

- (a) 4991 (b) 5467 (c) 5987 (d) 6453

Ans: Rs. 4991

Explanation

Total sale for 5 months = Rs. $(6435 + 6927 + 6855 + 7230 + 6562) = \text{Rs. } 34009$.

Required sale = Rs. $[(6500 \times 6) - 34009]$

= Rs. $(39000 - 34009) = \text{Rs. } 4991$.

9) The average of five consecutive odd numbers is 61. What is the difference between the highest and lowest numbers :

- (a) 4 (b) 8 (c) 12 (d) 16

Ans: 8

Explanation

Let the numbers be x, $x + 2$, $x + 4$, $x + 6$ and $x + 8$.

Then $[x + (x + 2) + (x + 4) + (x + 6) + (x + 8)] / 5 = 61$.

Or $5x + 20 = 305$ or $x = 57$.

So, required difference = $(57 + 8) - 57 = 8$

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10) A car travels at a speed of 60 km/h and returns with a speed of 40 km/h, calculate the average speed for the whole journey.

- (a) 48 kmph (b) 38 kmph (c) 32 kmph (d) 16 kmph

Ans: 48 kmph

Explanation:

Since equal distances are covered at 60 kmph and 40 kmph, we can apply the formula $2xy/(x+y)$. Average speed = $(2 \times 40 \times 60) / (40 + 60) = 48$ kmph

Capgemini Aptitude Questions – set 2

11) A motorboat can travel at 5 km/hr in still water. It travelled 90 km downstream in a river and then returned, taking altogether 100 hours. Find the rate of flow of the river.

- (a) 3 kmph (b) 3.5 kmph (c) 2 kmph (d) 4 kmph

Ans: 4 kmph

Explanation:

Speed of boat in still water = $x = 5$ km/hr.

Let rate of flow of river = y km/hr.

Therefore, speed of u/s = $5 - y$ and speed of d / s = $5 + y$

Hence, $90/(5+y) + 90/(5-y) = 100 \Rightarrow y = 4$ km/hr.

Directions for questions 12 – 16:

Study the following table and answer the questions based on it.

Year	Item of Expenditure				
	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

12) What is the average amount of interest per year which the company had to pay during this period?

- (a) 32.43 (b) 33.72 (c) 34.18 (d) 36.66

Ans: 36.66

Explanation

Average amount of the interest paid by the company during the given period.

$$= [23.4 + 32.5 + 41.6 + 36.4 + 49.4] / 5$$

$$= 183.3 / 5 = 36.66$$

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13) The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period?

- (a) 0.1% (b) 0.5% (c) 1.0% (d) 1.25%

Ans: 1.0 %

Explanation

$$= [(3.00 + 2.52 + 3.84 + 3.68 + 3.96) / (288 + 342 + 324 + 336 + 420)] * 100$$

$$= [17/ 1710 * 100] \%$$

$$\sim 1\%$$

14) Total expenditure on all these items in 1998 was approximately what percent of the total expenditure in 2002?

- (a) 62% (b) 66% (c) 69% (d) 71%

Ans: 69%

Explanation

$$= [(288 + 98 + 3.00 + 23.4 + 83)/(420 + 142 + 3.96 + 49.4 + 98)] * 100$$

$$= [495.4/713.36 * 100] \%$$

$$\sim 69.45\%$$

15) The total expenditure of the company over these items during the year 2000 is?

- (a) 544.44 (b) 501.11 (c) 446.46 (d) 478.87

Ans: 544.44

Explanation

$$\text{Total expenditure of the Company during 2000} = (324 + 101 + 3.84 + 41.6 + 74) = 544.44$$

16) The ratio between the total expenditure on Taxes for all the years and the total expenditure on Fuel and Transport for all the years respectively is approximately?

- (a) 4:7 (b) 15:18 (c) 10:13 (d) 5:8

Ans: 10:13

Explanation

$$[(83 + 108 + 74 + 88 + 98) / (98 + 112 + 101 + 133 + 142)] = [451/ 586] = 1/ 1.3$$

$$= 10/13 \rightarrow 10:13$$

17) The sum of third and ninth term of an A.P is 8. Find the sum of the first 11 terms of the progression.

- (a) 44 (b) 22 (c) 19 (d) None

Ans: 44

Explanation

$$\text{The third term } t_3 = a + 2d$$

$$\text{The ninth term } t_9 = a + 8d$$

$$t_3 + t_9 = 2a + 10d = 8$$

Sum of first 11 terms of an AP is given by,

$$S_{11} = 11/2 [2a + 10d] = 11/2 * 8 = 44$$

18) How many numbers between 11 and 90 divisible by 7?

- (a) 10 (b) 11 (c) 12 (d) 13

Ans: 11

Explanation: The required numbers are 14, 21, 28, ... 84

This is an A.P with $a = 14$, $d = (21-14) = 7$

Let the number of terms be n , then $T_n = 84 \rightarrow a + (n-1) d = 84$

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$$14 + (n-1) * 7 = 84$$

$$n = 11$$

19) The price of 2 sarees and 4 shirts is Rs. 1600. With the same money one can buy 1 saree and 6 shirts. If one wants to buy 12 shirts, how much shall he have to pay?

(a) Rs. 1200 (b) Rs. 2400 (c) Rs. 4800 (d) None

Ans: Rs. 2400

Explanation

Let the price of a saree and a shirt be Rs. x and Rs. y respectively.

Then, $2x + 4y = 1600$ (i) and $x + 6y = 1600$ (ii).

Divide equation (i) by 2, we get the below equation.

$$\Rightarrow x + 2y = 800. \text{ --- (iii)}$$

Now subtract (iii) from (ii)

$$x + 6y = 1600 \text{ (-)}$$

$$x + 2y = 800$$

$$4y = 800$$

Therefore, $y = 200$.

Now apply value of y in (iii)

$$\Rightarrow x + 2 \times 200 = 800$$

$$\Rightarrow x + 400 = 800$$

Therefore $x = 400$

Solving (i) and (ii) we get $x = 400$, $y = 200$.

Cost of 12 shirts = Rs. $(12 \times 200) = \text{Rs. } 2400$.

20) Simplify:

$$(469 + 174)_2 - (469 - 174)_2$$

$$(469 \quad \times \quad 174)$$

= ?

(a) 2

(b) 4

(c) 295

(d) 643

Ans: 4

Explanation:

Given expression $\hat{a} \quad (a + b)_2 - (a - b)_2 / ab$

$$= 4ab / ab$$

$$= 4 \text{ (where } a = 469, b = 174 \text{)}$$

Capgemini Placement Papers – Quantitative Aptitude

21) The average salary of 3 teachers is 95 Rs. per week. If one earns Rs.115 and second earns Rs.65 how much is the salary of the 3rd teacher. [Average][Capgemini 2017]

Ans: 105

22) A 16 stored apartment has 12000 sq.feet on each floor. Company A rents 7 floors and company B rents 4 floors. What is the number of sq.feet of unrented floor space. [Numbers] [Capgemini 2018]

Ans: 60000

23) During a given week a person spends 1/4 of his time preparing flow chart, 3/8 of his time coding and the rest of the time in debugging the programs. If he works 48 hours during

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the week, how many hours did he spend debugging the program?

