

# Tech Mahindra Paper

## Arithmetic Section

1. If a boat is moving in upstream with velocity of 14 km/hr and goes downstream with a velocity of 40 km/hr, then what is the speed of the stream ?  
(a) **13 km/hr**  
(b) 26 km/hr  
(c) 34 km/hr  
(d) none of these
2. Find the value of  $(0.75 * 0.75 * 0.75 - 0.001) / (0.75 * 0.75 - 0.075 + 0.01)$   
(a) **0.845**  
(b) 1.908  
(c) 2.312  
(d) 0.001
3. A can have a piece of work done in 8 days, B can work three times faster than the A, C can work five times faster than A. How many days will they take to do the work together ?  
(a) 3 days  
(b) **8/9 days**  
(c) 4 days  
(d) can't say
4. A car travels a certain distance taking 7 hrs in forward journey, during the return journey increased speed 12km/hr takes the times 5 hrs. What is the distance travelled ?  
(a) 210 kms  
(b) **30 kms**  
(c) 20 kms  
(c) none of these
5. Instead of multiplying a number by 7, the number is divided by 7. What is the percentage of error obtained ?
6. Find  $(7x + 4y) / (x-2y)$  if  $x/2y = 3/2$  ?  
(a) 6  
(b) 8  
(c) **7**  
(d) data insufficient
7. A man buys 12 lts of liquid which contains 20% of the liquid and the rest is water. He then mixes it with 10 lts of another mixture with 30% of liquid. What is the % of water in the new mixture?
8. If a man buys 1 lt of milk for Rs.12 and mixes it with 20% water and sells it for Rs.15, then

what is the percentage of gain?

9. Pipe A can fill a tank in 30 mins and Pipe B can fill it in 28 mins. If  $\frac{3}{4}$ th of the tank is filled by Pipe B alone and both are opened, how much time is required by both the pipes to fill the tank completely ?

10. If on an item a company gives 25% discount, they earn 25% profit. If they now give 10% discount then what is the profit percentage.?

- (a) 40%
- (b) 55%
- (c) 35%
- (d) 30%**

11. A certain number of men can finish a piece of work in 10 days. If however there were 10 men less it will take 10 days more for the work to be finished. How many men were there originally?

- (a) 110 men**
- (b) 130 men
- (c) 100 men
- (d) none of these

12. In simple interest what sum amounts of Rs.1120/- in 4 years and Rs.1200/- in 5 years ?

- (a) Rs. 500
- (b) Rs. 600
- (c) Rs. 800
- (d) Rs. 900**

13. If a sum of money compound annually amounts of thrice itself in 3 years. In how many years will it become 9 times itself.

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

14. Two trains move in the same direction at 50 kmph and 32 kmph respectively. A man in the slower train observes the 15 seconds elapse before the faster train completely passes by him. What is the length of faster train ?

- (a) 100m
- (b) 75m**
- (c) 120m
- (d) 50m

15. How many meshes are there in 1 square meter of wire gauge if each mesh is 8mm long and 5mm wide ?

- (a) 2500

- (b) **25000**
- (c) 250
- (d) 250000

16.  $x\%$  of  $y$  is  $y\%$  of ?

- (a)  $x/y$
- (b)  $2y$
- (c)  **$x$**
- (d) can't be determined

17. The price of sugar increases by  $20\%$ , by what % should a housewife reduce the consumption of sugar so that expenditure on sugar can be same as before ?

- (a)  $15\%$
- (b)  **$16.66\%$**
- (c)  $12\%$
- (d)  $9\%$

18. A man spends half of his salary on household expenses,  $1/4$ th for rent,  $1/5$ th for travel expenses, the man deposits the rest in a bank. If his monthly deposits in the bank amount 50, what is his monthly salary ?

- (a) Rs.500
- (b) Rs.1500
- (c) **Rs.1000**
- (d) Rs. 900

19. The population of a city increases @  $4\%$  p.a. There is an additional annual increase of  $4\%$  of the population due to the influx of job seekers, find the % increase in population after 2 years ?

20. The ratio of the number of boys and girls in a school is  $3:2$  Out of these  $10\%$  the boys and  $25\%$  of girls are scholarship holders. % of students who are not scholarship holders.?

21. 15 men take 21 days of 8 hrs. each to do a piece of work. How many days of 6 hrs. each would it take for 21 women if 3 women do as much work as 2 men?

- (a) **30**
- (b) 20
- (c) 19
- (d) 29

22. A cylinder is 6 cms in diameter and 6 cms in height. If spheres of the same size are made from the material obtained, what is the diameter of each sphere?

