

PRACTICE PAPER I

Max. Time: 20 mins

Q: Complete the sentences given below:

1) It is better to suffer pain and _____ under your own rule than relative _____ under somebody else's.

- a) poverty.....prosperity
- b) hurt.....injury
- c) loss.....safety
- d) ache....joy

2) A project of this _____ required enormous amounts of water and this need was taken up in right _____.
a) amplitudecandidness
b) dimensionsattitude
c) magnitudeearnest
d) proportionspirit

3) I deeply resented the advice that he offered.
a) unasked
b) unfounded
c) unsolicited
d) unforeseen

Q: The underlined words in the sentences given below have words with similar meaning in the given options. Find the odd one out (opposite)

4) Most of us want to be autonomous because we want to be accountable for what we do , and because it seems that if we are not the ones calling the shots , then we cannot be accountable.

- a) sovereign
- b) free
- c) separate
- d) dependent
- e) self governing

5) The advocates of monopoly capitalism and state socialism claim their respective economic systems are the path to universal prosperity.
a) proponents
b) campaigners
c) opponents
d) sponsors
e) activists

Q: In each of the following questions a capitalized pair of words is given followed by four pairs of numbered words. Three of the numbered pairs exhibit the same relation between the words as the capitalized pair of words. Identify the numbered pair which does not exhibit the same relationship as the capitalized pair
6) Apocryphal : Genuine

- a) Exiguous : Plentiful
- b) Austere : Spartan
- c) Reclusive : Gregarious
- d) Immutable: Transformed

7) Sage : Wisdom

a) Panegyric : Praise

b) Quixotic : Quick

c) Mirthful : Laughter

d) Innocuous : Harmlessness

8) Woes : Misery

a) Bliss : Happiness

b) Penury: Poverty

c) Vendetta : Revenge

d) Felicity : Fall

Q: In each questions given below are given two statements followed by two conclusions numbered 1 and 2. You have to take the given two statements to be true if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusion logically follows from the two given statements , disregarding commonly known facts.

Give answers a) if only condition 1 follows

b) if only conclusion 2 follows

c) if either 1 or 2 follows

d) if neither 1 nor 2 follows

e) if both 1 and 2 follow

9) Statements : Some Calendars are sticks

No stick is flower

Conclusions : 1) Some Calendars are flowers
2) No Calendar is flower

10) Statements : Some phones are watches

All watches are guns

Conclusions: 1) All guns are watches
2) Some guns are phones

Q: Give the output

```
1) main()
{
```

```
    static int var = 5;
    printf("%d", var);
```

```

if(var)
main();
}

```

i) 3/4 ii) 11/12 iii) 7/8 iv) 4/5

for an infinite number of times. Find the volume of water in the tank as a fraction of the capacity of the tank after 205 hrs.

a) 3/4

b) 11/12

c) 7/8

d) 4/5

```

12) main()
{
int c[]={2,8,3,4,4,6,7,5};
int j,*p=c,*q=c;
for(j=0;j<7;j++){
printf("%d ",*c);
++q;
}
for(j=0;j<5;j++){
printf("%d ",*p);
++p;
}
}

```

17) Three coins are tossed simultaneously. Find the probability of getting at least one head and one tail.

- a) 0.5 b) 0.25 c) 0.75 d) 0.6

Q: Find the missing numbers:

18) 3, 8, 13, 24, 41, (..)

- a) 70 b) 75 c) 80 d) 85

19) 563 , 647 , 479 , 815, (..)

- a) 672 b) 386 c) 279 d) 143

20) What is the ten's digit of $(51)^{51}$

- a) 0 b) 1 c) 5 d) 4

SAMPLE QUESTION PAPER 2

1) Your clock loses abt 36 mins every hr, but it u had set the watch at 12 am and now it is showing 3 :00 AM, also the clock has stopped working 1 hour before so find what time is it right now.

2) There are two marble players each are having same no of marbles, then the 1st one loses 20 marble, then by the end the 2nd player loses 2/3 of what he had. After this the 1st one has abt 4 times marbles as the 2nd marble player. Find how many marbles both had at the start.

Q15) There is a water tank of capacity 1,000 L with two inlet pipes A and B that can pump in water at the rate of 50 L/hr and 25 L/hr respectively. An outlet pipe C attached to the tank can pump out water at the rate of 50. Initially the tank is full and the outlet pipe is opened. Now when the water in the tank is $(3/4)^{th}$ of the maximum volume of water that it can hold, both the inlet pipes are opened until the tank becomes full after which they are closed back. This process is repeated

- (D) 4/9
 (E) 12/17
- 14) The marks scored by a student in three subjects are in the ratio of 4: 5: 6. If the candidate scored an overall aggregate of 60% of the sum of the maximum marks and the maximum mark in all three subjects is the same, in how many subjects did he score more than 60%?
 (A) 1 (B) 2
 (C) 3 (D) None of the subjects
- 15) In a group of 8 semifinalists, all but 2 will advance to the final round. If in the final round only the top 3 will be awarded medals, then how many groups of medal winners are possible?
 (A) 20
 (B) 56
 (C) 120
 (D) 560
 (E) 720
- 16) The product of two positive numbers is p . If each of the numbers is increased by 2, the new product is how much greater than twice the sum of the two original numbers?
 (A) $p-2$
 (B) p
 (C) $p+2$
 (D) p^2+4
 (E) $2p+4$
- 17) A vendor sells 60 percent of apples he had and throws away 15 percent of the remainder. Next day he sells 50 percent of the remainder and throws away the rest. What percent of his apples does the vendor throw?
 (A) 17 (B) 23
 (C) 77 (D) None of these
 (E) 75
- 18) $1^1 + 2^2 + 3^3 + \dots + 10^{10}$ is divided by 5. What is the remainder?
 (A) 0
 (B) 1
 (C) 2
 (D) 3
 (E) 4
- 19) If n is an integer greater than 0, what is the remainder when $912n+3$ is divided by 10?
 (A) 0
 (B) 1
 (C) 2
- ~~$$1^1 + 2^2 + 3^3 + 4^4 + 6^6 + 7^7 + 8^8 + 9^9$$

$$27 + 64 + 36 \times 36 \times 36$$~~

- 3) 70 students are required to paint a picture. 52 use green color and some children use red. 38 students use both the colors. How many students use red color?

- A) 24
B) 42
C) 56
D) 70

- 4) At an international conference, 100 delegates spoke English, 40 spoke French, and 20 spoke both English and French. How many delegates could speak at least one of these two languages?

- A) 110
B) 100
C) 140
D) 120

- 5) In the following questions, the following letters indicate mathematical operations as indicated below: A: Addition V: Equal to S: Subtraction W: Greater than M: Multiplication X: Less than D: Division Out of the four alternatives given in these questions, only one is correct according to the above letter symbols. Identify the correct one.

See the options given below

- A) $6 \times 7 / 2 \times 3 \times 0 \times 0 / 7$
B) $6 \times 7 \times 2 \times 3 \times 0 / 7$
C) $6 \times 7 \times 2 \times 3 \times 0 \times 7$
D) $6 \times 7 \times 2 \times 3 \times 0 / D / 7$

- 6) In a certain code, the symbol for 0 (zero) is * and that for 1 is \$. The numbers greater than 1 are to be written only by using the two symbols given above. The value of the symbol for 1 doubles itself every time it shifts one place to the left. (For example, 4 is written as \$\$*, and 3 is written as \$\$) $1 \times 17 / 10 + 2 \times 5 + 3 / 10$ can also be represented as:

- A) \$\$\$\$\$
B) \$\$\$\$\$
C) \$\$\$\$*
D) \$**\$

- 7) a, b, and c are positive integers. If a, b, and c are assembled into the six-digit number abcabc, which one of the following must be a factor of abcabc?

- (A) 16
(B) 13
(C) 5
(D) 3
(E) none of the above

- 8) A certain club has exactly 5 new members at the end of its first week. Every subsequent week, each of the previous week's new members (and only these members)

brings exactly x new members into the club. If y is the number of new members brought into the club during the twelfth week, which of the following could be y ?

- (A) $5^y(1/12)$
(B) $(3^{\wedge}11)(5^{\wedge}1)$
(C) $(3^{\wedge}12)(5^{\wedge}1)$
(D) $(3^{\wedge}11)(5^{\wedge}2)$

- 9) Frances can complete a job in 12 hours, and Joan can complete the same job in 8 hours. Frances starts the job at 9 a.m., and stops working at 3 p.m. If Joan starts working at 4 p.m. to complete the job, at what time is the job finished?

- (A) 6 p.m.
(B) 7 p.m.
(C) 8 p.m.
(D) 10 p.m.
(E) 12 p.m.

- 10) Each of 435 bags contains at least one of the following three items: raisins, almonds, and peanuts. The number of bags that contain only raisins is 10 times the number of bags that contain only peanuts. The number of bags that contain only almonds is 20 times the number of bags that contain only raisins and peanuts. The number of bags that contain only peanuts is one-fifth the number of bags that contain only almonds. 210 bags contain almonds. How many bags contain only one kind of item?

- (A) 256
(B) 260
(C) 316
(D) 320

(E) It cannot be determined from the given information.

- 11) If n is an integer greater than 5,3, then $n!$ must be divisible by which of the following numbers?

- (A) 7
(B) 11
(C) 12
(D) 13
(E) 14

- (12) A printer numbered consecutively the pages of a book, beginning with 1 on the first page. In numbering the pages, he had to print a total of 187 digits. Find the number of pages in the book.

- A) 99 B) 98 C) 96 D) 97 E) 95

- (13) In a drawer of shirts, 8 are blue, 6 are green, and 4 are magenta. If Mason draws 2 shirts at random, what is the probability that at least one of the shirts he draws will be blue?

- (A) 25/153
(B) 28/153
(C) 5/17

Rohit is sitting two places right of Pritam, who is sitting one place right of Amit. Kamla forms an angle of 90 degrees from Gaurav and an angle of 120 degrees from Manish. Manish is just opposite to Priya and is sitting on the left of Gaurav.

11. Who is the only person sitting between Rohit and Manish?

- (a) Pritam
- (b) Amit
- (c) Gaurav
- (d) Kamla

12. Gaurav is not sitting at equal distance from

- (a) Rohit and Pritam
- (b) Amit and Kamla
- (c) Manish and Pritam
- (d) All of the above

13. Gaurav is sitting _____ of Priya.

- (a) to the left
- (b) to the right
- (c) two places right
- (d) None of these.

14. The angle between Gaurav and Manish in the clockwise direction is (in degrees)

- (a) 150
- (b) 180
- (c) 210
- (d) None of these.

15. Which of the following statements is incorrect?

- (a) Pritam is in between Manish and Kamla.
- (b) Manish is two places away from Priya.
- (c) Gaurav is sitting opposite Pritam.
- (d) All of the above.

Directions for questions 16-19: Answer the following:

- 16. Two men and three boys can do a piece of work in 10 days while 3 men and 2 boys can do the same work in 8 days. In how many days can 2 men and 1 boy do the work?

- 17. Buses take 12 hours to cover the distance of 120km between A and B. A bus starts from A at 8:00am and another bus starts from B at 10:00am on the same day. When do the two buses meet?

- 18. The number of cars sold by Maruti increased by 25% in 1999 and then decreased by 10% next year. Find total number of cars sold by Maruti in 2000, if in 1998, it sold two lakh cars.

- 19. The traffic light at three different road crossings changes every 24 seconds, 72 seconds and 120 seconds respectively. If all of them change simultaneously at 10:54:00pm then at what time will they change simultaneously again?

Directions for questions 20-21: Find output:

```
20. main()
{
    char s[]="main";
    int i;
    for(i=0; s[i]; i++)
        printf("%c%c%c%c", s[i], *(s+i), *(i+s), [s]);
}
```

```
21. main()
{
    int i=5;
    printf("%d%d%d", i++, i--, ++i, -i);
}
```

Directions for question 22: Find error:

```
22. # include < stdio.h>
main()
{
    int i=1,j=2;
    switch(i)
    {
        Case 1:printf("Good");
        break;
        Case j:printf("BAD");
        break;
    }
}
```

Sample Test Paper – 3

No. Of Questions: 22

Time Allotted: 20 minutes

Directions for questions 1-4: The following questions consist of two words each having a certain relationship, followed by four pair of words. Select the lettered pair that has the same relationship as the original pair of words.

1. Corporeal : Spiritual
(a) Pedagogue: Teacher
(c) Moron: Savant
2. Rotate : Gyrate
(a) Purity: Reject
(c) Accolade: Criticism
3. Rain : Patter
(a) Door: Bang
(c) Animal: Graze
4. Pedant: Erudition
(a) Blunt: Politician
(c) Diplomat: Tactless

- (b) Foreigner: Immigrant
(d) Mesa: Plateau
- (b) Anachorism: Cubism
(d) Absolve: Exonerate
- (b) Birds: Flight
(d) Men: Walk
- (b) Enemy: Friendly
(d) Prude: Modesty

- : Some ladyfingers are orange.
Conclusion : I. Some oranges are brinjals.
II. All brinjals are apples.
III. Some apples are oranges.
IV. All ladyfingers are apples.
(a) None follows
(c) Only I and III follow.
(e) None of these.
(b) All follow.
(d) Either I or II follows.

Directions for questions 7-10: Fill in the blanks.

7. A famous singer had been contracted to sing at a Paris opera house and ticket sales _____ boozing.

(a) is (b) are (c) were (d) have been
8. In fact, the night of the concert, the house was packed; every ticket _____.
(a) is selling (b) was selling (c) sold (d) had been sold

9. The feeling of anticipation and excitement was in the air as the house manager _____ the stage and said, "Ladies and gentlemen, thank you for your enthusiastic support!"
(a) took (b) takes (c) had taken (d) was taking

10. I am afraid that due to illness, the man whom you've all come to hear _____ performing tonight.

(a) will not be (b) has not been (c) had not been (d) was not

- Conclusion:** I. No truck is cycle
II. No scooter is truck
III. Some trucks are cycles
IV. Some scooters are trucks.

- (a) None follows
(c) Only IV follows.
(e) All follow.
- (b) Only I and III follow.
(d) Only I, II and IV follow.

Directions for questions 11-15: Read the following information and answer the questions below it.

Seven friends Kamla, Manish, Rohit, Amit, Gaurav, Pritam and Priya are sitting in a circle. Kamla, Manish, Rohit, Amit, Pritam and Priya are sitting at equal distance from each other.

SAMPLE QUESTION PAPER – 5

```
16. main()
{
    char s[]="man";
    int i;
    for(i=0;s[i];i++)
        printf("\n%c%c%c",s[i],*(s+i),*(i+s));
}
```

```
17. main(){
    static int var = 5;
    printf("%d",var--);
    if(var)
        main();
}
18. main(){
    int i=-1,j=-1,k=0,l=2,m;
    m=++&&j++&&k++||l++;
    printf("%d %d %d %d %d",i,j,k,l,m);
}
19. main(){
    printf("%x", -1<<4);
}
20. #define int char
```

Question 1: Which expression always return true? Which always return false?
Question 2: Minimum number of queues needed to implement the priority queue?

Question 3: Predict the output or error(s) for the following:

```
void main()
{
    int const * p=5;
    printf("%d",++(*p));
}
```

a) 6 b) 5 c) run time error d) none of the above
p is a pointer to a "constant integer". But we tried to change the value of the "constant integer".

Question 4: In the Internet Protocol (IP) suite of protocols, which of the following best describes the purpose of the Address Resolution Protocol?

- (A) To translate Web addresses to host names
- (B) To determine the IP address of a given host name
- (C) To determine the hardware address of a given host name
- (D) To determine the hardware address of a given IP address
- (E) To determine the appropriate route for a datagram

Question 5: What does the hexa number E78 in radix 7

- a) 12455
- b) 14153
- c) 14256
- d) 13541
- e) 13112

Question 6: you are having 31kg of rice, you are provided with a 1kg stone for weighing. In how many weighings the 31kg of rice can be weighed.

Question 7: The ratio of white balls and black balls is 1:2. If 9 gray balls is added it becomes 2:4:3. Then what is number of black balls.

Question 8: Which word in brackets is most opposite to the word in capitals?
PROSCRIBE (allow, stifle, promote, verify, indict)

SAMPLE QUESTION PAPER 4

1. A car is filled with four and half gallons of fuel for a round trip. Fuel is taken $1/4$ more in going then coming. What is the fuel consumed in coming up?

2. The average length of three tapes is 6600 feet. None of the tapes is less than 6400 feet. What is the greatest possible length of one of the other tapes?