Ans: 18

24) If 12 file cabinets require 18 feet of wall space, how many feet of wall space will 30 cabinets require?

Ans: 45

25) A computer printer produced 176,400 lines in a given day. If the printer was in operation for seven hours during the day, how many lines did it print per minute?

Ans: 420

26) From its total income, a sales company spent Rs.20,000 for advertising, half of the remainder on commissions and had Rs.6000 left. What was its total income? [Equations] [Capgemini 2016]

Ans: 32000

27. A 30% loss on cost price is what percent loss on selling price?

A)30% B)20% C)15% D)None of these

Answer & Explanation

Answer: Option D

Let CP = 100 ; SP=70

Loss = $30/70 \times 100 = 42.85\%$

28.) A, B and C hire a taxi for Rs. 2400 for one day. A, B and C used the car for 6 hours, 8 hours and 10 hours respectively. How much did C pay?

A)Rs. 800 B)Rs. 1000 C)Rs. 600 D)Rs. 1200

Answer & Explanation

Answer: Option B

Let total fair be = 2400 ;

Therefore c share = $10/24 \times 2400 = 1000$

29)The ratio of investments of A and B is 8 : 7 and the ratio of their yearend profits is 20 : 21. If B invested for 12 months, then find the period of investment of A:

A)6 months B)8 months C)10 months D)12 months

Answer & Explanation

Answer: Option C

Let A invest for x months ; A = 8x months,

B = $7 \times 12 = 84$ months

$8x/84 = 20/21$

$\Rightarrow x = 10$

30)What percent is 2 minutes 24 seconds of an hour?

A)6% B)2% C)4% D)8%

Answer & Explanation

Answer: Option C

$\% = 144/60 \times 60 = 4\%$

31)Evaluate: $3 \cos 80^\circ \operatorname{cosec} 10^\circ + 2 \cos 59^\circ \operatorname{cosec} 31^\circ$

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

Answer & Explanation

Answer: Option D

$3 \cos 80^\circ \cdot \operatorname{Cosec} 10^\circ + 2 \cos 59^\circ \cdot \operatorname{cosec} 31^\circ$

$= 3 \cos (90^\circ - 10^\circ) \cdot \operatorname{Cosec} 10^\circ + 2 \cos (90^\circ - 31^\circ) \cdot \operatorname{Cosec} 31^\circ$

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$$= 3\sin 10^\circ \cdot \operatorname{Cosec} 10^\circ + 2\sin 31^\circ \cdot \operatorname{cosec} 31^\circ$$

$$= 3 + 2 = 5$$

32) The total cost of 8 buckets and 5 mugs is Rs. 92 and the total cost of 5 buckets and 8 mugs is Rs. 77. Find the cost of 2 mugs and 3 buckets.

A) Rs. 35

B) Rs. 70

C) Rs. 30

D) Rs. 38

Answer & Explanation

Answer: Option A

CP of 1 bucket = Rs. X

CP of 1 mug = Rs. Y

$$\therefore 8x + 5y = 92 \dots\dots (i)$$

$$5x + 8y = 77 \dots\dots (ii)$$

By equation (i) $\times 5$ – equation (ii) $\times 8$.

$$40x + 25y - 40x - 64y$$

$$= 460 - 616 \Rightarrow -39y = -156 \Rightarrow y = 4$$

From equation (i),

$$8x + 20 = 92 \Rightarrow 8x = 92 - 20 = 72 \Rightarrow x = 9$$

\therefore CP of 2 mugs and 3 buckets

$$= 2 \times 4 + 3 \times 9 = 8 + 27 = \text{Rs. } 35$$

33) If $4x/3 + 2P = 12$ for what value of P, $x = 6$?

A) 6

B) 4

C) 2

D) 1

Answer & Explanation

Answer: Option C

When $x = 6$, $(4 \times 6)/3 + 2P = 12$

$$\Rightarrow 8 + 2P = 12$$

$$\Rightarrow 2P = 12 - 8 = 4$$

$$\Rightarrow P = 2$$

34) What number must be added to the expression $16a^2 - 12a$ to make it a perfect square?

A) 9/4

B) 11/2

C) 13/2

D) 16

Answer & Explanation

Answer: Option A

$$a^2 - 2ab + b^2 = (a-b)^2$$

$$\therefore 16a^2 - 12a = (4a)^2 - 2 \times 4a \times 3/2$$

Hence, on adding $(3/2)^2 = 9/4$, expression will be a perfect square.

35) The straight line $2x + 3y = 12$ passes through:

A) 1st, 2nd and 3rd quadrant B) 1st, 2nd and 4th quadrant C) 2nd, 3rd and 4th quadrant

D) 1st, 3rd and 4th quadrant

Answer & Explanation

Answer: Option B

The usual way to solve these type of questions is to put $x = 0$ once and find y coordinate.

This would represent the point where the line cuts the Y axis.

Similarly put $y = 0$ once and find x coordinate. This would represent the point where the line cuts the X axis. Then join these points and you will get the graph of the line.

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So when we put $x = 0$ we get $y = 4$.

When we put $y = 0$ we get $x = 6$.

So when we join these points we see that we get a line in 1st quadrant, which when extended both sides would go to 4th and 2nd quadrants. So option B.

36) In $\triangle ABC$, $\angle A + \angle B = 65^\circ$, $\angle B + \angle C = 140^\circ$, then find $\angle B$.

A) 40° B) 25° C) 35° D) 20°

Answer & Explanation

Answer: Option B

$$\angle A + \angle B = 65^\circ$$

$$\therefore \angle C = 180^\circ - 65^\circ = 115^\circ$$

$$\angle B + \angle C = 140^\circ$$

$$\therefore \angle B = 140^\circ - 115^\circ = 25^\circ$$

Capgemini Placement Papers – Logical Reasoning

Here are few sample logical reasoning questions asked in the Capgemini placement papers

1) Data Arrangements: The only people to attend a conference were four ship captains and the first mates of three of those captains. The captains were L, M, N and O; the first mates were A, D and G. Each person in turn delivered a report to the assembly as follows: Each of the first mates delivered their report exactly after his or her captain. The first captain to speak was M, and captain N spoke after him. [Capgemini 2017]

Among the following which is not an appropriate order of delivered reports?

- a) M, A, N, G, O, L, D
- b) M, D, N, G, L, O, A
- c) M, N, A, L, D, O, G
- d) M, N, A, O, D, L, G
- e) M, N, G, D, O, L, A

Ans: e

2) In case L speaks after A, and A is the third of the first mates to speak, then among the following statements which would be untrue?

- a) spoke immediately after G.
- b) The order of the first four speakers was M, G, N, D.
- c) O's first mate was present.
- d) A was the fourth speaker after M.
- e) The captains spoke in the order M, N, O, L.

