

## Huawei Test 3

1

A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is:

1/13

2/13

1/26

1/52

Explanation: Here,  $n(S) = 52$ .

Let E = event of getting a queen of club or a king of heart. Then,  $n(E) = 2$ .

$$P(E) = \frac{n(E)}{n(S)} = \frac{2}{52} = \frac{1}{26}$$

2

A bag contains 4 white, 5 red and 6 blue balls. Three balls are drawn at random from the bag. The probability that all of them are red, is:

1/22

3/22

2/91

2/91

Explanation: Let S be the sample space.

Then,  $n(S)$  = number of ways of drawing 3 balls out of 15

$$\begin{aligned} &= {}^{15}C_3 \\ &= \frac{(15 \times 14 \times 13)}{(3 \times 2 \times 1)} \\ &= 455. \end{aligned}$$

Let E = event of getting all the 3 red balls.

$$n(E) = {}^5C_3 = {}^5C_2 = \frac{(5 \times 4)}{(2 \times 1)} = 10.$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{10}{455} = \frac{2}{91}$$

**3**

Two cards are drawn together from a pack of 52 cards. The probability that one is a spade and one is a heart, is:

- 3 /20**
- 29/ 34**
- 47/ 100**
- 13 /102**

Explanation: Let S be the sample space.

$$\text{Then, } n(S) = {}^{52}C_2 = \frac{(52 \times 51)}{(2 \times 1)} = 1326.$$

Let E = event of getting 1 spade and 1 heart.

$$\begin{aligned} n(E) &= \text{number of ways of choosing 1 spade out of 13 and 1 heart out of 13} \\ &= ({}^{13}C_1 \times {}^{13}C_1) \\ &= (13 \times 13) \\ &= 169. \end{aligned}$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{169}{1326} = \frac{13}{102}.$$

**4**

One card is drawn at random from a pack of 52 cards. What is the probability that the card drawn is a face card?

- A. 1/13**
- B. 3/13**
- C. 1/4**
- D. 9/5**

Explanation: Clearly, there are 52 cards, out of which there are 12 face cards.

$$P(\text{getting a face card}) = \frac{12}{52} = \frac{3}{13}$$

**5**

A bag contains 6 black and 8 white balls. One ball is drawn at random. What is the probability that the ball drawn is white?

- A. 3/4**
- B. 4/7**
- C. 1/8**
- D. 3/7**

Explanation: Let number of balls = (6 + 8) = 14.

Number of white balls = 8.

$$P(\text{drawing a white ball}) = \frac{8}{14} = \frac{4}{7}$$

6

The salaries A, B, C are in the ratio 2 : 3 : 5. If the increments of 15%, 10% and 20% are allowed respectively in their salaries, then what will be new ratio of their salaries?

- ( ) A. 3 : 3 : 10  
 ( ) B. 10 : 11 : 20  
 ( ) C. 23:33:60  
 ( ) D. 32 :43:53

Let A = 2k, B = 3k and C = 5k.

$$\text{A's new salary} = \frac{115}{100} \text{ of } 2k = \left( \frac{115}{100} \times 2k \right) = \frac{23k}{10}$$

$$\text{B's new salary} = \frac{110}{100} \text{ of } 3k = \left( \frac{110}{100} \times 3k \right) = \frac{33k}{10}$$

$$\text{C's new salary} = \frac{120}{100} \text{ of } 5k = \left( \frac{120}{100} \times 5k \right) = 6k$$

$$\therefore \text{Newratio} \left( \frac{23k}{10} : \frac{33k}{10} : 6k \right) = 23 : 33 : 60$$

Explanation:

7

If 40% of a number is equal to two-third of another number, what is the ratio of first number to the second number?

- ( ) A. 2 : 5  
 ( ) B. 3 : 7  
 ( ) C. 5 : 3  
 ( ) D. 7 : 3

Explanation:

Let 40% of A=2/3 B

Then, 40 A/100=2B/3

$$\delta \quad 2A/5=2B/3$$

$$\delta \quad A/B-[2/3 - 5/2]=5/3$$

$$A : B = 5 : 3.$$

8

The fourth proportional to 5, 8, 15 is:

A. 18

B. 24

C. 19

D. 20

Explanation:

Let the fourth proportional to 5, 8, 15 be  $x$ .