3. There are two circles, one circle is inscribed and another circle is circumscribed over a square. What is the ratio of area of inner to outer circle?

4. To 15 lts of water containing 20% alcohol, we add 5 lts of pure water. What is % alcohol.

5. If $13 = 13w/(1-w)$, then $(2w)2 =$

A.1/4

B.1/2

C.1

D.2

6. There are two candles of equal lengths and of different thickness. The thicker one lasts of six hours. The thinner 2 hours less than the thicker one. Ramesh lights the two candles at the same time. When he went to bed he saw the thicker one is twice the length of the thinner one. How long ago did Ramesh light the two candles?

7. Two cars are 15 kms apart. One is turning at a speed of 50kmph and the other at 40kmph. How much time will it take for the two cars to meet?

8. It takes Mr. Karthik y hours to complete typing a manuscript. After 2 hours, he was called away. What fractional part of the assignment was left incomplete?

9. I drove 60 km at 30 kmph and then an additional 60 km at 50 kmph. Compute my average speed over my 120 km.

Time read for the second 60 km = 72 min.

Total time read = 192 min

Avg speed = $(60 * 120) / 192 = 37 \frac{1}{2}$

10. Divide 45 into four parts such that when 2 is added to the first part, 2 is subtracted from the second part, 2 is multiplied by the third part and the fourth part is divided by two, all result in the same number.

11. With just six weights and a balance scale, you can weigh any unit number of kgs from 1 to 364. What could be the six weights?

Predict the Output of following code snippet :

```
12. main()
{
```

```
    int i=_labc(10);
    printf("%d\n",-i);
```

```
}
```

```
int _labc(int i)
{
    return(i++);
}
```

```
13. main()
{
```

```
    int a=0;int b=20;char x=1,char y=10;
    if(a>b,x,y)
    printf("Hello");
```

```
}
```

```
14. main()
{
```

```
    char *p;
    p=%d\n";
    p+=%d\n";
    p++;
    p++;
    printf(p-2,300);
```

```
}
```

```
15. main()
{
```

```
    float i=1.5;
    switch(i)
    {
```

```
        case 1:printf("1");
        case 2:printf("2");
        default :printf("0");
    }
```

```
}
```

Question 1) Each of the following questions contains one or two blanks. These blanks signify that a word or set of words has been left out. For each blank, pick the word or set of words that best reflects the sentence's overall meaning.

i) Her true feelings _____ themselves in her sarcastic asides; only then was her _____ revealed.

- a) Concealed...sweetness
- b) Manifested..bitterness
- c) Hid...sarcasm
- d) Developed...anxiety
- e) Grieved...charm

ii) A _____ statement is an _____ comparison: it does not compare things explicitly, but suggests a likeness between them.

- a) Sarcastic...unfair
- b) Blatant...overt
- c) Sanguine...inherent
- d) Metaphorical...implied
- e) Bellicose...ardent

iii) Chatwin has devoted his life to a kind of Grail quest, hoping to prove – by study and direct experience with primitive people – that human nature is gentle and defensive rather than _____, and that man is _____, not a predator.

- a) Belligerent..an apostate
- b) Martial...a crusader
- c) Aggressive...a pilgrim
- d) Truculent...a gladiator
- e) Pugnacious...a pawn

Question 2) What's the output of the following code?

```
main () {  
    int x = 10, y, z;  
    z = y = x;  
    y -= x--;  
    z -= --x;  
    x -= --x - x--;  
    printf("y=%d z=%d x=%d", y, z, x);  
}
```

Question 3) What's the output of the following code?

```
main () {  
    int k = 35, z;  
    z = func1 (k = func1 (k = func1(k)));  
}  
func1 (k)  
{  
    int k;  
    {  
        k++;  
    }  
    return (k);  
}
```

Question 4) What's the output of the following code?

```
main () {  
    static int t[3][2][4] = {  
        {  
            {  
                {2,4,3,6,  
                 1,6,7,9},  
                {8,2,1,1,  
                 2,3,7,3},  
                {1,6,2,4,  
                 0,7,9,5},  
                {}  
            },  
            {}  
        },  
        {}  
    };  
    printf ("%d %d", t[2][1][3], **(t + 1) + 3));  
}
```

SAMPLE QUESTION PAPER - 7

For Questions 9-10, Choose the correct Antonym

9. GARRULOUS

- a) trepidacious
- b) decorous
- c) irksome
- d) gregarious
- e) taciturn

- 10. PROLIFIC
- a) worthless
- b) barren
- c) practical
- d) paleful
- e) youthful

- 1. Three pipes, A, B, & C are attached to a tank. A & B can fill it in 20 & 30 minutes respectively while C can empty it in 15 minutes. If A, B & C are kept open successively for 1 minute each, how soon will the tank be filled?
- 2. There are some apples if it arranged 3,5,7,9 rows get 1 reminder but if it is arranged 11 no reminder. how many apples are there ?
- 3, 7. In a family son age is 5 times daughter, wife age is 5 times daughter age, father is 2 times wife, summation of all their age is 81 find son age?
- 4. A boat travels 20 kms upstream in 6 hrs and 18 kms downstream in 4 hrs. Find the speed of the boat in still water and the speed of the water current?
- (a) 1/2 kmph (b) 7/12 kmph (c) 5 kmph (d) none of these

- 5. Mr. Shah decided to walk down the escalator of a tube station. He found that if he walks down 26 steps, he requires 30 seconds to reach the bottom. However, if he steps down 34 stairs he would only require 18 seconds to get to the bottom. If the time is measured from the moment the top step begins to descend to the time he steps off the last step at the bottom, find out the height of the stair way in steps?

Directions for Questions 6-7 In each of the following sentences, parts of the sentence are left blank. Beneath each sentence, four different ways of completing the sentence are indicated. Choose the best alternative from among the four.

- 6. But _____ are now regularly written to describe well-established practices, organisations and institutions, not all of which seem to be _____ away.
 - [1] reports, withering
 - [2] stories, trading
 - [3] books, dying
 - [4] obituaries, fading
- 7. The Darwin who _____ the attributes of the world class thinker and head of the household.
 - [1] comes, figures
 - [2] arises, adds
 - [3] emerges, combines
 - [4] appeared, combines

In the following sentence the main statement is followed by four sentences each. Select the pair of sentences that relate logically with the given statement.

- 8. Either Sita is sick or she is careless.
 - A. Sita is not sick
 - B. Sita is not careless.
 - C. Sita is sick
 - D. Sita is careless.
- [1] AB [2] AD [3] BA [4] DA

- 14. In which of the following four combinations are the 3 sentences logically related.
 - A. Only Talented people can win the tournament. Graf lost in this tournament. Graf is not talented.
 - B. Namrata is more talented than Graf. Graf lost in this tournament. Graf is not talented.
 - C. No gentleman is a barbarian. No barbarian has manners. Some barbarians are gentlemen. D. Govind is a gentleman. No gentleman is a barbarian. Govind is a barbarian.
- 15. 4. A man travels a merry go round. He says 1/3rd of the children are before me and 3/4th of the children behind me. How many of them are there?

Question 5) What's the output of the following code?

```
main ()  
{  
    static char a[] = "Able was I ere I saw elbA" ;  
    char *t, *s, *b ;  
    s = a ;  
    b = a + strlen (a) - 1 ;  
    t = b ;  
    while ( s != t )  
    {  
        printf (" %c ", *s) ;  
        s++ ;  
        printf (" %c ", *t) ;  
        t-- ;  
    }  
}
```

Question 6) What's the output of the following code?

```
main ()  
{  
    int c = 5 ;  
    printf ("c=%d \n", c--) ;  
    if (c)  
        main () ;  
}
```

Question 7) Find the sum of all possible triplets of consecutive natural numbers where the numbers range from 1 to 20.

a) 17,820

b) 32,490

c) 35,910

d) 35,890

e) 35,930

Question 8) How many values of x satisfy the equation $\log_{(x-1)}(2x-1) + 2\log_{(2x-1)}(x+1) = 3$?

a) 1

b) 2

c) 3

d) 4

e) 5

Question 9) Three positive real numbers p, q and r satisfy the equations q-p = r - q and $pqr = 6$. Find the minimum possible value of q.

a) 2

b) 1

c) $6^{2/3}$

d) $6^{1/3}$

e) none of these

Question 10) Find the number of non-negative real roots of $2^{y-1} = y$.

a) 3

b) 2

c) 1

d) 0

e) 4

Question 11) Find the remainder when $(17)(9)! + 18!$ is divided by $(9)!8!7!4!$.

a) 1

b) 10!

c) 8!

d) 17(10!)

e) $17(9!)$

Question 12) Find digit at unit position for $[(6542)^{603} + (5477)^{689}]^{100}$

a) 5

b) 2

c) 7

d) 9

e) 3

Question 13) MASON: WALL::

a) artist : easel

b) fisherman: trout

c) author : book

d) congressman: senator

e) sculptor : mallet

Question 14) FIRE: ASHES ::

a) accident : delay

b) wood : splinters

c) water : waves

d) regret : melancholy

e) event : memories

Question 15) GOOSE : GANDER

a) duck : drake

b) hen : chicken

c) sheep : flock

d) dog : kernel

e) horse : bridle

Question 16) 28,38,49, ... , 70,77

a) 58

b) 64

c) 66

d) 62

e) 65

Question 17) 3,35,99,195, ... , 483

a) 343

b) 323

c) 353

d) 363

e) 373

Question 18) 24,30,36,42,52,60, ...

a) 76

b) 64

c) 90

d) 68

e) 72

SAMPLE QUESTION PAPER - 8

- Raju walks a certain distance and rides back taking a total time of 37 minutes. Raju can walk both ways in 55 minutes. How long would it take Raju to ride both ways?
 - 18 minutes
 - 19 minutes
 - 20 minutes
 - 21 minutes
- A bag contains 6 white and 4 black balls. Two balls are drawn at random. Find the probability that they are of the same colour.
 - 7/15
 - 3/10
 - 2/9
 - 21/40
- A man sitting in a train which is travelling at 50kmph observes that a good train travelling in opposite direction, takes 9 minutes to pass him. If the goods train is 280m long, find its speed.
 - 19kmph
 - 112kmph
 - 62kmph
 - 31kmph
- Present ages of Sameer and Anand are in the ratio 5:4 respectively. Three years hence, the ratio of their ages will become 11:9 respectively. What is Anand's present age in years?
 - 24
 - 27
 - 40
 - Cannot be determined
- How many natural numbers are there between 23 and 100 which are exactly divisible by 6?
 - 8
 - 11
 - 12
 - 13
- Although the professor was quite prominent in her field, she wore an air of _____ while lecturing her students.
 - unanimity
 - sanction
 - modesty
 - parsimony
 - morose
- In a game of cricket Azhar scored 28 less than David and Sachin scored 72 more than Azhar. The total runs made by Azhar and Robin are 94. Robin scored 26 more than Zadeja. David scored 26 more than Robin. What is the score?
 - half and 2 more from the whole lot. Then another thief came and took half and 2 more followed by another who did the same and then another who also did the same. The third and fourth thieves also did the same. When the fifth thief came he saw only 1 diamond in the heap. How many diamonds were there in the lot?
- In the 1950s, integration was _____ to most Americans; now, however, most Americans accept it as _____.
 - welcome..normal
 - an anathema..desirable
 - voluntary..mandatory
 - common..sporadic
 - an abhorrence..unusual
- Choose the pair that best expresses a relationship similar to that expressed by the original pair.

RESOLVED : DOUBT ::

 - confirmed : suspicion
 - announced : candidacy
 - included : guest
 - suggested : idea
 - demolished : opponent
- Choose the word that is most nearly opposite in meaning to the word given.

COVERT

 - protracted
 - insensitive
 - reclining
 - open
 - taxing
- Choose the word that is most nearly opposite in meaning to the word given.

PLAIN

 - Humble
 - Rigid
 - Tacitful
 - Earnest
 - Solemn
- There is a thief who steals some diamonds from a shop but he feels bad and just takes half and 2 more from the whole lot. Then another thief came and took half and 2 more followed by another who did the same and then another who also did the same. The third and fourth thieves also did the same. When the fifth thief came he saw only 1 diamond in the heap. How many diamonds were there in the lot?

SAMPLE QUESTION PAPER - 9

Q.1 The inscribed circle of right angled triangle ABC touches the sides AB, BC and CA at D, E and F respectively. If $AD = 6 \text{ cm}$ and $BE = 5 \text{ cm}$, then find the length of AC.

- A 59 cm
- B 57 cm
- C 55 cm
- D 61 cm
- E 62 cm

Q.2 Let V be a set of real numbers such that if p is any real number in the set then there exist two numbers in V, whose average is p, then which of the following is true?

- V is a finite set.
- V is a set containing all real numbers.
- V is a set of all numbers in the interval (2, 3).
- V is a set of all number.
- None of these.

Q.3 The equation $x^2 + px + q = 0$ has exactly one root between $x = 0$ and $x = 1$. Find the value of $q(1 + p + q)$

- a Zero
- b 1
- c 2
- d Negative
- e Cannot be determined

Q.4 The line AB of length 6 m is a tangent to the inner one of the two concentric circles at point C and a chord to the outer circle. Find the radius of the outer circle if both the radii have integer values.

- a 5 m
- b 4 m
- c 6 m
- d 3 m
- e 7 m

Q.5 There are 6 equally spaced points A, B, C, D, E and F marked on a circle whose radius is R. How many convex pentagons of distinctly different areas can be drawn using these points as vertices?

- a 6P5
- b 6C5
- c 5
- d 1
- e 7

Q.6 It takes six technicians a total of 10 hr to build a new server from Direct Computer, with each working at the same rate. If six technicians start to build the server at 11 am, and one technician per hour is added beginning at 5 pm, at what time will the server be completed?

- A 6.40 pm
- B 7 pm
- C 7.20 pm
- D 8 pm
- E 8.30 pm

Q.7 Given that $f(x) = 2[x] + 3$ and $g(x) = 2[x - 2] + 5$ where $[x]$ is a greatest integer function. For all integral values of x, $f(x) + g(x)$ is equal to

- a $x - 4$
- b $4(x - 1)$
- c $4x + 1$
- d $x + 4$
- e $4(x + 1)$

Q.8 ABCDEF is a regular hexagon of side a. P is a point inside the hexagon. If PG, PH, PI, PJ, PK, PL are drawn perpendicular to the sides AB, BC, CD, DE, EF, FA, respectively, then the value of PG + PH + PI + PJ + PK + PL is equal to

- a
- b
- c
- d
- e

Q.9 In how many ways can we select a pair of co-prime numbers a and b from {1, 2, 3, 4, 5, 6} ? Given that (a, b) is different from (b, a).

- a24
- b23
- c25
- d22

e17 Q.10 A manufacturing unit can produce one or more of the commodities A, B and C. If x units of A, y units of B and z units of C are produced then the cost of production is $x + y + z$ (in Rupees) while the net profit equals $f(x, y, z)$ (in Rupees). A total amount of Rs. 30000 is available to cover the cost of production. If $f(x, y, z) = x + 2y + 3z$, then the maximum possible profit (in Rupees) is

- A 70000
- B 80000
- C 90000

13. Four friends x, c, v, b (I don't remember the actual names) are in a party. They were dancing when someone ate the pizza, which they were not supposed to. There were 4 statement quoted out of which only 1 is true, find who ate the pizza?

- X- c ate it.
- C- v did it.

- D- who? Can't be.
- B- x is wrong when he says that I ate it.

14. One day Harry and I set our watches together. None of us was aware that my watch was getting faster by 2 min per hour and Harry's watch was getting slower by 1 min per hour. After sometime, we discovered that my watch was 1 hr ahead of Harry's watch. Can you find out after how long we noticed this?

15. Series:

- a) 3125, 256, 27, _____, 1

16. main()

```
{  
    char *p;  
    p="Hello";  
    printf("%c\n", *p);  
}
```

What is the output?

- a) e
- b) H
- c) Some address
- d) Some garbage value

17. main()

```
{  
    char str[]={'a','b','c','\n','c','\0'};  
    char *p,*str,*str1;  
    p=&s[3];  
    str=p;  
    str1=s;  
    printf("%d",++*p+str1-32);  
}
```

Output?

- a) 97
- b) M
- c) 76
- d) none

18. main()

```
{  
    const int i=4;  
    float j;  
    j = ++i;  
    printf("%d %f", i,++j);  
}
```

Output?

- a) 8
- b) 5
- c) compile error
- d) syntax error

19. main()

```
{  
    float f=5,g=10;  
    enum{f=10,j=20,k=50};  
    printf("%d\n",++k);  
    printf("%f\n",f<>2);  
    printf("%d\n",f%g);  
    printf("%d\n",fmod(f,g));  
}
```

Output?