Ans: A

3) Among the following statements which statement must be true?

- a) In case the second speaker was a captain, the seventh speaker was a first mate.
- b) In case the second speaker was a first mate, the seventh speaker was a captain.
- c) In case the third speaker was a first mate, the seventh speaker was a captain.
- d) In case the third speaker was a captain, the seventh speaker was a first mate.
- e) In case the seventh speaker was a first mate, the first and third speakers were captains.

Ans: a

4) Syllogisms:

Statements: [Capgemini 2017]

No door is dog.

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All the dogs are cats.

- 1) No door is cat.
 - 2) No cat is door.
 - 3) Some cats are dogs
 - 4) All the cats are dogs.
- a) Only (2) and (4)
 - b) Only (1) and (3)
 - c) Only (3) and (4)
 - d) Only (3)
 - e) All the four

Statements:

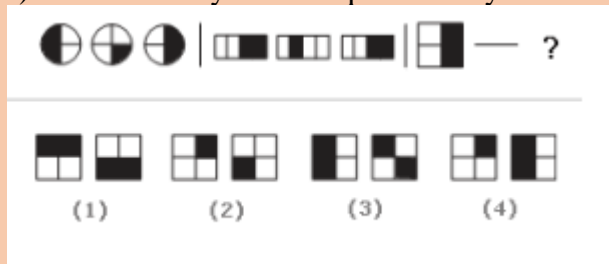
Ans: d

These questions are the most repeated Capgemini logical reasoning questions asked in previous drives.

Capgemini Logical Reasoning questions – Set 1

Directions for 1 – 5:

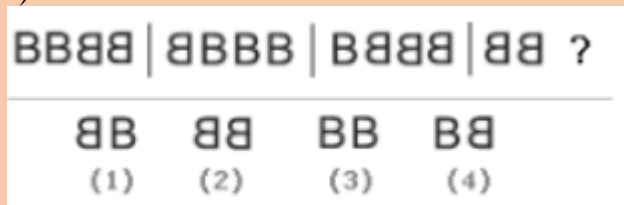
- 1) Look carefully at the sequence of symbols to find the pattern. Select the correct pattern.



- (a) 1 (b) 2 (c) 3 (d) 4

Ans: d

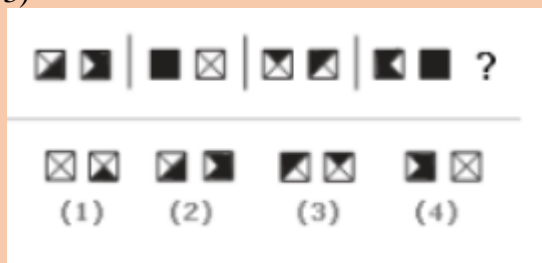
- 2)



- (a) 1 (b) 2 (c) 3 (d) 4

Ans: c

- 3)



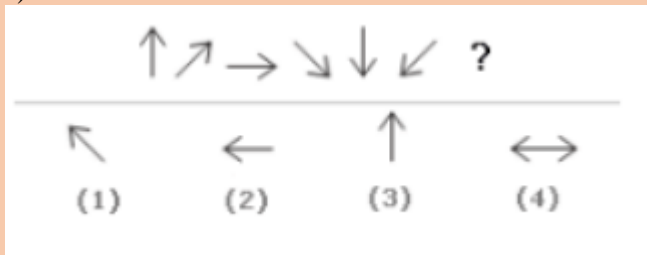
- (a) 1 (b) 2 (c) 3 (d) 4

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Ans: a

4)



(a) 1 (b) 2 (c) 3 (d) 4

Ans: b

5)



(a) 1 (b) 2 (c) 3 (d) 4

Ans: c

6) **Statement:** Population increase coupled with depleting resources is going to be the scenario of many developing countries in days to come.

Conclusions:

- I. The population of developing countries will not continue to increase in the future.
- II. It will be very difficult for the governments of developing countries to provide its people da ecent quality of life.

- a) Only conclusion I follows
- b) Only conclusion II follows
- c) Either I or II follows
- d) Neither I nor II follows

Ans: b

Explanation

The fact given in I is quite contrary to the given statement. So, I do not follow, II mentions the direct implications of the state discussed in the statement. Thus, II follows.

7) **Statement:** Any student who does not behave properly while in the school brings bad name to himself and also for the school.

Conclusions:

- I. Such a student should be removed from the school.
 - II. Stricter discipline does not improve the behavior of the students.
- a) Only conclusion I follows
 - b) Only conclusion II follows

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- c) Either I or II follows
- d) Neither I nor II follows

Ans: d

Explanation

Clearly, I cannot be deduced from the statement. Also, nothing about discipline is mentioned in the statement. So, neither I nor II follows.

8) **Statement:** A man must be wise to be a good wrangler. Good wranglers are talkative and boring.

Conclusions:

- I. All the wise persons are boring.
- II. All the wise persons are wWranglers
- a) Only conclusion I follows
- b) Only conclusion II follows
- c) Either I or II follows
- d) Neither I nor II follows

Ans: d

Directions: 9-10

In each of the following questions, a statement/group of statements is given followed by some conclusions. Without resolving anything your-self choose the conclusion which logically follows from the given statements.

9) **Statement:** A factory worker has five children. No one else in the factory has five children.

Conclusions:

- a) All workers in the factory have five children each.
- b) Everybody in the factory has children.
- c) Some of the factory workers have more than five children.
- d) Only one worker in the factory has exactly five children.

Ans: d

10) **Statement:** All beggars are poor.

Conclusions:

- a) If A is a beggar, then A is not rich.
- b) If A is not rich, then A is not a beggar.
- c) All those who are poor are beggars.
- d) If A is rich, then A is not a beggar.

Ans: d

11) Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?

- A. Brother B. Uncle C. Cousin D. Father

Ans: D

Explanation

Suresh's mother's only son is Suresh himself. So, the boy in the photo is Suresh's son, i.e. Suresh is the boy's father.

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12) Given, $M \% N$ means M is the son of N, $M @ N$ means M is the sister of N and $M \$ N$ means M is the father of N. Which of the following shows the relation that C is the granddaughter of E?

- A. $C \% B \$ F \$ E$ B. $B \$ F \$ E \% C$
C. $C @ B \% F \% E$ D. $E \% B \$ F \$ C$

Ans: C

Explanation

C is the granddaughter of E.

13) 'Reds' are 'blues', 'blues' are 'whites', 'whites' are 'yellows', 'yellows' are 'oranges', 'oranges' are 'pinks', then what is the color of the sky?

- A. pinks B. blue C. white D. yellow

Ans: white

Explanation: Sky is blue, but blues are whites

14) In a certain code, COMPUTER is written as RFUVQNPC. How is MEDICINE written in the same code?