Then,  $5 : 8 :: 15 : x$

$$5x = (8 \times 15)$$

$$x = (8 \times 15) / 5 = 24$$

9

Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, the new numbers are in the ratio 12 : 23. The smaller number is:

A. 27

B. 33

C. 49

D. 55

Explanation: Let the numbers be  $3x$  and  $5x$ .

Then,  $(3x-9)/(5x-9) = 12/23$

$$23(3x - 9) = 12(5x - 9)$$

$$9x = 99$$

$$x = 11.$$

The smaller number =  $(3 \times 11) = 33$ .

10

In a bag, there are coins of 25 p, 10 p and 5 p in the ratio of 1 : 2 : 3. If there is Rs. 30 in all, how many 5 p coins are there?

- A. 50  
 B. 100  
 C. 150  
 D. 200

Explanation:

Let the number of 25 p, 10 p and 5 p coins be  $x$ ,  $2x$ ,  $3x$  respectively.

Then, sum of their values = Rs  $[(25x/100) + (10 \cdot 2x)/100 + (5 \cdot 3x)/100] = \text{Rs } 60x/100$

$$60x/100 = 30 \quad \text{or} \quad x = (30 \cdot 100)/60 = 50$$

Hence, the number of 5 p coins =  $(3 \times 50) = 150$ .

11

In a certain school, 20% of students are below 8 years of age. The number of students above 8

years of age is  $\frac{2}{3}$  of the number of students of 8 years age which is 48. What is the total number of students in the school?

- A. 72  
 B. 80  
 C. 120  
 D. 100

Explanation: Let the number of students be  $x$ . Then,

Number of students above 8 years of age =  $(100 - 20)\%$  of  $x = 80\%$  of  $x$ .

$$80\% \text{ of } x = 48 + \frac{2}{3} \text{ of } 48$$

$$\frac{80}{100} x = 80$$

$$x = 100.$$

12

The difference between the length and breadth of a rectangle is 23 m. If its perimeter is 206 m, then its area is:

- A. 1520 m<sup>2</sup>
- B. 2420 m<sup>2</sup>
- C. 2480 m<sup>2</sup>
- D. 2520 m<sup>2</sup>

Explanation:

We have:  $(l - b) = 23$  and  $2(l + b) = 206$  or  $(l + b) = 103$ .

Solving the two equations, we get:  $l = 63$  and  $b = 40$ .

Area =  $(l \times b) = (63 \times 40) \text{ m}^2 = 2520 \text{ m}^2$ .

13

The length of a rectangle is halved, while its breadth is tripled. What is the percentage change in area?

- A. 25% increase
- B. 50% increase
- C. 50% decrease
- D. 75% decrease

Explanation: Let original length =  $x$  and original breadth =  $y$ .

Original area =  $xy$ .

New length =  $x/2$ .

New breadth =  $3y$ .

New area =  $[(x/2) \times 3y] = (3/2)xy$

Increase % =  $[(1/2)xy \times (1/xy) \times 100]\% = 50\%$

14

The product of two numbers is 9375 and the quotient, when the larger one is divided by the smaller, is 15. The sum of the numbers is:

- ( ) A. 380
- ( ) B. 395
- ( ) C. 400
- ( ) D. 425

Explanation: Let the numbers be x and y.

Then,  $xy = 9375$  and  $x/y = 15$

$$xy/(x/y) = 9375/15$$

$$y^2 = 625.$$

$$y = 25.$$

$$x = 15y = (15 \times 25) = 375.$$

$$\text{Sum of the numbers} = x + y = 375 + 25 = 400.$$

15

A alone can do a piece of work in 6 days and B alone in 8 days. A and B undertook to do it for Rs. 3200. With the help of C, they completed the work in 3 days. How much is to be paid to C?