- a) Line no 5: Error: Lvalue required
- b) Line no 5: Error: Link error

20. main()

```
{  
    int i=300;  
    char *ptr=&i;  
    *++ptr=2;  
    printf("%d",i);  
}
```

Output?

- a) 665
- b) 565
- c) 556
- d) none

Rohan ,Amit,Kavita,Shanita,Rakesh,Roshni,Nilesh, and Garima are the family members.Once,when asked about their relationship,they gave the following reply

- 1) Roshni : I have one brother and one sister and both are married.
- 2) Rohan : The initials of my grandfather and grandmother are in alphabetical order.
- 3) Rakesh : In our Family of the three Generations, I have two more children than my son Amit.
- 4) Kavita: The initials of my son and my sister in law are same

Q7. Who is son-in-law in the family?

- a)Amit
- b) Rohan
- c) Nilesh
- d) None of these

Q8. Who is Daughter in law in the family?

- a) Garima
- b) Kavita
- c) Roshni
- d) None of these

Q9. What is the relationship between Rakesh and Garima ?
a)Father-in-law—Daughter-in-law b) father-daughter c) Husband-wife
d) cannot be determined

Q10. What is the relationship between Kavita And Nilesh?

- a) Sister-brother
- b) Sister-in-law—brother-in-law
- c) Mother-in-law—son-in-law
- d) cannot be determined

Q11. "He is My nephew's father's only brother-in-law". Who may have said this statement?

- a) Garima
- b) Roshni
- c) Kavita
- d) a) or b)

Direction:Each question given below has a problem and 2 statements numbered I and II giving certain information. You have to decide if the information given in the statements is sufficient for answering the problem.Indicate your answer as:

- a) if the data in I alone are sufficient to answer the question.
- b) if the data in II alone are sufficient to answer the question.
- c) if the data either in I or II alone are sufficient to answer the question.
- d) if the data even in both I and II together are not sufficient to answer the question.
- e) If the data in both the statements together are needed.

Q12. How many gift boxes were sold on Monday?

- I. it was 10% more than the boxes sold on the earlier day(Sunday).
- II. every 3rd visitor to the shop purchased the box and 1500 visitors were there on Sunday.

Q13. In a certain language 'pic hac mit' means 'red pant shirt'. Which word means 'pant' in the language?
I. 'mit tim nac sir' means 'he wore red pant'.
II. 'nee jic pit' means 'shirt is dirty'.

Q14. Among 5 friends who is the tallest?
I. D is taller than A and C.
II.B is shorter than E but taller than D.

Q15. What is the amount of rice exported from India?
I. India's export to America is 80,000 tons and this is 10% of the total rice exports.
II. India's total export tonnage of rice is 12.5% of the total of 1.9 million tonnes.

Q16. How many votes did candidate X receive in the City cooperative bank's director's election?

- I. Candidate X got 17% of the votes that were cast.
 - II.Four-fifth of the 1000 eligible voters cast their votes.
- Directions:In each question below are given 2 statements followed by 2 conclusions I and II you have to take the given two statements to be true even if they seems to be at variance from commonly known facts.Read the conclusions then decide which of the given conclusions logically follows from the two given statements.
- a)if only conclusion I follows.
 - b) if only conclusion II follows.
 - c) if either I or II follows.
 - d) if neither I or II follows.
 - e) if both I and II follows.

Q17. Statements:

- All cars are tables.
Some children are tables.
Some cars are children.
Some children are cars.

Q18. Statements:

- All windows are needles.
Some trees are windows.
Some trees are needles.
Some children are cars.

Q19. Statements:

- Some papers are files.
Some files are pens.
Some files are not pens.
Some pens are papers.

Q20. Statements:

- Some bottles are pencils.
Some pencils are glasses.
No glass is a bottle.
Some bottles are glasses.

D 100000
E 60000

SAMPLE QUESTION PAPER – 10

DIRECTIONS: Refer to the data below and answer the following questions:

Rahul,Sachin,Virendra, and Anil have five different mobiles Noko,Samy,LT,Solly and Sagem with five different service providers BPC,Atel,Ongel,Inet and BKL.

- 1) Anil uses BKL as his service provider.
- 2) Saurav and Virendra do not use a phone which starts with the letter 'S'. Virendra does not use Atel or BPC as his service provider.
- 3) The one who uses a Samy phone has Ongel; as his service provider.Rahul does not use a Sagem phone.
- 4) Saurav uses a sevice provider which does not have a vowel in its name.
- 5) Sachin does not use Ongel as his service provider.The one who uses Solly has Atel as his service provider.

Q1. Who uses LT phone?

- 1) Anil or Saurav 2) Saurav or Virendra 3) Anil or Virendra 4) Saurav 5)
cannot be determined

Q2. Which service provider does Sachin use?

- 1) Atel 2)Inet 3)BPC or Atel 4)Inet or BPC 5) cannot be determined

Q3. Which phone does Anil use?

- 1) Sagem or LT 2) Sagem 3)LT 4) Solly 5)cannot be determined

Q4. The service provider 'Inet' is used by:

- 1)Rahul 2)Virendra or Rahul 3) Virendra or Sachin 4) Virendra
5) cannot be determined

Q5. Which of the following can be true?

- 1) Rahul uses Solly phone and Atel as the service provider.
- 2) Virendra uses Noko phone and Inet as the service provider.
- 3) Sachin uses the Samy phone and Ongel as the service provider.
- 4) Anil uses LT phone and BKL as the service provider.
- 5) All the above statements are false.

Q6. The one who uses the LT phone has _____ as the service provider.

- 1) BKL 2)Inet 3)BPC 4)BPC or Inet 5) cannot be determined

DIRECTIONS:Refer to the data below and answer the following questions :

SAMPLE QUESTION PAPER - 11.

Q21. Statements: All hill stations have a sun-set point.
X is a hill station.
Conclusions: X has a sunset point.

Places other than hill stations do not have sun-set points.
Q22. Statements: Some sticks are bolts.
Kite is a stick.
Conclusions: Some bolts are Sticks.
Some kites are bolts.

Q23. Statements: Some nurses are nuns.
Madhu is a nun.

Conclusions: Some nuns are nurses.
Some nurses are not nuns.

Q24. Statements: All locks are keys.
No key is a spoon.
Conclusions: No key is a spoon.
No spoon is a lock.

Q25. Statements: All plants are trees.
No tree is green.
Conclusions: Some plants are green.
Those plants which are not trees are green.

VERBAL ABILITY:

Directions (1-10): Choose the lettered word or phrase that is most nearly opposite in meaning to the word in capital letters:

1) IMPROMPTU

- a) Carefully rehearsed
- b) Widely recognized
- c) Narrowly focussed
- d) Purposefully vague

2) BALLOON

- a) Regain completely
- b) Decrease slowly
- c) Respond rapidly
- d) Request humbly

3) AVID

- a) Independent
- b) Inquisitive
- c) Swift
- d) Indifferent

4) MOROSE

- a) Fast talking
- b) Quick witted
- c) Light-hearted
- d) Casual

5) ANOMALY

- a) Predicted occurrence
- b) Temporary solution
- c) Easy problem
- d) Continuous process

6) NEOLOGISM

- c) 48 d) 88

13) Amal bought 5 pens, 7 pencils and 4 erasers. Rajan bought 6 pens, 8 erasers and 14 pencils for an amount which was half more than what Amal had paid. What % of the total amount paid by Amal was paid for pens?
 a) 77.5% b) 62.5%
 c) 50% d) None of these

14) A non stop bus to Amritsar overtakes an auto also moving towards Amritsar at 10 am. The bus reaches Amritsar at 12.30 pm and starts on the return journey after 1 hr. On the way back it meets the auto at 2 pm. At what time the auto will reach Amritsar?
 a) 2.30pm b) 3.00pm
 c) 3.15pm d) 3.30pm

15) The total expense of a boarding house are partly fixed and partly variable with the number of boarders. The charge is Rs.70 per head when there are 25 boarders and Rs.60 when there are 50 boarders. Find the charge per head when there are 100 boarders.
 a) 65 b) 55
 c) 50 d) 45

16) There are 5 distinct pairs of white socks and 5 pairs of black socks in a cupboard. In the dark, how many socks do I have to pull out to ensure that I have at least 1 correct pair of white socks?
 a) 3 b) 11
 c) 12 d) 16

17) In a circular race track of length 100 m, three persons A, B and C start together. A and B start in the same direction at speeds of 10 m/s and 8 m/s respectively. While C runs in the opposite at 15 m/s. When will all the three meet for the first time on the after the start?
 a) After 4 s b) After 50 s
 c) After 100 s d) After 200 s

18) If the distance travelled (s) in time (t) by a particle is given by the formula $s = 1 + 2t+3t^2+4t^3$, then what is the distance travelled in the 4th second of its motion?
 a) 141m b) 171m
 c) 243m d) 313m

7) RAREFY
 a) Condense b) Conceive
 c) Consign d) Conduct

8) CAUSTIC
 a) Non-flammable b) Anaesthetic
 c) Antiseptic d) Innocuous

9) SOLVENT
 a) Catalyst b) Detergent
 c) Reactant d) Precipitant

10) ESTIMABLE
 a) Recalcitrant b) Mendacious
 c) Infamous d) Obstinate

QUANTITATIVE ABILITY:

11) There is a circular pizza with negligible thickness that is cut into 'x' pieces by 4 straight line cuts. What is the maximum and minimum value of 'x' respectively?
 a) 12,6 b) 11,6
 c) 12,5 d) 11,5

12) When $\frac{1}{4}$ of a unit's digit is added to the ten's digit of a two number, the sum of the digits becomes 10. If $\frac{1}{4}$ of the ten's digit added to the unit's digit, then the sum of the digits is 1 less than the previous. Find the number.
 a) 94 b) 84

Q: In each of these questions a related pair of words in capital letters followed by four pair of words. Choose the pair that best expresses a relationship similar to the one expressed in the original pair.

8. LOVE : ADORE

- a) pride : prejudice
- b) affection : indifference
- c) flight : wear
- d) legible : eligible

9. VERVE : ENTHUSIASM

- a) loyalty : duplicity
- b) devotion : reverence
- c) intensity : color
- d) eminence : anonymity
- e) generosity : elation

10. METAPHOR : SYMBOL

- a) pentameter : poem
- b) rhythm : melody
- c) nuance : song
- d) slang : usage
- e) analogy : comparison

Q: The logic problems in this set present you with three true statements: Fact 1, Fact 2, and Fact 3. Then, you are given three more statements (labeled I, II, and III), and you must determine which of these, if any, is also a fact. One or two of the statements could be true; all of the statements could be true, or none of the statements could be true. Choose your answer based solely on the information given in the first three facts.

11.

Fact 1: Pictures can tell a story.
Fact 2: All storybooks have pictures.
Fact 3: Some storybooks have words.

If the first three statements are facts, which of the following statements must also be a fact?

- I. Pictures can tell a story better than words can.
 - II. The stories in storybooks are very simple.
 - III. Some storybooks have both words and pictures.
- a) only
 - b) II only
 - c) III only
 - d) None of the statements is a known fact.

12.

Fact 1: All dogs like to run.

Fact 2: Some dogs like to swim.

Fact 3: Some dogs look like their masters.

If the first three statements are facts, which of the following statements must also be a fact?

- I. All dogs who like to swim look like their masters.
- II. Dogs who like to swim also like to run.
- III. Dogs who like to run do not look like their masters.

- a) I only
- b) II only
- c) II and III only
- d) None of the statements is a known fact.

Q: Give the output

```
13.
main()
{
    char s[ ]="man";
    int i;
    for(i=0;s[i];i++)
        printf("%c%c%c%c",s[i],*(s+i),(i+s),i[s]);
}

14.
main()
{
    int i=-1,j=1,k=0,l=2,m;
    m=i++&&j++&&k++||l++;
    printf("%d %d %d %d",i,j,k,l,m);
}

15.
main()
{
    char *p;
    printf("%d %d",sizeof(*p),sizeof(p));
}

16.
main()
{
    int i=10;
    i!=14;
    printf("i=%d",i);
}
```

SAMPLE QUESTION PAPER – 12

19) A sum of money is divided among A, B and C such that for each rupee A gets, B gets 65 paise and C gets 35 paise. If C's share is Rs.560, the sum is ...

- a) 2400
- b) 2800
- c) 3200
- d) 3800

20) Joe's father will be twice his age 6 years from now. His mother was twice his age 2 years before. If Joe will be 24 two years from now, what is the difference between his father's and mother's age?

- a) 4
- b) 6
- c) 8
- d) 10

1. The judge decided to resign when he was _____ for promotion to Chief Justice.
a) passed by b) passed over c) passed off d) passed out

2. The quality of _____ between individuals and the organization for which they work can be _____ to the benefit of both parties.
- a) life Conceptualized
 - b) service evaluated
 - c) interaction improved
 - d) sophistication developed
 - e) work appreciated

3. Among a number of hobbies that one _____ hobby of reading is the most useful and

- a) absorbs durable
- b) develops accumulative
- c) cultivates enlightened
- d) considers appreciative
- e) nourishes culminative

4. Her _____ nature will help her realizing the object of her desire.

- a) obdurate
- b) obstinate
- c) persevering
- d) fascinating
- e) querulous

Q. Indicate which part of the sentence contains an error. Ignore any punctuation error.

5. She counted the books / to make sure that / none of them / were missing. / No error

- (a)
- (b)
- (c)
- (d)
- (e)

6. To make him succeed / the correct thing to do / is to punish him / until he does not try /

- (a)
- (b)
- (c)
- (d)
- (e)

7. With each academic year / the number of applicants is increasing / are increasing / in

- (a)
- (b)
- (c)
- (d)
- (e)

SAMPLE QUESTION PAPER - 13

No. Of Questions:25
Time Allocated:25
minutes

Directions (Q. 1-4): In each of the following sentences there are two blank spaces. Below each sentence there are five pairs of words denoted by numbers 1, 2, 3, 4 and 5. Find out which pair of words can be filled up in the blanks in the same sequence to make it meaningfully complete.

1. A nation that loses the _____ of honesty loses its _____.

- 1) power, will
- 2) appeal, charisma
- 3) dictum, ground
- 4) stamina, courage
- 5) virtue, soul

2. If one gets rid of the government officials and politicians from the _____ of economic activities, corruption will be _____.

- 1) hub, balanced
- 2) nexus, reprimanded
- 3) gear, eliminated
- 4) genre, alleviated
- 5) sphere, reduced

3. To fight natural calamities wisdom requires that we _____ crises and _____ for them.

- 1) apprehend, tackle
- 2) anticipate, prepare
- 3) hamper, secure
- 4) address, evolve
- 5) sense, deviate

4. This collection of essays has _____ beyond the traditional _____ of a versatile economist.

- 1) ventured, domain
- 2) marked, line
- 3) performed, performance
- 4) sold, copyright
- 5) held, charisma

5.

6. Grass in lawn grows equally thick and at a uniform rate. It takes 24 days for 70 cows and 60 days for 30 cows to eat the whole of the grass. How many cows are needed to eat the grass in 96 days?
7. A person with some money spends $\frac{1}{3}$ rd on clothes, $\frac{1}{5}$ th of the remaining for food and $\frac{1}{4}$ th of the remaining for travel. He is left with Rs 100/- . How much did he have with him in the beginning?
8. Fifty minutes ago if it was four times as many minutes past three o'clock, how many minutes is it to six o'clock?
9. A painter went in a exhibition to purchases some pictures where T,U,V,W,X,Y,Z pictures were remaining , he want to buy only five in the condition on that if T is there then X should not be there, if U is there than Y should be there if V is there then X should be there which is the combination the painter can have
 - (a) T,U,V,W,Y
 - (b) T,Z,U,W,X
 - (c) T,X,U,V,W
 - (d) T,U,Y,W,Z
10. If a person has 1000 Rs, and he wants to distribute this to his five children in a manner that each son has 20 Rs. more than the younger one. what will be the share of youngest child
- Directions (Qs. 10-12) What will come in place of the question mark (?) in the following questions?
11. $4985.23 + 4632.14 - ? = 4021.12$
 - 1) 5955.25
 - 2) 5595.25
 - 3) 5295.55
 - 4) 5255.95
 - 5) None of these
12. $0.07\% \text{ of } 1250 - 0.02\% \text{ of } 650 = ?$
 - 1) 0.625

b) $3r$ inches

c) $4r$ inches

d) $8r$ inches

e) $9r$ inches

17. If the sum of the digits of a three-digit number is subtracted from that number, it results in a two-digit number. This process of subtracting the sum of digits of a number from that number is continued further with that resulting two-digit number also till we get a factor of the original three-digit number. Which of the following is a factor of the original three-digit number?
- a) 5
 - b) 6
 - c) 7
 - d) 11
 - e) 13

18. What is the probability that Tony arrives home on any particular day between 7.04 and 7.08?
- The probability that he arrives home on any particular day before 7.08 is 0.8.
- The probability that he arrives home on any particular day after 7.04 is 0.75.
- a) (1) on its own is sufficient to answer the question but (2) on its own is not.
 - b) (2) on its own is sufficient to answer the question but (1) on its own is not.
 - c) Both statements together are sufficient to answer the question but neither statement is sufficient on its own.
 - d) Either statement on its own is sufficient to answer the question
 - e) Both statements put together are still insufficient to answer the question

19. Consider the following equation (where x, y and z are integers) : $10x = 2y - 5z$
Which of the following statements is/are not automatically true?
- I $x = z$
 - II $x = y + z$
 - III There are no integer values of x, y and z that satisfy that equation.