- (a) 5 cms
- (b) 2 cms
- (c) **3 cms**
- (d) 4 cms

23. A rectangular plank  $(2)1/2$  meters wide can be placed so that it is on either side of the

diagonal of a square shown below.(Figure is not available)What is the area of the plank?  
Ans : $7\sqrt{2}$

**24.** The difference b/w the compound interest payable half yearly and the simple interest on a certain sum lent out at 10% p.a for 1 year is Rs 25. What is the sum?

- (a) Rs. 15000
- (b) Rs. 12000
- (c) Rs. 10000**
- (d) none of these

**25.** What is the smallest number by which 2880 must be divided in order to make it into a perfect square ?

- (a) 3
- (b) 4
- (c) 5**
- (d) 6

**26.** A father is 30 years older than his son however he will be only thrice as old as the son after 5 years what is father's present age ?

- (a) 40 yrs**
- (b) 30 yrs
- (c) 50 yrs
- (d) none of these

**27.** An article sold at a profit of 20% if both the cost price and selling price would be Rs.20/- the profit would be 10% more.What is the cost price of that article?

**28.**If an item costs Rs.3 in '99 and Rs.203 in '00.What is the % increase in price?

- (a)  $\frac{200}{3}$  %**
- (b)  $\frac{200}{6}$  %
- (c) 100%
- (d) none of these

### **Logical Section**

Directions: For questions 29-38 fill the missing number or letter in the given series

**29.** a, c, e, g, \_

- (a) h
- (b) i**
- (c) d
- (d) j

**30.** a, e, i, m, q, u, \_\_, \_

- (a) y,c**
- (b) b,f

- (c) g,i
- (d) none

**31.** ay , bz , cw , dx ,\_\_

- (a) gu
- (b) ev
- (c) fv
- (d) eu**

**32.** 1,2, 3, 5, 7, 11, \_\_

- (a) 15
- (b) 9
- (c) 13**
- (d) 12

**33.** kp , lo , mn , \_\_

- (a) nm**
- (b) np
- (c) op
- (d) pq

**34.** R,M,\_\_ ,F,D,\_\_

- (a) I, C**
- (b) A, Q
- (c) L, N
- (d) B, Q

**35.** \_\_\_\_, ayw, gec, mki, sqo

- (a) awx
- (b) usq**
- (c) prs
- (d) lmn

**36.** 1, 3, 4, 8, 15, 27, \_\_

- (a) 60
- (b) 59
- (c) 43
- (d) 50**

**37.** 0, 2, 3, 5, 8, 10, 15, 17, 24, 26,\_\_

- (a) 45
- (b) 55
- (c) 35**
- (d) 48

**38.** 2, 5, 9, 19, 37,\_\_

- (a) 64
- (b) 55
- (c) 75**
- (d) 40

Directions for questions 39 to 44: Select the alternative that logically follows from the two given statements.

**39.** All scientists are fools. All fools are literates.

- (a) All literates are scientists
- (b) All scientists are literates**
- (c) No scientists are literates
- (d) Both (a) and (b) are correct

**40.** No apple is an orange. All bananas are oranges.

- (a) All apples are oranges**
- (b) Some apples are oranges
- (c) No apple is a banana
- (d) None of the above

**41.** All pens are elephants. Some elephants are cats.

- (a) Some pens are cats
- (b) No pens are cats
- (c) All pens are cats
- (d) None of the above**

**42.** All shares are debentures. No debentures are deposits.

- (a) All shares are deposits
- (b) Some shares are deposits
- (c) No shares are deposits**
- (d) None of the above

**43.** Many fathers are brothers. All brothers are priests.

- (a) No father is a priest
- (b) Many fathers are not priests**
- (c) Many fathers are priests
- (d) Both (b) and (c)

**44.** Some green are blue. No blue are white.

- (a) No green are white
- (b) Some green are white**
- (c) No green are white
- (d) None of the above

**45.** If the word CODING is represented as DPEJOH , then the word CURFEW can be represented?

- (a) **dvsgfx**
- (b) dvshfx
- (c) dgshfx
- (d) dtsgfy

**46.** If in a certain code RANGE is coded as 12345 and RANDOM is coded as 123678, then the code for the word MANGO

would be

- (a) 82357
- (b) 84563
- (c) 82346
- (d) **82543**

Directions for questions 47-49: The questions are based on the following data

In a class of 150 students 55 speak English; 85 speak Telugu and 30 speak neither English nor Telugu