- ( ) A. Rs. 375
- ( ) B. Rs. 400
- ( ) C. Rs. 600
- ( ) D. Rs. 800

$$\text{C's 1 day's work} = \frac{1}{3} - \left( \frac{1}{6} + \frac{1}{8} \right) = \frac{1}{3} - \frac{7}{24} = \frac{1}{24}$$

$$\text{A's wages : B's wages : C's wages} = \frac{1}{6} : \frac{1}{8} : \frac{1}{24} = 4 : 3 : 1.$$

$$\therefore \text{C's share (for 3 days)} = \text{Rs.} \left( 3 \times \frac{1}{24} \times 3200 \right) = \text{Rs. 400.}$$

Explanation:

16

women can complete a work in 7 days and 10 children take 14 days to complete the work. How many days will 5 women and 10 children take to complete the work?

- A. 3  
 B. 5  
 C. 7  
 D. Cannot be determined

Explanation:

1 woman's 1 day's work =  $1/70$

1 child's 1 day's work =  $1/140$

(5 women + 10 children)'s day's work =  $5/70 + 10/140 = 1/14 + 1/14 = 1/7$

5 women and 10 children will complete the work in 7 days.

17

DEF, DEF<sup>2</sup>, DE<sup>2</sup>F<sup>2</sup>, \_\_\_\_\_, D<sup>2</sup>E<sup>2</sup>F<sup>3</sup>

- A. DEF<sup>3</sup>  
 B. D<sup>3</sup>E<sup>3</sup>F<sup>3</sup>  
 C. D<sup>2</sup>E<sup>3</sup>F  
 D. D<sup>2</sup>E<sup>2</sup>F<sup>2</sup>

Explanation:

In this series, the letters remain the same: DEF.

The subscript numbers follow this series:

111, 112, 122, 222, 223, 233, 333, ...

18

B2CD, \_\_\_\_\_, BCD4, B5CD, BC6D

- A. B2C2D
- B. BC3D
- C. B2C3D
- D. BCD7

Explanation:

Because the letters are the same, concentrate on the number series, which is a simple 2, 3, 4, 5, 6 series, and follows each letter in order.

19

Look carefully for the pattern, and then choose which pair of numbers comes next. 8 11 21 15 18 21 22

- A. 25 18
- B. 25 21
- C. 25 29
- D. 24 21

Explanation:

This is an alternating addition series, with a random number, 21, interpolated as every third number. The addition series alternates between adding 3 and adding 4. The number 21 appears after each number arrived at by adding 3.

20

A hollow iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm<sup>3</sup>, then the weight of the pipe is:

- A. 3.6 kg
- B. 3.696 kg
- C. 36 kg
- D. 36.9 kg

Explanation: External radius = 4 cm,

Internal radius = 3 cm.

Volume of iron =  $[(\frac{22}{7}) \times (4^2 - 3^2) \times 21] \text{cm}^3$

= 462 cm<sup>3</sup>

Weight of iron = (462 × 8) gm = 3696 gm = 3.696 kg.

21

What will be the output of the program ?

```
#include<stdio.h>

void fun(int **p);

int main()
{
int a[3][4] = {1, 2, 3, 4, 4, 3, 2, 8, 7, 8, 9, 0};

int *ptr;

ptr = &a[0][0];

fun(&ptr);

return 0;
}
void fun(int **p)
{
printf("%d\n", **p);
}
```

- A. 1
- B. 2
- C. 3
- D. 4

Explanation: Step 1: int a[3][4] = {1, 2, 3, 4, 4, 3, 2, 8, 7, 8, 9, 0}; The variable a is declared as an multidimensional integer array with size of 3 rows 4 columns.

Step 2: int \*ptr; The \*ptr is a integer pointer variable.

Step 3: ptr = &a[0][0]; Here we are assigning the base address of the array ato the pointer variable \*ptr.

Step 4: fun(&ptr); Now, the &ptr contains the base address of array a.

Step 4: Inside the function fun(&ptr); The printf("%d\n", \*\*p); prints the value '1'.

because the \*p contains the base address or the first element memory address of the array a (ie. a[0])

\*\*p contains the value of \*p memory location (ie. a[0]=1).

Hence the output of the program is '1'

22

What will be the output of the program if the array begins at 65472 and each integer occupies 2 bytes?

```
#include<stdio.h>

int main() {

int a[3][4] = {1, 2, 3, 4, 4, 3, 2, 1, 7, 8, 9, 0};

printf("%u, %u\n", a+1, &a+1);

return 0;

}
```

- A. 65474, 65476
- B. 65480, 65496
- C. 65480, 65488
- D. 65474, 65488

Explanation:

Step 1: `int a[3][4] = {1, 2, 3, 4, 4, 3, 2, 1, 7, 8, 9, 0};` The array `a[3][4]` is declared as an integer array having the 3 rows and 4 columns dimensions.