- a) MFEDJJOE
b) EOJDEJFM
c) MFEJDJOE
d) EOJDJEFM

Ans: d

Explanation

The letters of the word are written in reverse order and except the first and the last letter all other letters are move one step forward.

15) In a certain code language : 'dugo hui mul zo' stands for 'work is very hard' 'hui dugo ba ki' for 'Bingo is very smart'; 'nano mul dugo' for 'cake is hard'; and 'mul ki gu' for 'smart and hard' Which of the following word stand for Bingo ?

- a) Jalu
b) Dugo
c) Ki
d) Ba

Ans: d

16) If $A + B$ means A is the brother of B; $A - B$ means A is the sister of B and $A \times B$ means A is the father of B. Which of the following means that C is the son of M?

- a) $M - N \times C + F$
b) $F - C + N \times M$
c) $N + M - F \times C$
d) $M \times N - C + F$

Ans: d

Explanation:

$M \times N \rightarrow$ M is the father of N

$N - C \rightarrow$ N is the sister of C and $C + F \rightarrow$ C is the brother of F.

Hence, M is the father of C or C is the son of M.

17) B5D means B is the father of D.

B9D means B is the sister of D.

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B4D means B is the brother of D.

B3D means B is the wife of D.

Which of the following means F is the mother of K?

- a) F3M5K
- b) F5M3K
- c) F9M4N3K
- d) F3M5N3K

Ans: a

Explanation

F3M → F is the wife of M

M5K → M is the father of K

Therefore, F is the mother of K.

Directions for 18-20:

Attention to detail assesses your ability to quickly spot subtle differences in short text strings. You will be shown two or more short strings of text and be required to quickly determine if they are 100% identical or not. The strings of text can be names of persons or companies, short addresses, numbers or any other short text string.

You will be working under a very strict time limit and are required to work fast but precise.

18) Try to compare the four text strings below, are they 100% identical? If not find the non-identical one.

- a) 256 Hickory Heights Drive,
Hanover, 21076
- b) 256 Hickory Heights Drive,
Hanover, 21876
- c) 256 Hickory Heights Drive,
Hanover, 21076
- d) 256 Hickory Heights Drive,
Hanover, 21076

Ans: b

Explanation

No, one of the four addresses reads '21876' instead of '21076'. Finding this difference may have been easy for you, but remember that you will be required to answer many of these within a short time.

19) Is column A alike or different than column B?

Column A

Column B

Ph #847-728-9676

Ph #847-728-9676

- a) Alike
- b) Different

Ans: Alike

20) Is column A alike or different than column B?

Column A

Column B

Stephen M. Jackson

Stephem M. Jackson

- a) Alike
- b) Different

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Ans: Different

DIRECTIONS for the questions 1 to 5 : Study the given information carefully and answer the given questions:

1) Eight people -A, B, C, D, E, F, G and H are sitting around a circular table facing the centre, not necessarily in the same order. Three people are sitting between A and D. B is sitting second to the right of A. C is to the immediate right of F. D is not an immediate neighbour of either F or E. H is not an immediate neighbour of B

1) What is E's position with respect to G?

- A) Third to the left B) Second to the right C) Third to the right D) Second to the left
E) Fifth to the right

Answer & Explanation

Answer: Option D

From above figure it is clear that E is sitting 2nd to the left of G.

So, the correct answer is option D.

2) Four of the following five are alike in a certain way, based on their seating positions in the above arrangement and so form a group. Which one does not belong to the group?

- A) GE B) DC C) AF D) AB E) DB

Answer & Explanation

Answer: Option B

From above figure it is clear that the answer is 2nd option, As the gap between the persons in all other pairs is of 1 person.

Therefore, the correct answer is option B.

3) Who is sitting third to the right of the one who is sitting to the immediate right of H?

- A) A B) B C) E D) C E) G

Answer & Explanation

Answer: Option C

From above figure it is clear that answer is C option.

4) Which of the following is true regarding the given arrangement ?

- A) E is second to the left of C B) B is an immediate neighbour of G
C) H is an immediate neighbour of A D) D is not an immediate neighbour of H
E) None Of these

Answer & Explanation

Answer: Option B

From above figure it is clear that answer is B option

5) How many people are sitting between H and A when counted from the right side of H?

- A) Three B) None C) More than three D) One
E) Two

Answer & Explanation

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Answer: Option E

From above figure it is clear that answer is E option.

DIRECTIONS for the questions 6 to 7: The question below has either two or three statements followed by two or three conclusions. You have to take the given statements to be true and then decide which of the given conclusions logically follows from the given statements, disregarding the commonly known facts.

Give answer (1) : if only conclusion I follows

Give answer (2) : if only conclusion II follows

Give answer (3) : if either I or II follows

Give answer (4) : if neither I nor II follows

Give answer (5) : if both I and II follow

6) Statements: Some forms are cards. Some forms are papers

Conclusions: I. Atleast some cards are forms. II. Atleast some cards are papers.

A)1 B)2 C)3 D)4 E)5

Answer & Explanation

Answer: Option A

This means atleast one card is form, which is definitely true for all the possible cases. So, conclusion I follows.

II. This means that atleast one card is paper, which is not a necessarily true answer. So, conclusion II does not follow.

Therefore, only conclusion 1 follows. So, the answer is option A.

7) Statements : All animals are predators. All predators are tigers.

Conclusions :

I. All tigers are definitely predators.

II. All animals are tigers

A)1 B)2 C)3 D)4 E)5

Answer & Explanation

Answer: Option B

As is clearly shown in the fig, only conclusion 2 follows.

DIRECTIONS for the questions 8 to 10: In these questions, relationships between different elements is shown in the statements. These statements are followed by two conclusions.

Give answer (1) : if only conclusion I follows

Give answer (2) : if only conclusion II follows

Give answer (3) : if either I or II follows

Give answer (4) : if neither I nor II follows

Give answer (5) : if both I and II follow

8) Statements : $N \geq O \geq P = Q > R$.

Conclusions :

I. $N > R$

II. $R = N$

A)1 B)2 C)3 D)4 E)5

Answer & Explanation

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Answer: Option A

As $N \geq O \geq P = Q > R \Rightarrow N > R$, So 1st Conclusion is correct.

\Rightarrow As R is less than Q then clearly R is not equal to N.

Therefore, Only conclusion I follows.

The answer is option A.

9) Statements : $W \leq X < Y = Z > A$; $W < B$

Conclusions :

I. $B > Z$

II. $W < A$

A)1 B)2 C)3 D)4 E)5

Answer & Explanation

Answer: Option D

I. We have $B > W$ and $Z > W$

On this basis, we can not conclude that $B > Z$

II. Here, $X > W$ and $X < Z > A$

On this basis, we can not conclude that $W < A$

Therefore, none of the conclusions follows.

The answer is option D. S

10) Statements : $H > I > J > K$; $L < M < K$

Conclusions :

I. $I > M$

II. $L < H$

A)1 B)2 C)3 D)4 E)5

Answer & Explanation

Answer: Option E

I. $I > K$ and $K > M$. So $I > M$. Conclusion I follows

II. $L < K$ and $K < H$. So $L < H$. Conclusion II follows

So both conclusion follows.