- a) I only
- b) II only
- c) III only
- d) II and III only
- e) I, II and III

20. Two cylinders are made from metal. One cylinder has a height of $5h$ inches and a radius of r inches. The other has a height of h inches and a radius of $2r$ inches. The two cylinders are melted and the molten metal recast as a single cylinder of height h inches without wasting any of the metal. What is the radius of the new cylinder?
- a) r inches

- Directions (Q 21-23) Give outputs of the code snippets:
- 21.
- ```
main()
{
 static int var=5;
 printf("%d ",var);
 if(var)
 main();
}
```

- 22.
- ```
#include<stdio.h>
main()
{
    char s[]={'a','b','c','\n','e','\0'};
    char *p,*str,*str1;
    p=&s[3];
    str=p;
    str1=&s[1];
    printf("%d",++*p + ++*str1-32);
}
```

- 23.
- ```
#define int char
main()
{
 int i=65;
 printf("sizeof(i)=%d",sizeof(i));
}
```

- 24.
- Sorting is not possible using which of the following methods?
- (a) Insertion  
(b) Selection  
(c) Exchange  
(d) Deletion
- 
- (b) Linked List  
(c) Stack  
(d) Queue  
(e) None

- 25.
- In a tree construction, which is the suitable efficient data structure?
- (a) Array

2) 0.545

3) 0.875

4) 0.745

- 5) None of these

**Directions (Q.13-16):** In each question below are given three statements followed by three conclusions numbered I, II and III. You have to take the three given statements to be true even if they seem to be at variance with commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows from the given statements disregarding commonly known facts. Then decide which of the answers (1), (2), (3), (4) and (5) is the correct answer.

13. Statements: a. some teachers are professors.

b. Some professors are readers.

c. All readers are rectors.

Conclusions: I. Some readers are teachers.  
II. Some rectors are teachers.

III. All rectors are readers.

- 1) None follow

2) Only I follows

3) Only II follows

4) Only III follows

- 5) All follow

14. Statements: a. some papayas are guavas.

b. Some guavas are carrots.

c. Some carrots are mangoes.

Conclusions: I. some mangoes are papayas.  
II. Some carrots are papayas.  
III. No papaya is a mango.

- 1) Only either I or II follows

2) Only either I or III follows

3) Only II follows

4) Only III follows

- 5) None of these

15. Statements: a. All bottles are glasses.

b. All drums are bottles.

c. Some cups are bottles.

Conclusions: I. some glasses are cups.  
II. All drums are glasses.  
III. Some bottles are drums.

- 1) None follows  
2) Only I & II follow

3) Only II & III follow

4) Only I & III follow

5) All follow

16. Statements: a. All tables are sitars.

b. All sitars are harmoniums.

c. All harmoniums are violins.

Conclusions: I. Some violins are tables.  
II. Some violins are sitars.  
III. Some harmoniums are sitars.

- 1) All follow  
2) Only II follows  
3) Only I follows  
4) Only I & II follow  
5) None follows

**Directions (Q.17-20):** A pair of words is followed by five numbered pair of words. Select from the choices, the pair which exhibits the same relationship as the given pair and mark it as your answer.

17. wood:sand ::

- (a) brick:lay  
(b) oil:polish  
(c) metal:burnish  
(d) coal:burn  
(e) stone:quarry

18. Editor:magazine ::

- (a) captain:ship  
(b) actor:movie  
(c) director:film  
(d) player:team  
(e) jockey:horse

19. Skin:man ::

- (a) jump:start  
(b) peel:potato  
(c) hide:animal  
(d) cat:food  
(e) wool:cloth

20. glossary:words ::

- (a) catalogue:dates  
(b) atlas:maps

10. 6. The greatest possible value of C is how much greater than the smallest possible value of D?

- (a) 2
- (b) 3
- (c) 4
- (d) 5
- (e) 6

#### SAMPLE QUESTION PAPER – 15

TOTAL TIME: 25 MINS TOTAL QUES:20  
MAX MARKS:20

#### PART 1- ENGLISH

##### SECTION 1

DIRECTIONS: Each sentence below has one or two blanks indicating that something has been omitted. Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole.

- 1)There is some \_\_\_\_\_ the fact that the author of a book as sensitive and informed as Indian Artisans did not develop her interest in Native American art until adulthood , for she grow up in a region rich in American Indian culture.  
A)irony in B)Satisfaction in C)doubt about D)Concern about E)Presumptuousness in

2)Rhetoric often seems to \_\_\_\_\_ over reason in a heated debate, with both sides \_\_\_\_\_ in hyperbole.

- A)cloud,subsidng
- B)prevail,yielding
- C)triumph,engaging
- D)reverberate,clamoring
- E)rample,tangling

##### SECTION 2

DIRECTIONS: In each of the following questions , a related pair of words or phrases is followed by five lettered pair or words or phrases. Select the pair that best expresses a relationship SIMILAR to that expressed in the original pair.

- 3)SAW:CARPENTER  
A)BRUSH:PAINTER  
B)TYPEWRITER:AUTHOR  
C)TROWEL:BRICKLAYER  
D)WAGON:FARMER  
E)SCISSORS:TAILOR
- 4)EPITAPH:TOMBSTONE  
A)PEDESTRAL:STATUE  
B)PROLOGUE:PLAY  
C)MELODY:SONG  
DISALUTATION:LETTER  
E)MOTTO:SHIELD

**SAMPLE QUESTION PAPER – 14**

- The speed of a train A, 100m long is 40% more than the speed of another train B, 180m long running in opposite direction. To find out the speed of B, which of the information given in statements P & Q is sufficient  
 P : The two trains crossed each other in 6 seconds  
 Q : The difference between the speed of the trains is 26kmph
  - (a) Only P is sufficient
  - (b) Only Q is sufficient
  - (c) Both P & Q are needed
  - (d) Both P & Q are not sufficient
- Find out the odd one out.  
 4, 9, 19, 39, 79, 160, 319
- Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10, 12 seconds respectively. In 30 minutes how many times do they toll together?
- How many Kg's of wheat costing him Rs 1.20, Rs 1.44 and Rs 1.74 per Kg so that the mixture may be worth Rs 1.41 per Kg?
- If 9 engines consume 24 metric tonnes of coal, when each is working 8 hours a day, how much coal will be required for 8 engines, each running 13 hours a day, it being given that 3 engines of former type consume as much as 4 engines of latter type?
- In a 500 m race, the ratio of the speeds of two contestants A and B is 3:4. A has a start of 140 m. Then, A win by B?
- Reshma appeared for a maths exam. She was given 100 problems to solve. She tried to solve all of them correctly but some went wrong. But she scored 85. Her score was calculated by subtracting two times the no. of wrong answers from the no. of correct answers. How many problems did Reshma do correctly?
- In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. What is the probability of getting a prize
- Wheels of diameters 7cm and 14cm start rolling simultaneously from x & y which are 1980 cm apart towards each other in opposite directions. Both of them make the same number of revolutions per second. If both of them meet after 10 seconds. The speed of the smaller wheel is
- The letters A, B, C, D, E, F and G, not necessarily in that order, stand for seven consecutive integers from 1 to 10  
 D is 3 less than A  
 B is the middle term  
 F is as much less than B as C is greater than D  
 G is greater than F
  10. 1. The fifth integer is
    - (a) A
    - (b) B
    - (c) C
    - (d) D
    - (e) E
  10. 2. A is as much greater than F as which integer is less than G
    - (a) A
    - (b) B
    - (c) C
    - (d) D
    - (e) E
  10. 3. If A = 7, the sum of E and G is
    - (a) 8
    - (b) 10
    - (c) 12
    - (d) 14
    - (e) 16
  10. 4. A - F = ?
    - (a) 1
    - (b) 2
    - (c) 3
    - (d) 4
    - (e) Cannot be determined
  10. 5. An integer T is as much greater than C as C is greater than E. T can be written as A + E. What is D?
    - (a) 2
    - (b) 3
    - (c) 4
    - (d) 5
    - (e) Cannot be determined

**SECTION 3**  
**DIRECTIONS:** Each question below consists of a word printed in capital letters, followed by 5 lettered words or phrases. Choose the lettered word or phrase that is most nearly opposite in meaning to the word in capital letters.

**5) INFINITY**

- A) Bounded Space
- B) Physical repulsion
- C) Inadequate Measurement
- D) Weak charge
- E) Small Miscalculation

**6) TRUCE**

- A) Resumed Fighting
- B) False Pretenses
- C) Genuine grievances
- D) Non-military service
- E) Tactical error

**7) TORTUOUS**

- A) Gently inclined
- B) Logically accurate
- C) Surmountable
- D) Sparse
- E) Direct

**PART 2 - QUANT**

- 8. A. 5, B. 9, C. 15, D. ?, E. 40
- 9. A.  $\frac{4}{9}$ , B.  $\frac{9}{20}$ , C.  $\frac{3}{8}$ , D.  $\frac{39}{86}$ , E. ?
- 10. A. 17/40, B. 19/42, C. 20/45, D. 29/53, E. 25/49

11. If Neena says, "Anita's father Raman is the only son of my father-in-law Mahipal", then how is Bindu, who is sister of Anita, related to Mahipal?
- A. Niece
  - B. Daughter
  - C. Wife
  - D. Grand Daughter
  - E. Data inadequate

**PREDICT THE OUTPUT:-**

- ```
17. void main()
{
    int const * p=5;
    printf("%d",++(*p));
}
```
- A. 5
 - B. 6
 - C. 7
 - D. LOGICAL ERROR
 - E. COMPILER ERROR

18. main()

```
{
    float me = 1.1;
    double you = 1.1;
    if(me==you)
        printf("I love U");
}
```

11. A jar full of whisky contains 40 % alcohol. A part of this whisky is replaced by another whisky containing 19 % alcohol and now the percentage of alcohol was found to be 26%. The quantity of whisky replaced is :
- A. 1/3
 - B. 2/3
 - C. 2/5
 - D. 3/5
 - E. 1/5
12. A, B and C can complete a work separately in 24, 36 and 48 days respectively. They started together but C left after 4 days from start and A left 1 day before the completion of the work. In how many days will the work be completed?

- A. 15 days B. 22 days C. 25 days D. 35 days E. 30 days
13. A and B are partners in a business. A contributes $\frac{1}{2}$ of the capital for 15 months and B received $\frac{3}{2}$ of the profit. For how long B's money was used?
- A. 6 months
 - B. 9 months
 - C. 10 months
 - D. 12 months
 - E. 8 months

14. A vendor loses the selling price of 4 oranges on selling 36 oranges. His loss % is :

- A. 10 %
- B. $\frac{1}{19} \%$
- C. $\frac{1}{12} \%$
- D. 15 %
- E. 16 %

15. What is the minimum number of queues needed to implement the priority queue?

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

16. What is the prefix notation of the expression $((A + B) * C - (D - E) ^ (F + G))$

- A) $\wedge - * +ABC - DE + FG$
- B) $\wedge * - +ABC - DE + FG$
- C) $\wedge A - * +BC - DE + FG$
- D) $A + B C * DE - FG + \wedge$
- E) $\wedge + C * DE - FG +$

else

 printf("I hate U");

}

- A) I love U B) I hate U
C)JUNK VALUE D)LOGICAL ERROR
E)COMPILER ERROR

19. PREDICT THE OUTPUT ON THE GCC COMPILER(for this question only)

```
main()
{
    fork(); fork(); fork();
    printf("Hello World!");
}
```

- A) Hello World!
B) Hello World! Hello World!
C)INFINITE
D) Hello World! Hello World! Hello World!
E) Hello World! Hello World! Hello World! Hello World! Hello World! Hello World!

20. void main()

```
{
    int a=2, *pa, &ra;
    pa = &a;
    ra = a;
    cout << "a=" << a << "*pa=" << *pa << "ra=" << ra;
}
```

- A)a=2*pa=2ra=2
B)JUNK VALUE
C)COMPILER ERROR
D)LOGICAL ERROR
E)RUNTIME ERROR

SAMPLE QUESTION PAPER – 16

Q7. Find the output (or error if any) of the following program :

```
void main()
{
    printf("sizeof(void *) = %d \n", sizeof(void *));
    printf("sizeof(int *) = %d \n", sizeof(int *));
    i=20;
    printf("sizeof(double *) = %d \n", sizeof(double *));
    printf("sizeof(struct unknown *) = %d \n", sizeof(struct unknown *));
}
```

Q2. Find the output (or error if any) of the following program :

```
main()
{
    int i=1,j=1,k=0,l=2,m;
    m=i++ && j++ && k++ || l++;
    printf("%d %d %d %d %d\n",i,j,k,l,m);
}
```

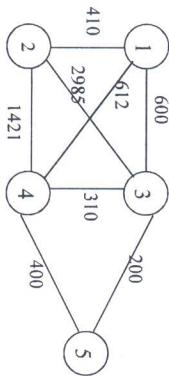
Q3. Find the output (or error if any) of the following program :

```
main()
{
    int a=2,*f1,*f2;
    f1=&f2;&a;
    *f2+=*f2+=a+=2.5;
    printf("\n%d %d %d",a,*f1,*f2);
}
```

Q4. Minimum number of queues needed to implement the priority queue?

Q5. How many different trees are possible with 10 nodes?

Q6. Convert the given graph with weighted edges to minimal spanning tree.



Q8. What are the two types of transmission technology available?

Q9. how many four digit numbers divisible by four can be formed using 1,2,3,4; repetitions are not allowed!

Q10. Two friends A,B are running up hill and then to get down. Length of road is 440 yards. A on his return journey met B going up at 20 yards from top. A has finished the race .5 minute earlier than B, then how much time A had taken to complete the race.

Q11. There are two types of pottery that I do. There is production pottery-mugs, tableware, the kinds of things that sell easily. These pay for my time to do the other work, which is more creative and satisfies my needs as an artist. The author of this passage implies that:

1. artists have a tendency to waste valuable time
2. creativity and mass-production are incompatible
3. most people do not appreciate good art
4. pottery is not produced by creative artists

Q12. Find the opposite in meaning to :

- | | |
|------------|----------------|
| ASSAGED: | |
| a) Thirsty | b) Devastated |
| c) Untrue | d) Unsatisfied |
| e) Foiled | |

Q13. Find the opposite in meaning to :

- | | |
|-------------|-------------|
| ABSTRAUSE : | |
| a) Detested | b) Detained |
| c) Obvious | d) Tight |
| e) Rebuilt | |

Q14. DEGREE : TEMPERATURE ::

- (A) Nutrient : Nourishment
- (B) Scale : Length
- (C) Decibel : Sound

- (D) Decibel : Sound
(E) Headphones : Conversation

Q15. INTRODUCTION : CONCLUSION ::

- (A) Announcement : News
(B) Greeting : Farewell
(C) Birth : Marriage
(D) Landing : Accolade
(E) Companionship : Termination

Directions for Q16 – Q20. Read the following passage carefully and answer the questions following it:

It is often said that India has got the third largest pool of scientific and technological manpower in the world. But, in spite of this large capable/ competent pool we seem to be poorly equipped with the requisite R&D to make a dent in the global market place. The harsh truth is that except for a few selected areas, breakthrough in technology including

drive for indigenisation have met with limited success. There are neither adequate resources nor proper support to carry out fundamental research, development of indigenous technology or commercialisation of new technology by the Indian industries. It is not possible for an operating industry to carry out fundamental research for typical operational problem or develop technology suiting to own operating conditions.