**47.** How many speak both English and Telugu?

- (a) 10
- (b) 15
- (c) **20**
- (d) 12

**48.** How many speak only Telugu?

- (a) 55
- (b) 45
- (c) **65**
- (d) none of the above

**49.** How many speak at least one of the two languages?

- (a) **120**
- (b) 100
- (c) 250
- (d) 50

**50.** Look at this series: 53, 53, 40, 40, 27, 27, ... What number should come next?

- A. 12
- B. 14**
- C. 27
- D. 53

### **Technical Questions - C & C++**

**1.** What is wrong in the following problem

```
#include
main()
{
int i,j;
j = 10;
i = j++ - j++;
printf("%d %d", i,j);
}
ans: 0, 12
```

**2.**What is the output of the following problem

```
#include
main()
{
int j;
for(j=0;j<3;j++)
foo();
}
foo() {
static int i = 10;
i+=10;
printf("%d\n",i);
}
/* Out put is (**since static int is used i value is retained between function calls) * 20 * 30*
40*/
```

**3.**What is wrong in the following code

```
#include
main()
{
char *c;
c = Hello;
printf("%s\n", c);
}
/*ans:- Hello, The code is successfully running */
```

**4.** What is the final value of i and how many times loop is Executed ?

```
#include
main()
{
int i,j,k,l,lc=0;
/* the input is given as 1234 567 */
printf("Enter the number string:<1234 567 \n");
scanf("%2d%d%1d",&i,&j,&k);
for(;k--,i++)
for(ll=0;ll<lc;ll)printf("%d %d\n",i,ll);}
```



```
printf(LOOPS= %d\n, lc-1);
}
/* Ans: i = 16, and loop is executed for 169 times */
```

**5.** What is the output of the following program

```
#include
main()
{
union {int a;int b;int c;} u,v;
u.a = 10;
u.b = 20;
printf("%d %d \n,u.a,u.b);
}
```

/\* Ans : The latest value assigned to any of the union member will be present in the union members so answer is 20 20\*/

**6.**#include main()

```
{
float i, j;
scanf("%f %f, &i, &j);
printf("%.2f %.3f, i, j);
}
```

/Ans:- 123.34 3. 234 \*/

**7.**What is the out put of the following problem ?

```
#include
main()
{
char *str = 12345;
printf("%c %c %c\n, *str, *(str++), *(str++));
}
```

/\* Ans: It is not 1 2 3

\* But it is 3 2 1 Why ??

\*/

**8.** Write a macro statement to find maximum of a,b

```
#include
#define max(a,b) (a)>b?a:b
main()
{
int a,b;
a=3;
b=4;
printf("%d,max(a,b));
}
```

/\* Ans is very simple the coding is just for testing it and output is 4 \*/

**9.**What is the output of the following coding

```
#include
main()
{
int len=4;
char *st=12345678;
for(i=0; i<6; i++)
st = st -len;
printf("%c\n",*st);
}
/* Ans : It will print some junk value */
```

**10.**

```
#include main()
{
func(1);
}
func(int i){static char *str ={ One,Two,Three,Four};
printf("%s\n,str[i++]");
return;
}
/* Ans:- it will give warning because str is pointer to the char but it is initialized with more values
if it is not considered then the answer is Two */
```

**11.**

```
#include main()
{
int i;
for (i=1;i<100; i++)
printf("%d %0x\n,i,i);
}
/* Ans:- i is from 1 to 99 for the first format,
for the second format 1to9, ato f, 10 to 19,1ato1f, 20 to 29, etc */
```

**12.**In the following code please write the syntax for assing a value of 10 to field x of s and id\_no  
101 of s

```
#include
struct {
int x;
int y;
union {int id_no;char *name;}b;
}s,*st;
main()
{
st = &s;
st-x=10;
```

```

st-b.id_no = 101;
printf("%d %d\n",s.x,s.b.id_no);
}
/* Ans: The answer is st-x=10;
* st-b.id_no=101;
*/

```

**13.** Write a recursive function that calculates

```

* n * (n-1) * (n-2) * ..... 2 * 1
#include
main() {
int factorial(int n);
int i,ans;
printf("\n Enter a Number:);
scanf("%d",&i);
ans = factorial(i);
printf("\nFactorial by recursion = %d\n, ans);
}
int factorial(int n)
{
if (n <= 1) return (1);
else
return ( n * factorial(n-1));
}

```

**14.** What is the output of the following problem

```

#include
main()
{
int j,ans;
j = 4;
ans = count(4);
printf("%d\n,ans);
}
int count(int i)
{
if ( i < 0) return(i);
else
return( count(i-2) + count(i-1));
}
/* It is showing -18 as an answer */

```

**15.** #includemain()

```

{
int i=4;
if(i=0)

```

```
printf(statement 1);  
else  
printf(statement 2);  
}  
/* statement 2 */
```