Step 2: `printf("%u, %u\n", a+1, &a+1);`

The base address(also the address of the first element) of array is 65472.

For a two-dimensional array like a reference to array has type "pointer to array of 4 ints".

Therefore, `a+1` is pointing to the memory location of first element of the second row in array `a`. Hence  $65472 + (4 \text{ ints} * 2 \text{ bytes}) = 65480$

Then, `&a` has type "pointer to array of 3 arrays of 4 ints", totally 12 ints. Therefore, `&a+1` denotes "12 ints \* 2 bytes \* 1 = 24 bytes".

Hence, beginning address  $65472 + 24 = 65496$ . So, `&a+1 = 65496`

Hence the output of the program is 65480, 65496

23

What will be the output of the program ?

```
#include<stdio.h>

int main()
{
int arr[5], i=0;

while(i<5)

arr[i]=++i;

for(i=0; i<5; i++)

printf("%d, ", arr[i]);

return 0;
}
```

- A. 1, 2, 3, 4, 5,
- B. Garbage value, 1, 2, 3, 4,
- C. 0, 1, 2, 3, 4,
- D. 2, 3, 4, 5, 6,

Explanation: Since C is a compiler dependent language, it may give different outputs at different platforms. We have given the TurboC Compiler (Windows) output.

24

What will be the output of the program ?

```
#include<stdio.h>
int main()
{
int arr[1]={10};
printf("%d\n", 0[arr]);
return 0;
}
```

- A. 1
- B. 10
- C. 0
- D. 6

Explanation:

Step 1: int arr[1]={10}; The variable arr[1] is declared as an integer array with size '2' and it's first element

is initialized to value '10'(means arr[0]=10)

Step 2: printf("%d\n", 0[arr]); It prints the first element value of the variable arr.

Hence the output of the program is 10.

**25**

Point out the error in the program?

```
struct emp
{
int ecode;
struct emp *e;
};
```

- A. Error: in structure declaration
- B. Linker Error
- C. No Error
- D. None of above

Explanation:

This type of declaration is called as self-referential structure. Here \*e is pointer to a struct emp.

**26**

Are the following declarations same?

```
char far *far *scr;
char far far** scr;
```

- A. Yes
- B. No

Explanation:

Here the type name mystruct is known at the point of declaring the structure, as it is already defined.

27

Point out the error in the program?

```
#include<stdio.h>

int main()
{
struct a
{
category:5;
scheme:4;
};
printf("size=%d", sizeof(struct a));
return 0;
}
```

- A. Error: invalid structure member in printf
- B. Error: bit field type must be signed int or unsigned int
- C. No error
- D. None of above

28

Point out the error in the program? #include int main() { struct a { category:5; scheme:4; }; printf("size=%d", sizeof(struct a)); return 0; }

- A. Error: invalid structure member in printf
- B. Error: bit field type must be signed int or unsigned int
- C. No error
- D. None of above

Explanation:

The structure emp contains a member e of the same type.(i.e) struct emp. At this stage compiler does not know the size of ststructure.

29

Point out the error in the program?

```
#include<stdio.h>

int main()
{
struct emp
{
char name[20];
float sal;
};
struct emp e[10];
int i;
for(i=0; i<=9; i++)
scanf("%s %f", e[i].name, &e[i].sal);
return 0;
}
```

- A. Error: invalid structure member
- B. Error: Floating point formats not linked
- C. No error
- D. None of above

Explanation:

At run time it will show an error then program will be terminated.

Sample output: Turbo C (Windwos)

30

Which header file should be included to use functions like malloc() and calloc()?

- A. memory.h
- B. stdlib.h
- C. string.h
- D. dos.h

Explanation:

This type of declaration is called as self-referential structure. Here \*e is pointer to a struct emp.

31

What is the purpose of fflush() function.

- A. flushes all streams and specified streams.
- B. flushes only specified stream.
- C. flushes input/output buffer.
- D. flushes file buffer.