For a developing country like India, where virtually majority of industrial parameters are 1/10th of world average, its economy needs massive continuing investment in industrial and infrastructure sector. Industrial development will continue to be heavily dependent on advanced technology. Technology and technology transfer are critical factors in development in India. Considerable engineering, technology and consultancy capabilities/ expertise have been built up over the years in various sectors/disciplines. Several scientific and technical co-operation agreements have been made with a large number of developing and developed countries at government, enterprise, institution and industry association levels. However, the issue of co-operation in the area of advanced technology is generally not appearing in these agreements.

Western countries dumping shelved technology on developing countries or secretive in parting with their advanced process technology is old hat. Therefore, developing countries like India will be in a tight spot if they do not develop technologies by themselves or make judicious selection regarding choice of technology and sourcing the technology. The choice of technology and its source is an important aspect as it relates to quality and price of technology. The actual goal of transfer of technology is the establishment of scientific and technological capabilities rather than the mere transfer of plant and equipment.

Technology transfer consists of three major components: technology assessment, technology acquisition and assimilation and technology diffusion to local industries after incorporating the necessary degree of modifications. In reality, organizations usually fail to use the right technology and its source as many times they are not conversant with the latest development in the field, may be unaware of the emergence of new technologies and changing approaches to technology transfer. They may lack the professional skills to select a technology that is suited to local operating conditions and to acquire it on favourable terms. They are guided by past relations, current affiliations and terms and conditions set in the aid package. Thus the technology transfer process becomes often too costly and ineffective.

The principal form of technology transfer are licensing, outright purchase, joint venture with capital participation, technology transfer associated with buy back arrangement, technology transfer associated with loan agreement, technology transfer associated with plant operation and management contract, technology transfer forming part of a consultancy contract (supply of basic engineering), technology transfer associated with equipment supply contract or turnkey contract etc. The technologies, which are latest in the field are usually non negotiable and least available for acquisition. Whereas at the other end of the filterum exists the shelved technologies. Between the latest and the shelved technologies lie ample opportunities.

For successful transfer, in addition to finance, skilled and qualified personnel, such as academicians, scientists and technicians are equally important. Unless the importing organisation ensures the availability of such qualified personnel and resources, the technology transfer is bound to suffer or may prove ineffective. Technology transfer could be a multi-edged weapon which, if handled wrongly, may result in expensive/ unwanted imports, hurting the technological progress and ultimately may lead to disaster. The national think tanks like R&D centres (CSIR and others), engineering and technology institutions (IITs, IISc, Roorkee University and others) and leading consultants like MECON can come forward to avoid such eventualities.

Interaction between industry, engineering consultancy organisation, R&D centres and academic institutions is very limited. These players work on seemingly disparate paths. There are specific reasons behind this. Industrial engineering consultants have limitations of time. Strong commitment to project objectives and adherence to the strict time schedule within which they have to complete the assignment is of paramount importance. By the time a technology is developed, it becomes very costly and sometimes outdated. Due to this reason, industry/ engineering consultants have a tendency to avoid academic institutions and R&D centres.

As academic institutions and R&D centres do not receive due attention of industries, they prefer working in isolation. Working in isolation is associated with many constraints. The fact remains that the academics who do not understand the corporate world cannot survive and the corporate world that does not use good academic input can't grow. There

has to be a mutual appreciation, instead of competing, they should complement each other. Truly speaking, there is a strong need for consultants to get support/ assistance from R & D centres/ educational institutions in upgrading their technical strength and strengthening design and engineering capabilities so as to enable them to render their services to Indian industries by undertaking multi faceted assignments under tight time schedule and stiff competition.

Q 16 . The author seems to agree best with which of the following, as made out by the passage ?

- (1) The actual goal of technology transfer is the establishment of scientific and technological capabilities, rather than merely transferring plant and equipment.
- (2) The technologies that are latest in the field are usually negotiable.
- (3) Industry / engineering consultants take academic institutions and R & D centres into confidence.
- (4) As industries recognise academic institutions and R & D centres, working in isolation is ruled out.

Q17. According to the passage, technology transfer :

- (1) could be a multi edged weapon, which if handled wrongly, could hurt the technological process disastrously.
- (2) involves skilled and qualified personnel.
- (3) is a critical factor in the country's development.
- (4) All of the above.

Q18. According to the passage, academic institutions and industries :

- (1) cannot function together.
- (2) should complement each other, instead of competing.
- (3) should have exchange visits of their key personnel.
- (4) both require governmental attention.

Q19. As per the passage, which of the following cannot be the reason for India not achieving the desired level of success in technological break through ?

- (1) Lack of adequate resources and proper support to carry out fundamental research.
- (2) Transfer of technology becoming a costly and an ineffective process.
- (3) Commercialisation of the technology by the Indian industries has not taken place to the desired level.
- (4) None of the above.

Q20. The interaction between R & D centres and industries is very limited which, as per the passage, is because :

- (1) the perception of an academician in the R & D centre is different from an industrialist.
- (2) by the time the technology is developed, it is costly and outdated.
- (3) the laws of the land act as a binding factor for the industrialist to patronise technology.
- (4) there is no demand for technology.

Q21. There are three natural numbers A, B and C such that the LCM of (A,120) is 1320, LCM of (B,120) is 1680 and LCM of (C,120) is 1800. Which of the following statements is true ?

- (1) A, B and C all three can be perfect squares.
- (2) Only B and C can be perfect squares.
- (3) Only C can be both a perfect square and a perfect cube.
- (4) C is definitely a perfect square.
- (5) C can be a perfect square.

Q22. Here are some words translated from an artificial language. jalkamotti means happy birthday, mothhoze means birthday party ,mentogunn means goodness . Which word could mean "happiness"?

- a. jalkagunn
b. mentohoze
c. mothhoze
d. hozemento

Directions for question Q23-Q24. :

A weekly television show routinely stars six actors, J, K, L,M, N, and O. Since the show has been on the air for a long time, some of the actors are good friends and some do not get along at all. In an effort to keep peace, the director sees to it that friends work together and enemies do not. Also, as the actors have become more popular, some of them need time off to do other projects. To keep the schedule working, the director has a few things she must be aware of:

- J will only work on episodes on which M is working.
- N will not work with K under any circumstances.
- M can only work every other week, in order to be free to film a movie.
- At least three of the actors must appear in every weekly episode.

Q23. In a show about L getting a job at the same company J already works for and K used to work for, all three actors will appear. Which of the following is true about the other actors who may appear?

- a. M, N, and O must all appear.
- b. M may appear and N must appear.
- c. M must appear and O may appear.
- d. O may appear and N may appear.
- e. Only O may appear.

Q24. Next week, the show involves N's new car and O's new refrigerator. Which of the following is true about the other actors who may appear?

- a. M, J, L, and K all may appear.
- b. J, L, and K must appear.

- c. Only K may appear.
- d. Only L may appear.
- e. L and K must appear.

Q25. If a, b, c are greater than 1, then $\log_a(\log(ab)) + \log_b(\log(bc)) + \log_c(\log(ca))$ (is)

- (a) always greater than 1
- (b) always less than 2
- (c) always less than 1
- (d) exactly 2 of the foregoing
- (e) none of the foregoing

Q26. A semicircle with radius R is contained in a square whose sides have length 1 unit. The maximum value of R is

- (a) $\sqrt{2} - 1$
- (b) $(\sqrt{2} + 1)/4$
- (c) $\sqrt{3} - \sqrt{2}$
- (d) $(\sqrt{6} + 2)/8$
- (e) $(\sqrt{6} - \sqrt{2})/2$

Q27. A ladder lies against a wall. The top of the ladder reaches 8 ft. above the ground.

When the ladder slips two metres away from the wall, the top of the ladder touches the foot of the wall. The length of the ladder is

- 1) 15 2) 17 3) 8 4) 10

Q28. A takes 4 days to do a work. B takes twice as long as A. C takes twice as long as B and D takes twice as long as C. They are made in groups of two. One of the groups takes two third of the time taken by second pair. What is the combination of the first pair?

- 1) A,C
- 2) A,D
- 3) B,C
- 4) B,D

Q29. A student got marks in the ratio 6:7:8:9:10 in five subjects having equal maximum marks. In all, he scored 60% marks. In how many subjects, he got more than 50%?

- 1) 4
- 2) 5
- 3) 3
- 4) None of these

Q30. There are three classes X, Y and Z. Average of class X is 83. Average of Class Y is 76. Average of class Z is 85. Average of class X and Y is 79, average of class Y and Z is 81. Find average of three Classes.

- 1) 81 2) 81.5 3) 82 4) 84

Technical questions :

(I) Which one of the following will declare a pointer to an integer at address 0x200 in memory?

- 1) int *x;
- 2) int *x = &0x200;
- 3) int *x = *0x200;
- 4) int *x = 0x200;
- 5) int *x(&0x200);

(II) What will be the value of 'a' after the following code is executed

```
#define square(x) x*x
```

- 1) 25
2) 13
3) 11
4) 10

(III) Which one of the following functions returns the string representation from a pointer to a time_t value?

- 1) localtime
- 2) gmtime
- 3) strftime
- 4) asctime
- 5) ctime

(IV) #include <stdio.h>

```
int i;
void increment( int i )
{
    i++;
}
int main()
{
    for( i = 0; i < 10; increment( i ) ) {
        printf("%d\n", i);
    }
    return 0;
}
```

What will happen when the program above is compiled and executed?

- 1) It will not compile.
- 2) It will print out: i=9.
- 3) It will print out: i=10.
- 4) It will print out: i= 1.
- 5) It will loop indefinitely.

(V) `c = getchar();`

What is the proper declaration for the variable c in the code above?

- 1) `char *c;`
- 2) `unsigned int c;`
- 3) `char c;;`
- 4) `unsigned char c;`
- 5) `int c`

(VI) What is time required to insert an element in a stack with linked implementation?

- 1) $O(1)$
- 2) $O(\log 2n)$
- 3) $O(n)$
- 4) $O(n \log 2n)$

(VII) Global variables that are declared static are _____.

Which one of the following correctly completes the sentence above?

- 1) Deprecated by Standard C
- 2) Internal to the current translation unit
- 3) Visible to all translation units
- 4) Read-only subsequent to initialization
- 5) Allocated on the heap

(VIII) void main()

```
{   int a=10,b=20;
    char x=1,y=0;
    if(a>b,x,y)
    {
        printf("EXAM");
    }
}
```

What is the output?

- 1) XAM is printed
- 2) exam is printed
- 3) Compiler Error
- 4) Nothing is printed

Logical Reasoning:

- 1. 19,24,20,25,21,26,?
- 2. 11,14,12,15,13,16,?

Data Sufficiency

Directions : For questions in this section mark

- (a) If condition (i) alone is sufficient
- (b) If condition (ii) alone is sufficient

- (c) If both conditions together are sufficient
- (d) If condition (i) alone & (ii) alone are sufficient
- (e) information not sufficient

1. A man 6 feet tall is standing near a light on the top of a pole. What is the length of the shadow cast by the man.
- (i) The pole is 18 feet high
 - (ii) The man is 12 feet from the pole

2. Two pipes A and B emptied into a reservoir. Pipe A can fill the reservoir in 30 minutes by itself. How long it will take for pipe A and pipe B together to fill up the reservoir.
- (i) By itself, pipe B can fill up the reservoir in 20 minutes
 - (ii) Pipe B has a larger cross-sectional area than pipe A

3. K is an integer. Is K divisible by 12
- (i) K is divisible by 4
 - (ii) K is divisible by 3

4. What is the distance from A to B
- (i) A is 15 miles from C
 - (ii) C is 25 miles from B

5. Was Melissa Brown's novel published?
- (i). If Melissa Brown's novel was published she would receive atleast \$1000 in royalties during 1978
 - (ii). Melissa Brown's income for 1978 was over \$1000

6. Does every bird fly?

- (i) Tigers do not fly.
- (ii) Ostriches do not fly

Question :

- Q1) X can do piece of work in 40 days. He works at it for 8 days and then Y finished in 16 days. How long together they to complete the work ?
- a) 40/3 days (b) 15 days (c) 20 days (d) 10 days

- Q2) A salesman allowed 11/2 % discount on the sales made by him plus the bonus of ½ % on the sales over Rs. 10,000. If the total earning were Rs. 1990, then his total sales were:
- (a) 30,000 (b) 32,000 (c) 34,000 (d) 35,000

- Q3) In how many different ways be the letters of the word " CORPORATION " can be arranged so that vowels always come together ?

SAMPLE QUESTION PAPER – 18

- (a) 810 (b) 1440 (c) 2880 (d) 50400
Q4) Find the odd man out:
(i) 1,2,8,33,148,760,4626
(a) 2 (b) 8 (c) 33 (d) 760
(ii) 5,8,20,42,124,246,736
(a) 8 (b) 20 (c) 42 (d) 14

- Q5) Although Leprosy is not a ~~an~~ _____ disease, those who contract it are _____
always _____ by others.
(a) Infectious derrogated
(b) Contagious Shunned
(c) Epidemic eschewed
(d) Fatal..... Ostracized

- Q6) Contrary to popular opinion, bats are not generally _____

and rabid : most
of them are shy and.

- (a) Dangerous.... Harmless
(b) Pernicious.... diffident
(c) Aggressive.... Innocuous
(d) Violent.... Retiring

- Q7) Identify the incorrect sentence / sentences :

- (A) The elderly and young are vulnerable to heat stress.
(B) So are such folks who are overweight.
(C) Don't ever ignore the signs of heat stress.
(D) When the thermometer is rising you are on a risk.
(a) A and B (b) B and C (c) A,B and D (d) A and D

No. Of Questions: 20

Time Alloted:

Directions for questions 1-4: A pair of words in capital is given followed by five numbered pair of words. Select from choices, the pair which exhibits the same relationships as the capitalized pair of words and mark the number as you answer:

1. KNIFE : CHOPPER
A. WALKING : FITNESS
B. SWIM : FLOAT
C. SCISSORS : CLOTH
D. QUILT : BLANKET

2. BROOK : RIVER

- A. PEN : PAPER
B. YARD : ALLEY
C. PATH : HIGHWAY
D. VEIN : ARTERY

3. PLAINTIFF : DEFENDENT

- A. JUDGE : JURY
B. COURT : LAW
C. ATTORNEY : LAWYER
D. INURED : ACCUSED

4. POULTRY : FARM

- A. RICE : GRANARY
B. CHILD : PLAYGROUND
C. BEE : HIVE
D. RUBBER : ESTATE

Directions (Q.5-7): In each of the following sentences there are two blank spaces. Below each sentence there are five pairs of words denoted by numbers 1), 2), 3), 4) and 5). Find out which pair of words can be filled up in the blanks in the same sequence to make it meaningfully complete.

5. This collection of essays has _____ beyond the traditional _____ of a versatile economist.
1) ventured, domain

2) marked, line

3) performed, performance

4) sold, copyright

5) held, charisma

6. It is quite true that when the whole economy is in _____, raising the rate of interest has other _____.

1) seize, burdens

2) shambles, dimensions

3) jeopardy, glimpse

4) distress, implications

5) swing, justification

7. In a democracy, it is essential that _____ voices on one extreme or the other should exist as part of the system of checks and _____.

1) concerned, pressure

2) dissenting, balances

3) confronting, pranks

4) opposition, whims

5) eager, fancies

Direction for questions 8-10: In each question below are given 2 statements followed by 2 conclusions I and II, you have to take the given 2 statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions then decide which of the given conclusions logically follows from the statements.

a) If only conclusion I follows.

b) If only conclusion II follows.

c) If either I or II follows.

d) If neither I nor II follows.

e) If both I and II follow.

8.Statements:

All bags are cakes.

All lamps are cakes.

Conclusions:

I. Some lamps are bags.

II. No lamp is bag.

9.Statements:

All birds are tall.

Some tall are hens.

Conclusions:

I. Some birds are hens.

II. Some hens are tall.

10.Statements:

Some pastries are toffees.

All toffees are chocolates.

Conclusions:

I. Some chocolates are toffees.

II. Some toffees are not pastries.

Give the output of the following questions:

11. void main()

```
{  
    char *str1="pow1a";  
    char *str2="er";  
    clrscr();  
    printf("%s\b\b%S",str1,str2);  
    getch();  
}
```

12. void main()

```
{  
    int a=5;  
    {  
        int a=7;  
        a++;  
        printf("%d",a);  
    }  
    clrscr();  
    printf("%d",a);  
    getch();  
}
```

13. void main()

```
{  
    clrscr();  
    printf("%d",sizeof(3.8));  
    getch();  
}
```

14. void main()

```
{  
    char i=1;  
    clrscr();  
    while(i)  
    {  
        i++;  
    }  
    printf("%d",i);  
    getch();  
}
```

15. Jack,Doug and Ann, 3 children had a running race while returning from school.Mom asked who won the race. Then Jack replied'I wont tell u.I wil give u a clue. When Ann takes 28 steps Doug takes 24 steps, meantime I take 21 steps. Jack explained that his 6

steps equals Droug's 7 steps and Ann's 8 steps. Who won the race?