The answer option is E

Capgemini Placement Papers – Pseudo Code MCQ's

Capgemini Pseudo Code MCQs (previously asked)

1) What will be the value of s if $n=127$?

Read n

$i=0, s=0$

Function Sample(int n)

while($n>0$)

$r=n\%10$

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```
p=8^i
s=s+p*r
i++
n=n/10
End While
Return s;
End Function
```

- a) 27
- b) 187
- c) 87
- d) 120

Ans: Option C

2) What will be the value of s if N=20?

```
Read N
Function sample(N)
s = 0, f = 1, i=1;
Do Until i <= N
f = f * i;
s = s +(i / f);
i=i+1
End Do
return(s);
End Function
```

- a) 666667
- b) 718282
- c) 708333
- d) 716667

Ans: Option B

3) What will be the output if limit = 6?

```
Read limit
n1 = 0, n2= 1, n3=1, count = 1;
while count <= limit
count=count+1
print n3
n3 = n1 + n2
n1 = n2
```

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n2 = n3
End While

- a) 1235813
- b) 12358
- c) 123581321
- d) 12358132

Ans: Option A

4) What will be the value of even_counter if number = 2630?

```
Read number
Function divisible(number)
even_counter = 0, num_remainder = number;
while (num_remainder)
digit = num_remainder % 10;
if digit != 0 AND number % digit == 0
even_counter= even_counter+1
End If
num_remainder= num_remainder / 10;
End While
return even_counter;
```

- a) 3
- b) 4
- c) 2
- d) 1

Answer: Option D

5) What will be the value of t if a = 56 , b = 876?

```
Read a,b
Function mul(a, b)
t = 0
while (b != 0)
t = t + a
b=b-1
End While
return t;
End Function
```

- a) 490563
- b) 49056

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- c) 490561
- d) None of the mentioned

Ans: Option B

6) Code to sort given array in ascending order:

```
Read size
Read a[1],a[2],...a[size]
i=0
While(i<size)
    j=i+1
    While(j<size)
        If a[i] < a[j] then
            t= a[i];
            a[i] = a[j];
            a[j] = t;
        End If
        j=j+1
    End While
    i=i+1
End While
i=0
While (i<size)
    print a[i]
    i=i+1
End While
```

wrong statement?

- a) Line 4
- b) Line 6
- c) Line 7
- d) No Error

Ans: Option C

- 7) What is the time complexity of searching for an element in a circular linked list?
- a) $O(n)$
 - b) $O(n \log n)$
 - c) $O(1)$
 - d) None of the mentioned

Ans: Option A

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8) In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is

- a) $\log_2 n$
- b) $n/2$
- c) $\log_2 n - 1$
- d) n

Ans: Option D

9) Which of the following will give the best performance?

- a) $O(n)$
- b) $O(n!)$
- c) $O(n \log n)$
- d) $O(n^C)$

Ans: Option A

10) How many times the following loop be executed?

```
{  
...  
ch = 'b';  
while(ch >= 'a' && ch <= 'z')  
ch++;  
}
```

- a) 0
- b) 25
- c) 26
- d) 1

Ans: B

11) Consider the following piece of code. What will be the space required for this code?

```
int sum(int A[], int n)  
{  
    int sum = 0, i;  
    for(i = 0; i < n; i++)  
        sum = sum + A[i];  
    return sum;  
}  
// sizeof(int) = 2 bytes
```

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- a) $2n + 8$
- b) $2n + 4$
- c) $2n + 2$
- d) $2n$

Ans: A

12) What will be the output of the following pseudo code?

For input $a=8$ & $b=9$.

Function(input a,input b)

 If($a < b$)

 return function(b,a)

 elseif($b \neq 0$)

 return ($a + \text{function}(a,b-1)$)

 else

 return 0

- a) 56
- b) 88
- c) 72
- d) 65

Ans: C

13) What will be the output of the following pseudo code?

Input $m=9, n=6$

$m = m + 1$

$N = n - 1$

$m = m + n$

if ($m > n$)

 print m

else

 print n

- a) 6
- b) 5
- c) 10
- d) 15

Ans: D

14) What will be the output of the following pseudo code?

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Input f=6,g=9 and set sum=0

Integer n

if(g>f)

for(n=f;n<g;n=n+1)

sum=sum+n

End for loop

else

print error message

print sum

a) 21

b) 15

c) 9

d) 6

Ans: A

15) Consider a hash table with 9 slots. The hash function is $h(k) = k \bmod 9$. The collisions are resolved by chaining. The following 9 keys are inserted in the order: 5, 28, 19, 15, 20, 33, 12, 17, 10. The maximum, minimum, and average chain lengths in the hash table, respectively, are

a) 3, 0, and 1

b) 3, 3, and 3

c) 4, 0, and 1

d) 3, 0, and 2

Ans: A

16) You have an array of n elements. Suppose you implement a quick sort by always choosing the central element of the array as the pivot. Then the tightest upper bound for the worst case performance is:

a) $O(n^2)$

b) $O(n \log n)$

c) $\Theta(n \log n)$

d) $O(n^3)$

Ans: A

17) Let G be a graph with n vertices and m edges. What is the tightest upper bound on the running time on Depth First Search of G? Assume that the graph is represented using adjacency matrix.

a) $O(n)$

b) $O(m+n)$

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- c) $O(n^2)$
- d) $O(mn)$

Ans: C

18) Let P be a Quick Sort Program to sort numbers in ascending order using the first element as a pivot. Let t_1 and t_2 be the number of comparisons made by P for the inputs {1, 2, 3, 4, 5} and {4, 1, 5, 3, 2} respectively. Which one of the following holds?

- a) $t_1 = 5$
- b) $t_1 < t_2$
- c) $t_1 > t_2$
- d) $t_1 = t_2$

Ans: C

19) What does the following piece of code do?

```
public void func(Tree root)
{
    func(root.left());
    func(root.right());
    System.out.println(root.data());
}
```

- a) Preorder traversal
- b) Inorder traversal
- c) Postorder traversal
- d) Level order traversal

Ans: C

20) How will you find the minimum element in a binary search tree?

```
a) public void min(Tree root)
{
    while(root.left() != null)
    {
        root = root.left();
    }
    System.out.println(root.data());
}
```

- b) public void min(Tree root)

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```
{  
    while(root != null)  
    {  
        root = root.left();  
    }  
    System.out.println(root.data());  
}
```

c) public void min(Tree root)

```
{  
    while(root.right() != null)  
    {  
        root = root.right();  
    }  
    System.out.println(root.data());  
}
```

d) public void min(Tree root)

```
{  
    while(root != null)  
    {  
        root = root.right();  
    }  
    System.out.println(root.data());  
}
```

Ans: a

21) What is the time complexity of searching for an element in a circular linked list?