Explanation:

Here the type name mystruct is known at the point of declaring the structure, as it is already defined

32

Which of the statements is correct about the program?

```
#include<stdio.h>
```

```
int main()
{
int arr[3][3] = {1, 2, 3, 4};
printf("%d\n", *((*(arr)));
return 0;
}
```

- A. Output: Garbage value
- B. Output: 1
- C. Output: 3
- D. Error: Invalid indirection

Explanation:

This type of declaration is called as self-referential structure. Here \*e is pointer to a struct emp.

**33**

Point out the error in the program?

```
struct emp  
{  
int ecode;  
struct emp e;  
};
```

- A. Error: in structure declaration
- B. Linker Error
- C. No Error
- D. None of above

Explanation:

The structure emp contains a member e of the same type.(i.e) struct emp. At this stage compiler does not know the size of sstructure.

**34**

What will be the output of the program ?

```
#include<stdio.h>  
int main()  
{  
struct emp  
{  
char *n;  
int age;  
};  
struct emp e1 = {"Dravid", 23};  
struct emp e2 = e1;  
strupr(e2.n);
```

```
printf("%s\n", e1.n);  
return 0;  
}
```

- A. Error: invalid structure assignment
- B. DRAVID
- C. Dravid
- D. None of above

Explanation:

**35**

What will be the output of the program ?

```
#include<stdio.h>
```

```
int main()  
{  
int x=30, *y, *z;  
y=&x; /* Assume address of x is 500 and integer is 4 byte size */  
z=y;  
*y++=*z++;  
x++;  
printf("x=%d, y=%d, z=%d\n", x, y, z);  
return 0;  
}
```

- A. x=31, y=502, z=502
- B. x=31, y=500, z=500
- C. x=31, y=498, z=498
- D. x=31, y=504, z=504

Explanation:

This type of declaration is called as self-referential structure. Here \*e is pointer to astruct emp.

36

Point out the error in the program?

```
typedef struct data mystruct;
```

```
struct data
```

```
{
```

```
int x;
```

```
mystruct *b;
```

```
};
```

- A. Error: in structure declaration
- B. Linker Error
- C. No Error
- D. None of above

Explanation:

Here the type name mystruct is known at the point of declaring the structure, as it is already defined.

37

What will be the output of the program ?

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
void *vp;
```

```
char ch=74, *cp="JACK";
```

```
int j=65;
```

```
vp=&ch;
```

```
printf("%c", *(char*)vp);
```

```
vp=&j;
```

```
printf("%c", *(int*)vp);
```

```
vp=cp;
```

```
printf("%s", (char*)vp+2);
```

```
return 0;
```

```
}
```

- A. JCK
- B. J65K
- C. JAK
- D. JACK

38

Point out the error in the program?

```
struct emp
{
int ecode;
struct emp e;
};
```

- A. Error: in structure declaration
- B. Linker Error
- C. No Error
- D. None of above

Explanation:

The structure emp contains a member e of the same type.(i.e) struct emp. At this stage compiler does not know the size of sstructure.

39

Point out the error in the program?

```
#include<stdio.h>
int main()
{
struct emp
{
char name[20];
float sal;
};
struct emp e[10];
int i;
for(i=0; i<=9; i++)
scanf("%s %f", e[i].name, &e[i].sal);
return 0;
}
```

- A. Error: invalid structure member
- B. Error: Floating point formats not linked
- C. No error
- D. None of above

Explanation:

At run time it will show an error then program will be terminated.

Sample output: Turbo C (Windwos)

Sample

12.123

scanf : floating point formats not linked

Abnormal program termination

40

What will be the output of the program?

```
#include<stdio.h>

int main()
{
int i;

char c;

for(i=1; i<=5; i++)
{
scanf("%c", &c); /* given input is 'b' */

ungetc(c, stdout);

printf("%c", c);

ungetc(c, stdin);

}

return 0;

}
```

bbbb

bbbbbb

b

Error in ungetc statement.

Explanation: The ungetc() function pushes the character c back onto the named input stream, which must be open for reading.

This character will be returned on the next call to getc or fread for that stream.

One character can be pushed back in all situations.

A second call to ungetc without a call to getc will force the previous character to be forgotten.