16. There is a five digit number. It has two prime digits (1 is not a prime number). Third digit is the highest. Second digit is the lowest. First digit is one less than the third digit. The fifth digit is half of the fourth. The sum of 4th and 5th is less than the first. Find the number.

17. A man said he spent 1/6 of his as a child, 1/12 as salesman in a liquor shop, 1/7 and 5 years as a politician and a good husband respectively. At that time Jim was born. Jim was elected as Alderman four years back when he was half of his age. What is his age?

18. A man fixed an appointment to meet the manager. Manager asked him to come two days after the day after tomorrow. Today is Friday. When will the manager expect him?

19. One guy has Rs. 100/- in hand. He has to buy 100 balls. One football costs Rs. 15/. One Cricket ball costs Re. 1/- and one table tennis ball costs Rs. 0.25. He spend the whole Rs. 100/- to buy the balls. How many of each balls he bought?

20. A tennis championship is played on a knock-out basis, i.e., a player is out of the tournament when he loses a match.

(a) How many players participate in the tournament if 15 matches are totally played?

(b) How many matches are played in the tournament if 50 players totally participate?

Verbal ability

For each of the words below, a contextual usage is provided. Pick the word from the alternatives given that is most inappropriate in the given context.

1) TEMPORAL: Do not get tempted by these temporal pleasures. They do not last long.

(1) Eternal (2) Immortal (3) Everlasting (4) Ephemeral

2) FATUOUS: He is far too sensible to have done a fatuous thing like this.

(1) Stupid (2) Intelligent (3) Inane (4) Foolish

3) MACABRE: The office wore a macabre look on Friday after the company downsized its staff strength.

(1) Grisly (2) Tropical (3) Gruesome (4) Lugubrious

For each of the words below choose the word or phrase which is nearest in meaning to the word:

1) ABET
1)conceive 2)wager 3)encourage 4)evade

2) ACCLIVITY
1)index 2)report 3)upslope of a hill 4)negotiator

3) ACCEDE
1)fail 2)compromise 3)correct 4)consent

For each of the words below choose the word or phrase which is opposite in meaning to the word:

1) ENHANCE
1)degrade 2)doubt 3)scuff 4)avoid

2) GRANDIOSE
1)false 2)ideal 3)proud 4)simple

3) ADULATION
1)purity 2>youth 3>brightness 4>criticism

4) ADVOCATE
1>define 2>oppose 3>remove 4>inspect

SAMPLE QUESTION PAPER – 19

Quantitative analysis

- 1) A person who decided to go weekend trip should not exceed 8 hours driving in a day Average speed of forward journey is 40 mph, due to traffic in sundays, the return journey average speed is 30 mph. how far he can select a picnic spot

- 2) 19. A person was fined for exceeding the speed limit by 10 mph. Another person was also fined for exceeding the same speed limit by twice the same. If the second person was traveling at a speed of 35 mph. Find the speed limit
ans. 15 mph

- 3) In 8*8 chess board what is the total number of squares.

- 4) in some game 139 members have participated every time one fellow wil get out. What is the number of matches to choose the champion to be held?

- 5) What number should be added to or subtracted from each term of the ratio 17 : 24 so that it becomes equal to 1 : 2.

Logical Ability

- 1) As any economist knows, healthy people pose less of an economic burden to society than unhealthy people. Not surprisingly, then, every dollar our state government spends on prenatal care for undocumented immigrants will save taxpayers of this state three dollars.

- Which of the following, if true, would best explain why the statistics cited above are not surprising?

1. The state's taxpayers pay for prenatal care of all immigrants.
2. Babies born in this state to undocumented immigrant parents are entitled to infant care benefits fromthe state.
3. State benefits for prenatal care serve to promote undocumented immigration.
4. Babies whose mothers did not receive prenatal careare just as healthy as other babies.
5. Pregnant women who do not receive prenatal care aremore likely to experience health problems thanother pregnant women.

- 2) Whenever Dieter sings, Jarik gets a headache and Kari groans. If Kari is not groaning, which of the following statements must be true?
 - (A) Dieter is singing and Jarik has a headache.
 - (B) Jarik has a headache but Dieter is not necessarily singing.
 - (C) Dieter is singing, but Jarik does not necessarily have a headache.
 - (D) Dieter has been singing and Jarik is beginning to get a headache.

(E) Dieter is not singing.

- 3) 4. The maximum time a member is allowed to run on a treadmill at City Fitness is 30 minutes. Bernard has been running on a treadmill for at least 45 minutes. Based only on the information above, which of the following statements is a valid conclusion?

- (A) The time limit has been established to give every member a chance to run.
(B) If Bernard is not violating City Fitness rules, then he is not running at City Fitness.
(C) If Bernard is running at City Fitness, he will have his membership revoked.
(D) Bernard will be getting off the treadmill as soon as possible.
(E) Bernard is not running on a treadmill at City Fitness

- 4) A study of native born residents in Newland found that two-thirds of the children developed considerable levels of nearsightedness after starting school, while their illiterate parents and grandparents, who had no opportunity for formal schooling, showed no signs of this disability.

If the above statements are true, which of the following conclusions is most strongly supported by them?

1. Only people who have the opportunity for formalschooling develop nearsightedness.
 2. People who are illiterate do not suffer fromnearsightedness.
 3. The nearsightedness in the children is caused by thevisual stress required by reading and other class work.
 4. Only literate people are nearsighted.
 5. One-third of the children are illiterate.
- From the information given above, it can be validly concluded that
1. there are at least some industries run entirely by self-employed industrialists that are underground industries
 2. no industries that are run entirely by self-employed industrialists operate underground
 3. there are at least some industries other than those run entirely by self-employed industrialists that are underground industries
 4. there are at least some industries run entirely by self-employed industrialists that are not underground industries
5. there are at least some underground industries for which national productivity measures are available

SAMPLE QUESTION PAPERS - 20

Aptitude Questions

1. If each edge of a cube is increased by 50%, find the percentage increase in its surface area.
2. Find the number of the bricks, each measuring 25 cm by 12.5 cm by 7.5 cm, required to build a wall 6 m long, 5 m high and 50cm thick, while the mortar occupies 5% of the volume of the wall.
3. The base of a triangular field is three times its altitude. If the cost of cultivating the field at Rs. 24.68 per hectare be Rs. 333.18, find its base and height.
4. Find the area of a rhombus one side of which measures 20cm and one diagonal 24cm.
5. A tank is fitted with 8 pipes, some of them that fill the tank and others that are waste pipe meant to empty the tank. Each of the pipes that fill the tank can fill it in 8 hours, while each of those that empty the tank can empty it in 6 hours. If all the pipes are kept open when the tank is full, it will take exactly 6 hours for the tank to empty. How many of these are fill pipes?
6. A pump can be used either to fill or to empty a tank. The capacity of the tank is 3600 m³. The emptying capacity of the pump is 10 m³/min higher than its filling capacity. What is the emptying capacity of the pump if the pump needs 12 more minutes to fill the tank than to empty it?
7. X alone can do a piece of work in 15 days and Y alone can do it in 10 days. X and Y undertook to do it for Rs. 720. With the help of Z they finished it in 5 days. How much is paid to Z?
8. Pipe A usually fills a tank in 2 hours. On account of a leak at the bottom of the tank, it takes pipe A 30 more minutes to fill the tank. How long will the leak take to empty a full tank if pipe A is shut?
9. How many number of times will the digit '7' be written when listing the integers from 1 to 1000?
10. There are 5 Rock songs, 6 Carnatic songs and 3 Indi pop songs. How many different albums can be formed using the above repertoire if the albums should contain at least 1 Rock song and 1 Carnatic song?
11. A takes 3 min 45 seconds to complete a kilometre. B takes 4 minutes to complete the same 1 km track. If A and B were to participate in a race of 2 kms, how much start can A give B in terms of distance?
12. P can give Q a start of 20 seconds in a kilometer race. P can give R a start of 20 seconds in the same kilometer race. How long does P take to run the kilometer?
13. How many squares can be formed using the checkered 1 * 1 squares in a normal chessboard?
14. A and B enter in to a partnership and A invests Rs. 10,000 in the partnership. At the end of 4 months he withdraws Rs.2000. At the end of another 5 months, he withdraws another Rs.3000. If B receives Rs.9600 as his share of the total profit of Rs.19,100 for the year, how much did B invest in the company?
15. Four horses are tethered at 4 corners of a square field of side 70 metres so that they just cannot reach one another. The area left ungrazed by the horses is:
16. The area of a square field is 24200 sq m. How long will a lady take to cross the field diagonally at the rate of 6.6 km/hr?
17. For what values of m is y = 0, if y = x² + (2m + 1)x + m² - 1? x is a real number.
- (1) m = -2
 (2) m < 0
 (3) m = 0
 (4) m = -1.25
18. A 20 litre mixture of milk and water contains milk and water in the ratio 3 : 2. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture?
19. A merchant mixes three varieties of rice costing Rs.20/kg, Rs.24/kg and Rs.30/kg and sells the mixture at a profit of 20% at Rs.30 / kg. How many kgs of the second variety will be in the mixture if 2 kgs of the third variety is there in the mixture?
20. Rs.432 is divided amongst three workers A, B and C such that 8 times A's share is equal to 12 times B's share which is equal to 6 times C's share. How much did A get?
21. A zookeeper counted the heads of the animals in a zoo and found it to be 80. When he counted the legs of the animals he found it to be 260. If the zoo had either pigeons or horses, how many horses were there in the zoo?

22. A group of workers can do a piece of work in 24 days. However as 7 of them were absent it took 30 days to complete the work. How many people actually worked on the job to complete it?

- (2) prevented.....acceptance
- (3) neglected.....development
- (4) glum.....fame

23. How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of 7 : 3 such that the resultant mixture has 40% water in it?

- (1) Brother
- (2) Uncle
- (3) Father
- (4) Nephew

24. The ratio of marks obtained by Vinod and Basu is 68:75 and their sum of the marks is 275, find the total marks for which exam was conducted.

25. A spherical ball of radius 'r' placed on the ground subtends an angle of 600° at point A of the ground. What is the distance between the center of the ball and the point A?

Vocabulary

Ques1) Choose the correct synonym for the below mentioned word, from the choices

GROTESQUE

- (a) murky
- (b) bulky
- (c) cumbersome
- (d) weird

CHIROMANCY

- (a) handwriting
- (b) palm reading
- (c) speaker's platform
- (d) platypus

Ques2) Choose the correct antonym for the below mentioned word, from the choices

ALTRUISM

- (a) kindness
- (b) selfishness
- (c) tenderness
- (d) benevolence

DAPPER

- (a) unstylish
- (b) ugly
- (c) rude
- (d) mesmerizing

Ques3) Fill in the blank with appropriate word:

Tourism has remained a _____ area even while there is a vast scope for its _____.
(1) rejected.....approval

ANSWERS - PRACTICE PAPER 1

Ans1. a)

Ans2. c)

Ans3. c)

Ans4. d)

Ans5. c)

Ans6. b)

Ans7. b)

Ans8. d)

Ans9. d)

Ans10. c)

Ans11. 5 4 3 2 1

Ans12. 2 2 2 2 2 3 4 6 5

Ans13. Size of(i)=1

Ans 4:

Ans 5 :

Ans 6 :

Ans 7 :B

Ans8 :D

Ans13: E

Ans14: A

Ans15: B

Ans16:D

Ans17. c)

Ans18. a)

Ans19. d)

Ans20. c)

ANSWERS : SAMPLE QUESTION PAPER 2

Ans 1 : 6:00AM

Ans 2:100 marbles

Ans 3 :

Ans 4:

Ans 5 :

Ans 6 :

Ans 7:B

Ans8 :D

Ans13: E

Ans14: A

Ans15: B

Ans16:D

Ans17: B

Ans18: C

Ans19:E

Ans20:D

ANSWERS : SAMPLE TEST PAPER 3

Ans 1 :c Ans 2:d Ans 3:a Ans 4:d Ans5 :c Ans 6:e Ans 7:c

Ans 8:d Ans 9:a Ans10 :a Ans 11:c Ans 12:d Ans 13:d Ans 14:d

Ans 15:d Ans 16:12.5 Ans 17:3.00pm Ans 18:2.25lakh Ans 19:11pm

Ans 20 :mmmm

aaaa

nnnn

Ans 21:45545

Ans22 :Compiler error :The Case Statement can only have constant Expression

ANSWERS - SAMPLE QUESTION PAPER 4

Ans 1 : 2 gallons Ans2 : 7600 feet Ans 3 : 1 : 2 Ans 4 : 15% Ans 5 :C

Ans 6: 3 hours Ans7 : 3/2 hours

Ans 8 : $(y-2)/y$ Explanation:

To type a manuscript kartik took y hours.

Therefore his speed in typing = $1/y$.

^{44}He was called away after 2 hours of typing.

Therefore the work completed = $1/y * 2$.

Therefore the remaining work to be completed = $1 - 2/y$.

(i.e.) work to be completed = $(y-2)/y$

Ans 9 : 37 ½

Explanation : Time reqd for the first 60 km = 120 min.

Ans 10 : 8, 12, 5, 20

Explanation:

$$a + b + c + d = 45$$

$$a = b = 4$$

$$c = (b-2) \cdot 2$$

$$d = 2(b-2)$$

$$b-4 + b + (b-2) \cdot 2 + 2(b-2) = 45$$

Ans 11 : 1, 3, 9, 27, 81, 243 (All powers of 3) Ans 12 : 9

Ans 13 : hello

Explanation:

The comma operator has associativity from left to right. Only the rightmost value is returned and the other values are evaluated and ignored. Thus the value of last variable y is returned to check in if. Since it is a non zero value if becomes true so, "Hello" will be printed.

Ans 14 : 300

Explanation: The pointer points to % since it is incremented twice and again decremented by 2, it points to "%d\n" and 300 is printed.

Ans 15 : Compiler Error: switch expression not integral

Explanation: Switch statements can be applied only to integral types.

Ans 16: minmn

Aaaa
minmn

Explanation: `s[i], *(s+i), *(s+i)[s]` are all different ways of expressing the same idea. Generally array name is the base address for that array. Here s is the base address, i is the index number/displacement from the base address. So, indirection i with * is same as `s[i]`. [s] may be surprising. But in the case of C it is same as `s[i]`.

Ans 17 : 5 4 3 2 1

Explanation: When static storage class is given, it is initialized once. The change in the value of a static variable is retained even between the function calls. Main is also treated like any other ordinary function, which can be called recursively.

Ans 18 : 0 0 1 3 1

Explanation: Logical operations always give a result of 1 or 0. And also the logical AND (`&&`) operator has higher priority over the logical OR (`||`) operator. So the expression `i++ && j++ && k++` is executed first. The result of this expression is 0 (`-1 && -1 && 0 = 0`). Now the expression is `0 || 2`, which evaluates to 0 (because OR operator always gives 1 except for `0 || 0` combination- for which it gives 0). So the value of m is 1. The values of other variables are also incremented by 1.

Ans 19 : fff0

Explanation : -1 is internally represented as all 1's. When left shifted four times the least significant 4 bits are filled with 0's. The `%x` format specifier specifies that the integer value be printed as a hexadecimal value.

Ans 20 : sizeof(i)=1

Explanation: Since the `#define` replaces the string `int` by the macro char

Answer 1 : expression if(`a==0`) always return false expression if(`(a!=1)` always return true

Answer 2 : Two. One queue is used for actual storing of data and another for storing priorities.

Answer 3 : (d) Compiler error: Cannot modify a constant value.

Answer 4 : (D)

Answer 5 : (D)

Answer 6 : 5

Answer 7 : 12

Answer 8 : allow

Answer 9 : 20: add 1, 1, 2, 2, 3, 3, 4, 4

Answer 10 : 37 minutes: 12 noon less 37 minutes = 11.23. 11.23 less nine minutes = 11.14. 10 a.m. plus 74 minutes (2×37) = 11.14.