- a) $O(n)$
- b) $O(n \log n)$
- c) $O(1)$
- d) None of the mentioned

Ans: Option A

22) In the worst case, the number of comparisons needed to search a singly linked list of length n for a given element is

- a) $\log_2 n$
- b) $n/2$
- c) $\log_2 n - 1$
- d) n

Ans: Option D

23) What will be the output if limit = 6?

Read limit

$n_1 = 0, n_2 = 1, n_3 = 1, \text{count} = 1;$

while count <= limit

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```
count=count+1
print n3
n3 = n1 + n2
n1 = n2
n2 = n3
End While
a) 1235813
b) 12358
c) 123581321
d) 12358132
Ans: Option A
```

Capgemini Essay Writing Topics (Most asked in recent drives)

Here are few essay writing topics which have been asked in the Capgemini off-campus/on-campus drives

- 1) Social media has made it easier to misuse one's right to freedom of expression.
- 2) Violent video games affect children negatively.
- 3) Success comes to those who take risks.
- 4) People today are more materialistic and less satisfied as compared to previous generations.
- 5) Do you think progress is always good? Cite examples to support your view.
- 6) At least one form of physical training should be mandatory across education institutes.
- 7) Social media has made us less social.
- 8) The winner stands alone.
- 9) Do ethics or moral principles change with time? Cite examples to support your view.

Capgemini Essay Writing Topics (Sample answers)

Topic: Social media has made us less social.

Sample Essay:

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Has social media made us less social? It indeed had a great influence on us. Given the measure of its impact, it naturally attracted some criticism. While social media has its own cons, it has only helped humans build new relationships in this fast-paced world and stay more connected with it.

Here's a common argument we hear against social media: People are interacting with their devices more than they do with people or the environment around. Thus, social media is making them less social.

Well, Social media has been nothing more than a facilitator. A facilitator for information flow. The amount of information and knowledge one can accumulate through social media is immense. It has erased boundaries and helped communities grow. It had made learning easy and efficient. While the free flow of information might pose some long-term problems, the positives outweigh the negatives.

The distance between people has a huge role in the level of communication between them. It is hard to imagine the scenario if there weren't any social media. Thanks to social media this distance just got reduced to almost nothing. You can keep up with the lives of people you care for, and always be there for them. Social media made communication easy and efficient. It made communication real-time, just like two people having a conversation.

If a kid is spending a lot of time on his computer, the parents have every right to be concerned. But, chances are the kid is picking up skills relevant to today's tech world. Having said that, it is also equally important that one develops the necessary people skills. There is definitely a concern around the diminishing art of conversation, that needs to be addressed. Blaming social media is definitely not one of the many possible solutions.

In conclusion, think of it this way. Anything that helps us stay more connected with our friends, family and the outside world isn't essentially making us less social. Social media is just a tool to stay connected. Nothing more, nothing less.

This is one way to answer Capgemini essay writing topics. You can also share your essays for various topics in the comments sections and get them evaluated by your friends

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Capgemini Technical & HR Interview Questions

Capgemini Interview Questions for Technical Round will be **based on subjects of your interest** or **based on projects you have done**. You need to have complete knowledge of all the projects you have listed down in your resume. We are providing some links to help you prepare for Capgemini Interview questions:

Capgemini Interview Questions – Technical

Most Asked Java Interview Questions

1. What are the similarities and difference between C++ and Java?

Java, unlike C++, **doesn't have pointers, operator overloading, typedef keyword, define keyword, structures, unions, enumeration, functions, goto statements, templates, and default parameters**. Java **doesn't have functions** as it is Object Oriented. It has **methods** instead.

Most of you are confused between methods and functions. Functions, used in C++, and methods, used in Java, have the same functionality with a minor difference. Functions are a set of codes that are called in any part of the program by referring to its name. **Methods are a set of codes that are called in any part of the program by referring to its name and these are associated with an object.**

There is **no automatic coercion** in Java, unlike C++. Coercion is to convert one data type to another. In Java, coercion is explicitly made and is performed using code instructions.

In Java, variables are not declared separately. They are the part of a class.

Java supports **interface inheritance and not implementation inheritance**. i.e, it doesn't support private, public and protected inheritance but supports multiple inheritance.

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There's **no scope resolution operator (::)** in Java. Java uses the dot for everything but can get away with it since you can define elements only within a class.

Unlike C++, Java has **garbage collection and multithread support**.

Even though Java doesn't support operator overloading, it supports function overloading. Like C++, it also supports internationalization and exception handling. Exception handling in Java is different because there are no destructors.

2. Explain JVM, JRE, and JDK.

JVM (Java Virtual Machine): During the development of Java, the developers faced many problems because as the OS gets updated, the system was not able to run the previously written codes. To rectify this problem, JVM came into existence. It is an abstract machine that is present in the user's computer and converts the bytecode into machine code. Thus, it enables a computer to run a java program. It is a specification that provides a run-time environment in which Java bytecode can be executed. It follows three notations:

Specification: It is a document that describes the implementation of the Java virtual machine. It is provided by Sun and other companies.

Implementation: It is a program that meets the requirements of JVM specification.

Runtime Instance: An instance of JVM is created whenever you write a java command on the command prompt and run the class.

JRE (Java Runtime Environment): JRE refers to a software package in which java bytecode can be executed. It implements the JVM (Java Virtual Machine) and provides all the class libraries and other support files that JVM uses at runtime.

JDK (Java Development Kit): This tool is necessary to compile, document and package Java programs. The JDK includes JRE which contains tools for Java programmers. Along with JRE, it includes an interpreter/loader, a documentation generator (javadoc), an archiver (jar), a compiler (javac), and other tools needed in Java development. To put it simply, it encloses the JRE and the development tools.

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3. Explain public static void main(String args[]).

public: Public is an access modifier. Access modifiers are used to specify who can access this method and hence, public specifies that this method will be accessible to any class.

static: Static is a keyword in java to identify if the program is class-based or not because, in Java, a program cannot be accessed without creating the instance of a Class.

void: It is the return type of the method. Void defines the method that doesn't return any value.

main: Main is the method that is searched by the JVM as it is considered as the starting point of the program.

String args[]: It is the parameter passed to the main method.

In this, only the name of the string can be changed and the rest remains constant.

4. Why is Java platform independent?

Java is created keeping in mind the concept of "write once run anywhere". A code once compiled, can run on any operating system as it uses the JVM. The source code is converted into a bytecode by the Java compiler and then, the JVM on the user's system converts it into machine codes. As these machine codes can run on any system irrespective of its underlying operating system, it is platform independent.

5. Explain Final keyword in java.

The final keyword is used in variables, classes, and methods to restrict the usage.

In variables, the value of the final variable is constant and cannot be changed.

In classes, final classes can't be inherited.

In methods, a final method can never be overridden.

6. When is the super keyword used?

A super keyword is used to refer the following:

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Immediate parent class constructor

Immediate parent class variable

Immediate parent class method.

super() is used to invoke the immediate parent class constructor.

An example for how the super keyword is used to access the data members of a parent class is given below:

```
class Animal{
String color="white";
}
class Dog extends Animal{
String color="black";
void printColor(){
System.out.println(color);//prints color of Dog class
System.out.println(super.color);//prints color of Animal class
}
}
class TestSuper1{
public static void main(String args[]){
Dog d=new Dog();
d.printColor();
}}
```

An example for how the super keyword is used to invoke a method of a parent class is given below:

```
class Animal{
void eat(){System.out.println("eating...");}
}
class Dog extends Animal{
void eat(){System.out.println("eating bread...");}
void bark(){System.out.println("barking...");}
void work(){
super.eat();
}
```

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```
bark();  
}  
}  
class TestSuper2{  
public static void main(String args[]){  
Dog d=new Dog();  
d.work();  
}}
```

An example for how the super keyword is used to invoke a constructor of a parent class is given below:

```
class Animal  
{  
Animal(){System.out.println("animal is created");}  
}  
class Dog extends Animal{  
Dog(){  
super();  
System.out.println("dog is created");  
}  
}  
class TestSuper3{  
public static void main(String args[]){  
Dog d=new Dog();  
}}
```

7. Compare SWING components to standard AWT.

Swing is an extension and not a replacement for the AWT (Abstract Window Toolkit). There are few overlaps between AWT and Swing. For example, a Swing JButton component might be viewed as an improved functional replacement for an AWT Button component.

One of the advantages of Swing components is that because the components are not rendered on the screen by the operating system, the look, and feel of a component does not change as

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the application or applet is executed on different platforms running under different operating systems.

Furthermore, it is possible to cause Swing components to mimic the look and feel of a specific platform no matter what platform the program is running on. This is known as pluggable look and feel. Swing components support the JDK 1.1 Delegation Event Model.

From an event handling point of view, Swing components operate the same as AWT components except that Swing provides a number of new event types. Many Swing components don't have an AWT counterpart. A number of new and exciting components are included in the Swing library that doesn't exist in the AWT like tooltips, progress bars, trees, etc.

8. What is the difference between 'throw' and 'throws' in Java Exception Handling?

The throw keyword is used to throw Exception from any method or static block whereas the throws keyword is used to indicate the method in which the Exception can possibly be thrown.

If any method throws checked Exception, then the user can either handle this exception by using the try-catch block or they can re-throw it by declaring another 'throws' clause during the declaration of methods.

The throw clause can be used in any part of the program like

throw

throw new Exception("You have some exception")

throw new IOException("Connection failed!!")

throws

throws IOException, NullPointerException, ArithmeticException

The above mentioned are some of the most asked Java interview questions.

Most Commonly Asked Java Interview Questions – Set 2

1. What are ArrayList and Vector?

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Array:

Generally, Array is a collection of similar type of elements that are arranged in adjacent memory addresses. In Java, Array is an object which contains similar types of elements. By default, the size of these elements stored in an array cannot be changed. i.e, you will give a size to the array and you cannot expand or reduce it later. If you want to change the size of the array, you have to create a new array and copy the data that you want. But this process is tedious. But, in Platforms such as Java 6 and Java 7, built-in classes like ArrayList are introduced.

List Interface:

The list interface is the ordered collection of objects in which you can store duplicate values. In list interface, you can insert elements in desired positions as it has insertion and positional access.

ArrayList:

The class ArrayList is an array-based implementation of the List interface. All the elements of the ArrayList are stored in a Java array and hence, it has fixed size in the beginning. For example, an array list by the name of **xyz** is of the size **m**. In the beginning, the array xyz is capable of storing a maximum of m elements. But, when the $(m+1)^{th}$ element is added to the array, the size of the array will be increased by 50% of its original size automatically. This is done by acquiring a bigger array and copying all the elements of the current array to the bigger array.

Synchronization:

Thread synchronization is a mechanism which ensures that two or more processes do not simultaneously execute the same program section.

Vector:

Like ArrayList, Vector also implements List interface and uses insertion order. But, unlike ArrayList, Vector is synchronized. Even though the adding, searching, updating and deleting of arrays are not carried out satisfactorily because of the synchronization, the vectors can grow and shrink as required to accommodate elements. In the beginning, the using this vector

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class object will create an initial capacity of m . If the $(m+1)$ th element is added, the size of the vector is doubled.

Declaring the vector in its default form as in **Vector xyz = new Vector();** will create 10 initial capacity. In case of **Vector xyz = new Vector(int size, int incr);** the initial capacity is specified by the size and the increment of the size is specified by incr.

Differences between ArrayList and Vector:

ArrayList is not synchronized, but Vector is synchronized. Hence, the ArrayList is fast and Vector is slow.

If the element $m+1$ is inserted into an m array, then the size of the ArrayList is increased by 50% and that of the vector is doubled.

The ArrayList doesn't define the increment size while the Vector can define the increment size (eg: **Vector xyz = new Vector(int size, int incr);**)

2. What is Polymorphism?

Poly in Greek means many and morph means forms. Polymorphism, in simple words, is the ability of one function to take up many forms. In Java, Polymorphism is the ability of the language to process objects of various types and class through a single interface. For example, you will behave as a customer in the shop, as a student in college, as an employee in the workplace and as a fan in the stadium. Here, you are polymorphic.

Polymorphism is of two types as:

Compile Time Polymorphism

Run Time Polymorphism

3. What is Compile Time Polymorphism or Static Binding?

This type of polymorphism uses method overloading. i.e, There are multiple methods in a class with same name and different types/ number of arguments/ parameters. At the time of compiling, Java compiler will just look at the type or the number of arguments given to know which method to invoke.

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Eg:

```
class DemoOverload{
public int add(int x, int y){ //method 1
return x+y;
}
public int add(int x, int y, int z){ //method 2
return x+y+z;
}
public int add(double x, int y){ //method 3
return (int)x+y;
}
public int add(int x, double y){ //method 4
return x+(int)y;
}
}
class Test{
public static void main(String[] args){
DemoOverload demo=new DemoOverload();
out.println(demo.add(2,3)); //method 1 called
out.println(demo.add(2,3,4)); //method 2 called
out.println(demo.add(2,3.4)); //method 4 called
out.println(demo.add(2.5,3)); //method 3 called
}
}
```

4. What is Run Time Polymorphism or Dynamic Method Dispatch?

This is a process where the call to the overridden method is resolved at run-time rather than during compile-time. In this process, the overridden method is called through the superclass' reference variable. This type of polymorphism allocates the memory space for the object at runtime.