Answer 11 : c

Answer 12 : C

Answer 13 : d

Rest are equal to the sum of cubes of the digits

Answer 14 : a

Answer 15 : b

Answer 16 : b & d

Answer 17 : c

Answer 18 : d

Answer 19 : a

Answer 20 : d

ANSWERS - SAMPLE QUESTION PAPER - 6

Answer 1 i : B

Answer 1 ii : D

Answer 1 iii :

Answer 2 : y = 0, z = 2, x = 6

Answer 3 : k = 38

Answer 4 : 5, 1

Answer 5 : A Abbilee waass ll ee

Answer 6 : 5

Answer 7 : c

Answer 8 : a

Answer 9 : d

Answer 10 : b

Answer 11 : e

Answer 12 : a

Answer 13 : c

Answer 14 : e

Answer 16 :- d)
Answer 17 :- b)

Answer 15 :- a)
Answer 17 :- b)
Answer 18 :- d)

1: 167 minutes
2 : 946
5: 46 steps
9: e
13:231
17:b

3: 5 years
6: [1]
7:[3]
10:b
14:d
18:d
19:b
20:b

ANSWERS SAMPLE QUESTION PAPER - 12

1. b	2. c	3. c	4. d	5. d	6. d	7. c	8. a
9. b	10.e	11.c	12.b				
13.	mmmm						
	aaaa						
	nnnn						
	14.0 0 1 3 1	15.1 4	16.i=0	17.b	18.c	19.d	20.b

ANSWERS SAMPLE QUESTION PAPER - 8

1. b
2. a)
3. c)
4. a)
5. d)
6. c)
7. b)
8. a)
9. d)
10. b)
11. 338
12. 76 diamonds
13. C
14. 20 hrs
15. 4
16. b
17. b
18. ©
19. a
20. 9c

Ans 1 : d:"61 cm"
Ans 2 : b:"V is a set containing all real numbers."
Ans 3 : d:"Negative"
Ans 4 : a:
Ans 5 : d:
Ans 6 : d:
Ans 7 : e:
Ans 8 : b:
Ans 9 : b;"23"
Ans 10 : c;"90000"

ANSWERS ; SAMPLE QUESTION PAPER - 9

ANSWERS ; SAMPLE QUESTION PAPER - 10

1.)2
7.)C
13.)D
19.)D
25.)D
2.)1
8.)B
15.)B
21.)A
3.)2
9.)B
16.)E
22.)D
4.)4
10.)B
17.)D
23.)D
5.)2
11.)D
18.)A
24.)A
6.)4
12.)E

1.)a
10.c
19.c
2.)b
11.d
20.c
3.)d
12.c
4.)c
13.b
5.)a
14.b
6.)c
15.b
7.)a
16.c
8.)d
17.c
9.)d
18.b

ANSWERS - SAMPLE QUESTION PAPER - 11

ANSWERS SAMPLE QUESTION PAPER - 13

1. (5)	2. (5)	3. (2)	4. (1)	5. 20	6. Rs 250/-
7. Twenty six minutes.		8. (d)	9. 60		
10. 12	11. (2)	12. (3)	13. (1)	14. (2)	15. (5)
16. (1)	17. (d)	N	18. (a)	19. (c)	20. (a) 21. 5 4 3 2 1
22. M	23. sizeof(i)=1	24. (d)	25. (b)		

Answers SAMPLE QUESTION PAPER - 14

1. Ans : A

Solution:

Let speed of B be x kmph

then speed of A = $140x/100$ kmph = $7x/5$ mph

relative speed = $x + 7x/5 = 2x/3$ m/s time taken to cross each other = $(100+180)*3/2x$

$s=420/x$ s now, $420/x = 6$ $x=70$ mph thus, only P is sufficient

2. Ans = 160

SOLUTION: Double the number and add 1 to it. So the series will be 4,9,39,79,159,319.
So 160 is wrong.

$x=26$ metric tonnes.

- 3.

To find the time that the bells will toll together we have to take L.C.M of 2,4,6,8,10,12 is 120.

So, the bells will toll together after every 120 seconds i.e., 2 minutes

In 30 minutes they will toll together $[30/2+1]=16$ times

4. Step1: Mix wheat of first and third kind to get a mixture worth Rs 1.41 per Kg.C.P of 1 Kg wheat of 1st kind 120p C.P of 1 Kg wheat of 3rd kind 174p.

Mean Price 141p
33
21

33
21

They must be mixed in the ratio = $33:21 = 11:7$

Step2: Mix wheats of 1st and 2nd kind to obtain a mixture worth of 1.41 per Kg.C.P of 1 Kg wheat of 1st kind 120p C.P of 1 Kg wheat of 2nd kind 144p

Mean Price 141p

3
21

They must be mixed in the ratio = $3:21 = 1:7$.
Thus, Quantity of 2nd kind of wheat / Quantity of

3rd kind of wheat = $7/1 * 1/7 = 1/1$

Quantities of wheat of 1st & 2nd kind:3rd = $11:7:7$.

5. Let 3 engines of former type consume 1 unit in 1 hour.
4 engines of latter type consume 1 unit in 1 hour.
1 engine of former type consumes $1/3$ unit in 1 hour.
1 engine of latter type consumes $A/4$ unit in 1 hour.
Let required consumption of coal be x units.

Less engines, less coal consumed.(direct)
More working hours, more coal consumed(direct)
Less rate of consumption, less coal consumed (direct)

$4/3 * 1/4 * x = 8/3 * 1/4 * 24$

$9/8$

$8/13$

$:: 24x$

$1/3/1/4$

$24x=624$

6. The speeds of A and B = $3:4$ To reach the winning post A will have to cover a distance of 500-140 m i.e 360 m while A covers 3m, b covers 4m. A covers 360m B covers $4/3 * 360 = 480$ m Thus when A reaches the winning post, b covers 480m and therefore remains 20m behind. A wins by 20m.

7. Assume W as wrong answers and R as correct answers

Given total no.of questions as 100
 $R+W=100$ (1)

Score is calculated by subtracting 2 times wrong answers($2W$) from right answers(R) and given as 85

$R-2W=85$ (2)

$(2)-(1)$

$R-2W=85$

$R+W=100$

$W=5$

Hence, $100-5=95$ is the no.of correct answers of Reshma.

8. By drawing lottery at random ,we have $n(S)=10C1+25C1$

$= 10+25$

$= 35.$

E = event of getting a prize.

$$n(E) = 10C1 = 10$$

out of 10 prizes we have to get into one prize. The number of ways $10C1$.

$$n(E) = 10$$

$$n(S) = 35$$

$$P(E) = n(E)/n(S)$$

$$= 10/35$$

$$= 2/7$$

Probability is $2/7$.

9. let each wheel make x revolutions per sec. Then

$$(2 * \pi * 7/2 * x) + (2 * \pi * 7 * x) = 1980$$

$$(227 * \pi * x) + (2 * 227 * 7 * x) = 198$$

$$66x = 198 \Rightarrow x = 3$$

distance moved by smaller wheel in 3 revolutions

$$= 2 * 227 * 7/2 * 3 = 66\text{cm}$$

speed of smaller wheel = $66/3 \text{ m/s} = 22\text{m/s}$

10. (1) = a

(2) = a

(3) = a

(4) = a

(5) = a

(6) = a

ANSWERS - SAMPLE QUESTION PAPER - 15

1)A	2)C	3)E	4)E	5)A	6)C	7)E
8)B	9)B	10)D	11)B	12)A	13)C	14)A
15)B	16)A	17)E	18)B	19)E	20)C	

ANSWERS - SAMPLE QUESTION PAPER - 16

- Linker Error : Undefined symbol '_i'. Explanation: extern storage class in the following declaration, extern int _i; specifies to the compiler that the memory for _i is allocated in some other program and that address will be given to the current program at the time of linking. But linker finds that no other variable of name _i is available in any other program with memory space allocated for it. Hence a linker

error has occurred.

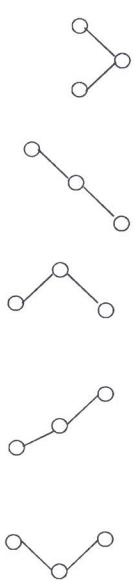
- 0 0 1 3 1 Explanation : Logical operations always give a result of 1 or 0. And also the logical AND (&&) operator has higher priority over the logical OR (|) operator. So the expression `i++ && j++ && k++` is executed first. The result of this expression is 0 (`-1 && -1 && 0 = 0`). Now the expression is `| 2` which evaluates to 1 (because OR operator always gives 1 except for `0 || 0`, combination - for which it gives 0). So the value of m is 1. The values of other variables are also incremented by 1.

- 16 16 16 Explanation:

f1 and f2 both refer to the same memory location a. So changes through f1 and f2 ultimately affects only the value of a.

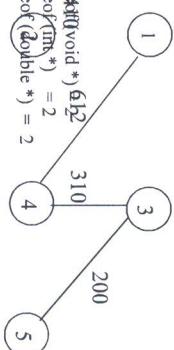
- Two. One queue is used for actual storing of data and another for storing priorities.

1014. For example, consider a tree with 3 nodes($n=3$), it will have the maximum combination of 5 different (ie, $2^3 - 3 = 5$) trees.



In general:
If there are n nodes, there exist $2^n - n$ different trees.

- the equivalent minimal spanning tree is:



- Answer:

`sizeof(Void *)` = 6 $\underline{b2}$
`sizeof(int *)` = 2
`sizeof(double *)` = 2

`sizeof(struct unknown *) = 2`

Explanation:
The pointer to any type is of same size.

8. (i) Broadcast and (ii) point-to-point
9. ans 6;
10. ans 6.3 minutes

11. B
12. B
13. C

14. D - (UNIT OF MEASUREMENT) Degree is the unit in which temperature is measured; decibel is the unit in which sound is measured.

15. B - (ANTONYMS) Introduction and conclusion are antonyms; greeting (such as good morning) and farewell (such as good-bye) are antonyms

16. Ans.(1). Options (2), (3) and (4) do not find place in the passage. Paragraphs five, seven and eight have their opposite stated and thus refute them. Option (1) is in place, as the third paragraph states and upholds them. Option (1) is the correct one.

17. Ans.(4). Each of the options finds a place in the passage. Options (1), (2) and (3) are upheld. Paragraphs six and two state and uphold them. Hence all the options are upheld. However, option (4), their combination is the perfect one.

18. Ans.(2). Option (2) is intact. The last paragraph has a mention of it. Options (1), (3) and (4) are not appropriate, since the passage makes no mention of it.

19. Ans.(4). Each of the options (1), (2) and (3) is reason for technological break through not seeing the light of the day. The first and sixth paragraphs state and uphold them. Hence none of the options answer the question, leading to option (4) as the appropriate one.

20. Ans.(2). Options (1), (3) and (4) find no place in the passage, direct or implicit. Option (2) is the right one, for the passage, in the seventh paragraph, states and upholds it.

21. (5)
22. (a) Jalkameans happy/mofitmeans birthday; hozz means party; mento means good; and Gunn means the suffix -ness. We know the answer must include the suffix -ness. The only choice that uses that suffix is choice a.

23. (c). J will only work in episodes in which M is working and there are no restrictions on O's schedule. However, N will not work with K, so M must appear and O may appear.

24. (d) K will not work with N, so choices c and e are incorrect. M can only work every other week, so choice a is incorrect. Since M is not working, J will not work, so choice b is incorrect.

25. D
26. A
27. 2
28. 2
29. 1
30. 2

Answers : SAMPLE QUESTION PAPER – 17

Technical questions :

(I) Which one of the following will declare a pointer to an integer at address 0x200 in memory?
`*x = 0x200; [Ans]`

(II) What will be the value of 'a' after the following code is executed
11 [Ans]
`(III) Which one of the following functions returns the string representation from a pointer to a time_t value?
asctime [Ans]`

(IV) #include <stdio.h>
`int i;
void increment(int i)
{
 i++;
}
int main()
{
 for(i = 0; i < 10; increment(i) { }
 printf("%d\n", i);
}`

What will happen when the program above is compiled and executed?

It will loop indefinitely. [ANS]

(V) c = getchar();
What is the proper declaration for the variable c in the code above?

`char c; [Ans];`

(VII) What is time required to insert an element in a stack with linked implementation?

Q1) [Ans]

4. D
5. 1

(VII) Global variables that are declared static are _____.

Which one of the following correctly completes the sentence above?

5) Allocated on the heap [Ans]

(VIII) void main()
{
 int a=10,b=20;
 char x=1,y=0;
 if(a,b,x,y)
 {
 printf("EXAM");
 }
}

What is the output?

Nothing is printed [ans]

Logical Reasoning:

1. 19.24.20.25.21.26.? ans:22
2. 11.14.12.15.13.16.? ans: 14

Data Sufficiency

1. (c)
2. (a)
3. (c)
4. (e)
5. (e)
6. (b)

Answers : QUESTIONS.

- 1) a
2) c
3) d
4) (i) d (ii) b
5) b
6) C
7) c

Answer key - SAMPLE QUESTION PAPER – 18

1. D
2. C
3. D

[Assume that he lived x years. $X/6 + x/12 + x/7 + 5 + 4 + x/2 = x$. Solving $x=84$]
18. Monday
[Don't confuse it with Tuesday, the correct answer is Monday]
19. F=3, T=56, C=41

while (i) will true if i non negative.
while (i) will false only when i<0.

Since i is char type of data which is cyclic in nature.
i will get maximum value to 127 the minimum value -128 then it will be zero. When
i=0 ,while condition will false and i will come outside the loop and at that time value of I
is zero.

15. Ans: Doug

[Ann steps = 8,16,24,28 --- finished by 3 & half full steps
Doug steps=7,14,21,24 --- finished before 3 & half full steps

Jack steps= 6,12,18,21 --- finished by 3 & half full steps

So Doug won the race]

16. 71842
17. 84 years

20.(a) 16
(b) 49

Answers : SAMPLE QUESTION PAPER – 19

Verbal ability

- 1) 4
- 2) 2
- 3) 2

- 1)ABET 3
- 2)ACCLIVITY3
- 3)ACCEDE4

- 1)ENHANCE1
- 2)GRANDIOSE4
- 3)ADULATION4
- 4)ADVOCATE2

Quantitative analysis

- 1) 20 miles
- 2) 15 mph
- 3) 204
- 4) 138
- 5) 10 should be subtracted

Logical Ability

- 1) E
- 2) E
- 3) B
- 4) 2
- 5) 4

ANSWERS -QUESTION PAPER – 20

Ans if each edge of a cube is increased by 50%, find the percentage increase in its surface area.

Sol: Let the original length of each edge = a
Then, Original surface area = $6a^2$
New surface area = $6 * (3a/2)^2 = 27a^2/2$
Increase percent in surface area = $((27a^2/2 - 6a^2) / 6a^2) * 100\% = 125\%$

Ans ind the number of the bricks, each measuring 25 cm by 12.5 cm by 7.5 cm, required to build a wall 6 m long, 5 m high and 50cm thick, while the mortar occupies 5% of the volume of the wall.

Sol: Volume of the Wall = $(600 * 500 * 50)$ cu. Cm.

Volume of the bricks = 95% of the volume of the wall.

$$= (95/100 * 600 * 500 * 50)$$
 cu. Cm.

Volume of 1 brick = $(25 * 25/2 * 75/2)$ cu. Cm.

Therefore, Number of bricks = $(95/100 * (600 * 50 * 2 * 10)/(25 * 25 * 75)) = 6080$

3. The base of a triangular field is three times its altitude. If the cost of cultivating the field at Rs. 24.68 per hectare be Rs. 333.18, find its base and height.

Sol: Area of the field = Total cost/Rate = $(333.18/24.68)$ hectares = 13.5 hectares.

$$= (13.5 * 10000) \text{ m}^2 = 135000 \text{ m}^2.$$

Let altitude = x meters and base = 3x meters.

$$\text{Then, } \frac{1}{2} * 3x * x = 135000 \text{ or } x^2 = 90000 \text{ or } x = 300.$$

Therefore, base = 900 m & altitude = 300m.

4. Find the area of a rhombus one side of which measures 20cm and one diagonal

24cm.

Sol: Let, other diagonal = 2x cm,

Since halves of diagonals and one side of rhombus form a right angled triangle with side as hypotenuse, we have:

$$(20)^2 = (12)^2 + x^2 \text{ or } x = \sqrt{(20)^2 - (12)^2} = \sqrt{256} = 16 \text{ cm.}$$

Therefore, other diagonal = 32 cm.

5. A tank is fitted with 8 pipes, some of them that fill the tank and others that are waste pipe meant to empty the tank. Each of the pipes that fill the tank can fill it in 8 hours, while each of those that empty the tank can empty it in 6 hours. If all the pipes are kept open when the tank is full, it will take exactly 6 hours for the tank to empty. How many of these are fill pipes?

Sol. Let the number of fill pipes be 'n'. Therefore, there will be $8-n$ waste pipes. Each of the fill pipes can fill the tank in 8 hours. Therefore, each of the fill pipes will fill $\frac{1}{8}$ th of the tank in an hour.

Hence, n fill pipes will fill $n/8$ th of the tank in an hour.

Similarly, each of the waste pipes will drain the full tank in 6 hours. That is, each of the waste pipes will drain $1/6$ th of the tank in an hour.

Therefore, $(8-n)$ waste pipes will drain $((8-n)/6)$ th of the tank in an hour.

Between the fill pipes and the waste pipes, they drain the tank in 6 hours. That is, when all

8 of them are opened, $1/6$ th of the tank gets drained in an hour.

(Amount of water filled by fill pipes in 1 hour - Amount of water drained by waste

pipes in 1 hour)

$= 1/6$ th capacity of the tank drained in 1 hour.

$$\frac{\frac{n}{8} - \frac{n-8}{6}}{6} = \frac{1}{6} \text{ or } \frac{6n - 8(n-8)}{48} = \frac{1}{6} \text{ or } 6n - 8(n-8) = 8 \text{ or } 56 = 8n - 64 \text{ or } 56 = 8n \text{ or } 7 = n \text{ or } n = 7$$

6. A pump can be used either to fill or to empty a tank. The capacity of the tank is 3600 m³. The emptying capacity of the pump is 10 m³/min higher than its filling capacity. What is the emptying capacity of the pump if the pump needs 12 more minutes to fill the tank than to empty it?

Sol: Let 'f' m³/min be the filling capacity of the pump. Therefore, the emptying capacity of the

$$\text{pump will be } (f + 10) \text{ m}^3 / \text{min.}$$

The time taken to fill the tank will be = $\frac{3600}{f}$ minutes

The time taken to empty the tank will be = $\frac{3600}{f+10}$

We know that it takes 12 more minutes to fill the tank than to empty it

$$\frac{3600}{f} - \frac{3600}{f+10} = 12$$

$$\text{i.e. } \frac{3600}{f} - \frac{3600}{f+10} = 12 \Rightarrow 3600 f + 36000 - 3600 f = 12(f^2 + 10f)$$

$$\Rightarrow 36000 = 12(f^2 + 10f) \Rightarrow 3000 = f^2 + 10f \Rightarrow f^2 + 10f - 3000 = 0.$$

Solving for positive value of 'f' we get, f = 50.

Therefore, the emptying capacity of the pump = $50 + 10 = 60 \text{ m}^3 / \text{min}$

7. X alone can do a piece of work in 15 days and Y alone can do it in 10 days. X and Y undertook to do it for Rs. 720. With the help of Z they finished it in 5 days. How much is paid to Z?

Sol. In one day X can finish $1/15$ th of the work.

In one day Y can finish $1/10$ th of the work.

Let us say that in one day Z can finish $1/Z$ th of the work.

When all the three work together in one day they can finish $1/15 + 1/10 + 1/Z = 1/5$ th of the work.

Therefore, $1/Z = 1/30$.

Ratio of their efficiencies = $1/15 : 1/10 : 1/30 = 2 : 3 : 1$. Therefore Z receives $1/6$ th of the total

choosing one out of the three, 3C_2 ways of choosing two out of the three and 3C_3 ways of choosing all three.

In the given problem, there are 5 Rock songs. We can choose them in 2^5 ways. However, as the problem states that the case where you do not choose a Rock song does not exist (at least one rock song has to be selected), it can be done in $2^5 - 1 = 32 - 1 = 31$ ways.

Similarly, the 6 Carnatic songs, choosing at least one, can be selected in $2^6 - 1 = 64 - 1 = 63$ ways.

And the 3 Indi pop can be selected in $2^3 = 8$ ways. Here the option of not selecting even one Indi Pop is allowed.

Therefore, the total number of combinations = $31 \cdot 63 \cdot 8 = 15624$.

11. A takes 3 min 45 seconds to complete a kilometre. B takes 4 minutes to complete the same 1 km track. If A and B were to participate in a race of 2 kms, how much start can A give B in terms of distance?

Solution: A can give B a start of 15 seconds in a km race.

$$\text{B takes } 4 \text{ minutes to run a km, i.e. } \frac{4}{\frac{22}{7} \times 15} = \frac{250}{60} \text{ m/sec}$$

Therefore, B will cover a distance of $\frac{60}{60} = 62.5$ meters in 15 seconds.

The start that A can give B in a km race therefore, is 62.5 meters, the distance that B runs in 15 seconds. Hence in a 2 km race, A can give B a start of $62.5 \times 2 = 125$ m or 30 seconds.

12. P can give Q a start of 20 seconds in a kilometer race. P can give R a start of 200 meters in the same kilometer race. And Q can give R a start of 20 seconds in the same kilometer race. How long does P take to run the kilometer?

Solution:

P can give Q a start of 20 seconds in a kilometer race. So, if Q takes 'x' seconds to run a kilometer, then P will take $x - 20$ seconds to run the kilometer.

Q can give R a start of 20 seconds in a kilometer race. So, if R takes 'y' seconds to run a kilometer, then Q will take $y - 20$ seconds to run the kilometer.

We know Q takes x seconds to run a kilometer
Therefore, $x = y - 20$

Therefore, P will take $x - 20 = y - 20 - 20 = y - 40$ seconds to run a kilometer.

i.e. P can give R a start of 40 seconds in a kilometer race, as R takes y seconds to run a kilometer and P takes only $y - 40$ seconds to run the kilometer.

We also know that P can give R a start 200 meters in a km race. This essentially means that R runs 200 meters in 40 seconds.

Therefore, R will take 200 seconds to run a km.

If R takes 200 seconds to run a km, then P will take $200 - 40 = 160$ seconds to run a km.

13. How many squares can be formed using the checkered 1 * 1 squares in a normal chessboard?

Solution:

The number of squares that can be formed using the 1 * 1 checkered squares of a chess board are given by the relation $1^2 + 2^2 + 3^2 + 4^2 + \dots + 8^2 = 204$

14. A and B enter in to a partnership and A invests Rs. 10,000 in the partnership. At the end of 4 months he withdraws Rs.2,000. At the end of another 5 months, he withdraws another Rs.3,000. If B receives Rs.9,600 as his share of the total profit of Rs.19,100 for the year, how much did B invest in the company?

Solution:

The total profit for the year is 19100. Of this B gets Rs.9600. Therefore, A would get $(19100 - 9600) = \text{Rs.9500}$.

The partners split their profits in the ratio of their investments.

Therefore, the ratio of the investments of A : B = 9500 : 9600 = 95 : 96.
A invested Rs.10,000 initially for a period of 4 months. Then, he withdrew Rs.2,000. Hence, his investment has reduced to Rs.8,000 (for the next 5 months).

Then he withdraws another Rs.3,000. Hence, his investment will stand reduced to Rs.5,000 during the last three months.

So, the amount of money that he had invested in the company on a money-month basis will be $= 4 * 10000 + 5 * 8000 + 3 * 5000 = 40000 + 40000 + 15000 = 95000$. If A had 95000 money-months invested in the company, B would have had 96,000 money-months invested in the company (as the ratio of their investments is 95 : 96).

If B had 96,000 money-months invested in the company, he has essentially invested $96000/12 = \text{Rs.8000}$

15. Four horses are tethered at 4 corners of a square field of side 70 metres so that they just cannot reach one another. The area left ungrazed by the horses is:

Sol: The length of the rope in which the horses tied should be equal to half of the side of the square plot so that they just cannot reach one another.

Therefore, the length of the rope is 35m ($7/2$).

The area covered by each horse should be equal to the area of sector with radius of 35m .

$$\frac{70}{2} =$$

$35\text{m}(\text{length of the rope})$.

Total area covered by the four horses = $4 * \text{area of sector of radius } 35 \text{ metres} =$
Area of circle of radius 35m .

Area left ungrazed by the horses = Area of square field - Area covered by four horses.

$$= 70^2 - (22/7) * 35 * 35 = 4900 - 3850 = 1050 \text{ sq.m.}$$

16. The area of a square field is 24200 sq m . How long will a lady take to cross the field diagonally at the rate of $6.6 \text{ km/hr}?$

Sol: Let ' a ' meters be the length of a side of the square field.

Therefore, its area = a^2 square meters. --- (1)

We know that the length of the diagonal 'd' of a square whose side is ' a ' meters =

$$a \rightarrow (2)$$

From (1) and (2), we can deduce that the square of the diagonal = $d^2 = 2a^2$

$$\text{Or } d = \text{meters.}$$

The time taken to cross a length of 220 meters while traveling at 6.6 kmph is

given by
 $1 \text{ km} = 1000 \text{ meters and } 1 \text{ hour} = 60 \text{ minutes.}$ (converting

$$= 2 \text{ minutes}$$

17. For what values of ' m ' is $y = 0$, if $y = x^2 + (2m+1)x + m^2 - 1?$ x is a real number.

- (1) $m = -2$
- (2) $m < 0$
- (3) $m = 0$
- (4) $m = -1.25$

Solution: When x is real, then the discriminant of a quadratic equation ($ax^2 + bx +$

Step 1: Find out the ratio $QA : QC$ using alligation rule. $\frac{Q_A}{Q_C} = \frac{30 - 25}{25 - 20} = \frac{1}{1}$

$$c = 0) \quad 0,$$

$$\text{i.e. } D = b^2 - 4ac = 0$$

In this case,

$$(2m+1)^2 - 4(m^2 - 1)$$

$$4m^2 + 4m + 1 - 4(m^2 - 1)$$

$$\text{Solving for } m, \text{ we get } m = -1.25$$

18. A 20 litre mixture of milk and water contains milk and water in the ratio $3 : 2$. 10 litres of the mixture is removed and replaced with pure milk and the operation is repeated once more. At the end of the two removal and replacement, what is the ratio of milk and water in the resultant mixture?

Solution:

The 20 litre mixture contains milk and water in the ratio of $3 : 2$. Therefore, there will be 12 litres of milk in the mixture and 8 litres of water in the mixture.

Step 1. When 10 litres of the mixture is removed, 6 litres of milk is removed and 4 litres of water is removed. Therefore, there will be 6 litres of milk and 4 litres of water left in the container. It is then replaced with pure milk of 10 litres. Now the container will have 16 litres of milk and 4 litres of water.

Step 2. When 10 litres of the new mixture is removed, 8 litres of milk and 2 litres of water is removed. The container will have 8 litres of milk and 2 litres of water in it. Now 10 litres of pure milk is added. Therefore, the container will have 18 litres of milk and 2 litres of water in it at the end of the second step.

Therefore, the ratio of milk and water is $18 : 2$ or $9 : 1$.

19. A merchant mixes three varieties of rice costing $\text{Rs.}20/\text{kg}$, $\text{Rs.}24/\text{kg}$ and $\text{Rs.}30/\text{kg}$ and sells the mixture at a profit of 20% at $\text{Rs.}30/\text{kg}$. How many kgs of the second variety will be in the mixture if 2 kgs of the third variety is there in the mixture?

Solution:

If the selling price of mixture is $\text{Rs.}30/\text{kg}$ and the merchant makes a profit of 20% , then the cost price of the mixture = $\frac{30}{1.2} = \text{Rs.}25/\text{kg}$.

We need to find out the ratio in which the three varieties are mixed to obtain a mixture costing $\text{Rs.}25/\text{kg}$.

Let variety A cost $\text{Rs.}20/\text{kg}$, variety B cost $\text{Rs.}24/\text{kg}$ and variety C cost $\text{Rs.}30/\text{kg}$. The mean desired price falls between B and C.

Solution: When x is real, then the discriminant of a quadratic equation ($ax^2 + bx +$

$$\frac{Q_B}{Q_C} = \frac{30 - 25}{25 - 24} = \frac{5}{1}$$

Step 2: Find out the ratio $Q_B : Q_C$ using alligation rule.

Step 3: QC is found by adding the value of QC in step 1 and step 2 = $1 + 1 = 2$

Therefore, the required ratio = $1 : 5 : 2$

If there are 2 kgs of the third variety in the mixture, then there will be 5 kgs of the second variety in the mixture.

20. Rs. 432 is divided amongst three workers A, B and C such that 8 times A's share is equal to 12 times B's share which is equal to 6 times C's share. How much did A get?

Solution:

8 times A's share = 12 times B's share = 6 times C's share.

Note that this is not the same as the ratio of their wages being $8 : 12 : 6$

In this case, find out the L.C.M of 8, 12 and 6 and divide the L.C.M by each of the above numbers to get the ratio of their respective shares.

The L.C.M of 8, 12 and 6 is 24

$$\frac{24}{8}, \frac{24}{12}, \frac{24}{6}$$

Therefore, the ratio $A:B:C :: 3 : 4 : 2$

The sum of the total wages = $3x + 2x + 4x = 432 \Rightarrow 9x = 432$ or $x = 48$.

Hence A gets $3 * 48 =$ Rs. 144.

21. A zookeeper counted the heads of the animals in a zoo and found it to be 80. When he counted the legs of the animals he found it to be 260. If the zoo had either pigeons or horses, how many horses were there in the zoo?

Solution:

Let the number of horses = x

Then the number of pigeons = $80 - x$.

Each pigeon has 2 legs and each horse has 4 legs.

$$\begin{aligned} \text{Therefore, total number of legs} &= 4x + 2(80-x) = 260 \\ \Rightarrow 4x + 160 - 2x &= 260 \\ \Rightarrow 2x &= 100 \\ \Rightarrow x &= 50 \end{aligned}$$

22. A group of workers can do a piece of work in 24 days. However as 7 of them were absent it took 30 days to complete the work. How many people actually worked on the job to complete it?

Solution:

Let the original number of workers in the group be ' x '

Therefore, actual number of workers = $x-7$.

We know that the number of manhours required to do the job is the same in both the cases.

$$\text{Therefore, } x(24) = (x-7)30$$

$$24x = 30x - 210$$

$$6x = 210$$

$$x = 35$$

Therefore, the actual number of workers who worked to complete the job = $x - 7 = 35 - 7 = 28$.

23. How many litres of water should be added to a 30 litre mixture of milk and water containing milk and water in the ratio of $7 : 3$ such that the resultant mixture has 40% water in it?

Solution:

30 litres of the mixture has milk and water in the ratio $7 : 3$. i.e. the solution has 21 litres of milk and 9 litres of water.

When you add more water, the amount of milk in the mixture remains constant at 21 litres. In the first case, before addition of further water, 21 litres of milk accounts for 70% by volume. After water is added, the new mixture contains 60% milk and 40% water.

Therefore, the 21 litres of milk accounts for 60% by volume.

$$\text{Hence, } 100\% \text{ volume} = \frac{21}{0.6} = 35 \text{ litres.}$$

We started with 30 litres and ended up with 35 litres. Therefore, 5 litres of water was added.

24. The ratio of marks obtained by Vinod and Basu is 6.5. If the combined average of their percentage is 68.75 and their sum of the marks is 275, find the total marks for which exam was conducted.

Solution:

Let Vinod marks be $6x$ and Basu's is $5x$. Therefore, the sum of the marks = $6x + 5x = 11x$.

But the sum of the marks is given as $275 = 11x$. We get $x = 25$ therefore, Vinod marks is $6x = 150$ and Basu marks = $5x = 125$.

Therefore, the combined average of their marks = $(150 + 125) / 2 = 137.5$. If the total mark of the exam is 100 then their combined average of their percentage is 68.75.

Therefore, if their combined average of their percentage is 137.5 then the total marks would be $(137.5 / 68.75) * 100 = 200$.

25. A spherical ball of radius ' r' placed on the ground subtends an angle of 60° at point A of the ground. What is the distance between the center of the ball and the point A?

Solution:

In an equilateral triangle all three sides are of the same length and let this be 'a' units.
From the diagram it is clear that OA is the angle bisector of angle LAM.

Therefore, angle OAL = 30° in the right triangle OAL, $\sin 30^\circ =$
We know that OL is the radius of the sphere = r

Therefore,
Or $OA = 2r$

ANSWERS VOCABULARY sample paper 20

Answer key

Ans1) Grotesque means : something unpleasant , ugly in a weird way e.g. tribal dancers wearing grotesque masks so correct choice is (d)

Chiromancy means : palm reading so correct choice is (b)

Ans2) Altruism means : caring about the needs and happiness of other people more than your own, so correct choice is (b)
opposite of Dapper is unstylish i.e. (a).

Ans3) option (3)

Ans4) option (4)