Eg:

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```
class Car{
void run(){System.out.println("running");}
}
class Audi extends Car{
void run(){System.out.println("Running safely with 70km");}
}
publicstatic void main(String args[]){
Car c = new Audi(); //upcasting
run();
}
}
```

Output:

Running safely in 70km

In the above program, we created two classes called Car and Audi. The class Audi, the child class, extends the parent class, Car. Then, the run method is called by the reference variable of the parent class, i.e, c. Since it refers to the child class' object and also, as the child class' method overrides the Parent class method, the subclass method is invoked at runtime.

Eg:

```
class Shape{
void draw(){System.out.println("drawing...");}
}
class Rectangle extends Shape{
void draw(){System.out.println("drawing rectangle...");}
}
class Circle extends Shape{
void draw(){System.out.println("drawing circle...");}
}
class Triangle extends Shape{
void draw(){System.out.println("drawing triangle...");}
}
class TestPolymorphism2{
```

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```
public static void main(String args[]){  
Shape s;  
s=new Rectangle();  
draw();  
s=new Circle();  
draw();  
s=new Triangle();  
draw();  
}  
}
```

Output:

drawing rectangle...
drawing circle...
drawing triangle...

5. What is a Servlet?

Servlets and applets came into the picture as soon as the web was used for delivering services. This is because the service providers recognized the need for a more dynamic content. Hence, at first, the applets was developed. It completely focused on using the client Platform to provide the dynamic experience. At the same time, the servlets are developed to give the dynamic experience from the server platform.

Java servlet is a Java program that extends the capabilities of a server. A Java Servlet container provides lifecycle management which is a single process to share and manage application-wide resources and interaction with a Web server. The primary use of the Java Servlet is to define a robust mechanism for sending content to a client as according to the definition of the Client/Server model. Also, Servlets natively supports HTTP.

It processes the input from client side and generates the response in terms of the HTML page, Applets or Javascript. The lifecycle of a servlet consists of `init()`, `service()`, and `destroy()`.

6. How is Multiple Inheritance supported in Java?

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Java supports multiple inheritance through its interfaces. The reason for not supporting multiple inheritance through classes is to avoid the conflict and complexity that arises due to it and keep Java a Simple Object-Oriented Language.

This decision is taken because, in C++, there is a special case of multiple inheritance (in Diamond problem) where you have a multiple inheritance with two classes or more classes overriding a method. So, Java developers decided to avoid such conflicts and didn't allow multiple inheritance through classes at all.

The multiple inheritance through interface is shown below:

InterfaceA.java

```
package com.faceprep.inheritance;  
public interface InterfaceA {  
    public void xyz();  
}
```

InterfaceB.java

```
package com.faceprep.inheritance;  
public interface InterfaceB {  
    public void xyz();  
}
```

Both the interfaces given above are declaring the same method. Now, an interface extending both these interfaces is implemented.

InterfaceC.java

```
package com.faceprep.inheritance;  
public interface InterfaceC extends InterfaceA, InterfaceB { //same method is declared in  
    both InterfaceA and InterfaceB  
    public void xyz();  
}
```

The above program will generate a clean output because the interfaces are only declaring the methods and the actual implementation will be done by concrete classes implementing the

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interfaces. So there is no possibility of any kind of ambiguity in multiple inheritance through interfaces.

7. Explain finalize() method.

Unlike c++ , Java doesn't need destructors as the 'Garbage Collector' automatically destroys the objects for us. If there is no reference is present to an object, Garbage Collector assumes that it is no longer needed, and hence, the memory occupied by the object can be freed. The finalize() method is called by the garbage collector on an object when garbage collection determines that there are no more references to the object.

Sometimes an object can hold non-java resources such as file handle or database connection. Hence, you have to make sure that these resources are also released before the object is destroyed. The finalize() is used as it performs many operations, including bringing the object back to life. To do this, provide the protected void finalize() in the object class. You can override this method in your class and do the required tasks. Right before an object is freed, the java runtime calls the finalize() method on that object.

8. What happens when an Object is created?

Several things happen in a particular order to ensure the object is constructed properly:

1. Memory is allocated from the heap to hold all instance variables and implementation-specific data of the object and its superclasses. Implementation-specific data includes pointers to class and method data.
2. The instance variables of the objects are initialized to their default values.
3. The constructor for the most derived class is invoked. The first thing a constructor does is call the constructor for its superclasses. This process continues until the constructor for java.lang.Object is called, as java.lang.Object is the base class for all objects in java.
4. Before the body of the constructor is executed, all instance variable initializers and initialization blocks are executed. Then the body of the constructor is executed. Thus, the constructor for the base class completes first and constructor for the most derived class completes last.

These are few of the most commonly asked Java Interview questions.

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Some More Interview question:

Java Interview Questions

- Where Local Variables are stored?
- Where Program code is stored?
- Where Register variables are stored?
- What is ResourceBundle class?
- What do you mean by platform independence?
- Why there is no concept of global variables in Java?
- What is the most important feature of Java?
- What is the difference between while and do while statement?
- What is the difference between a JDK and a JVM?
- What is a pointer and does Java support pointers?
- Are arrays primitive data types?
- Is Java a pure object oriented language?
- What are local variables?
- How to define a constant variable in Java?
- Should a main() method be compulsorily declared in all java classes?
- Can a main() method be declared final?
- What is a package?

SQL Interview Questions

- What does SQL stand for?
- With SQL, how do you select a column named "FirstName" from a table named "Persons"?
- Which SQL statement is used to return only different values?
- With SQL, how can you insert a new record into the "Persons" table?
- With SQL, how can you return the number of records in the "Persons" table?
- Which SQL statement is used to extract data from a database?
- Which SQL statement is used to update data in a database?
- Which SQL statement is used to delete data from a database?
- Which SQL statement is used to insert new data in a database?
- Which SQL keyword is used to sort the result-set?

C Interview Questions

- What are different storage class specifiers in C?
- When should we use pointers in a C program?
- What is a Dangling pointer?
- What is the NULL pointer?
- What are local static variables? What is their use?

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- What are static functions? What is their use?
- What are main characteristics of C language?
- What is the difference between array and pointer?
- What is difference between i++ and ++i?

Here some of the HR Interview Questions asked for Freshers Candidates

- Tell me about yourself
- What will be the first you will do if you will see someone getting fired?
- How you will feel if you get rejected from here?
- What is the first thing you will do after going out?
- How many stairs you climbed while coming for this interview?
- Why you haven't chosen any other project as a final year project?
- Have you copied the project or did it on your own?
- Why should we hire you on Capgemini?
- Why do you want to work with Capgemini?

Javascript Interview Questions

- Name some of the JavaScript features.
- How can you create an Object in JavaScript?
- Is JavaScript a case-sensitive language?
- What are the advantages of using JavaScript?
- What are disadvantages of using JavaScript?
- How can you create an Array in JavaScript?
- Can you assign an anonymous function to a variable?
- Give an example of closure?
- What type of returns for a null value?
- Can you access Cookie using javascript?
- How to handle exceptions in JavaScript?

C++ Interview Questions

- What is the role of a static keyword on class member variable?
- What operators are used to accessing the class members?
- What is function overloading?
- Name the default standard streams in C++.
- When a class member is defined outside the class, which operator is used to associate the function definition to a particular class?
- What are the differences between references and pointers?
- What are virtual functions – Write an example?

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