# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                                                                 **M. M. 100**

**GENERAL INSTRUCTIONS:**

    (i)     This paper is divided into three Sections. A, B and C. All the Sections are compulsory.

    (ii)    Separate instructions are given with each Section and Question, wherever necessary. Read these instructions very carefully and follow them faithfully.

    (iii)   Do not exceed the prescribed word limit while answering the Questions.

## Section – A ( Reading )

**Q.1    Read the passage given below carefully:**

1. How often do we remember to treat others as you would like them to treat you? In our quest to get more and more, we forget that the quality of our lives depends on the kind of personalities we have cultivated for ourselves. Genes might play a role when it comes to one's disposition, but the major portion of our attitudes and behavior is influenced by the choices we make. So in the beginning of every year should you resolve to make more money, learn a new language, travel more frequently then you must discontinue to be the same grumpy, impatient soul you always were, should you then not seek to refine your character, focus on nuances like how you treat people, react to challenges and deal with stress situation? For most people such a course would yield rich results.

2. According to Mary Thomas, usually our New Year resolutions remain unachieved because we try to achieve the impossible or, sometimes, just add more goals that we wish to accomplish to the list of resolutions, but, strangely, we do not remember much about them during the course of the year as we do not seem to value them enough to complete them. The better option would be to address something fundamental to you, to who you really are, and go ahead with completing them instead of making any drastic resolutions which you will never be able to fulfil. You could resolve to be a better person by having a positive attitude towards people you come across in life. This could involve being nice with the lady who cleans the house, or your colleague who sits near you, but you never interacted with. Another trick is to acknowledge people for the value they add to your personal or professional life. By extending basic courtesies to people around you, you add value to your life and that pays off in the long run.

3. Sometimes, we know that there is room for improvement as far as our personalities are concerned but we have little or no idea where to make the start. An easy starting point could be to look for opportunities in one's immediate surroundings. One positive starting point could be taking a positive attitude towards life and dispelling all negative thoughts. You could make a positive beginning by being a better person at work. This means treating everyone with respect. You should not only interact politely, but also value each person's ideas however far removed these may be, to your own. After all, your friend's ideas are an integral part of the organization to which both of you belong. Inculcating this habit of making an effort to talk to people you would normally not have to interact with on a daily basis, would make you a better person at the workplace.

4. Also, you do not have to do something extraordinary to prove your good intentions. Just greeting or smiling at your colleagues first thing in the morning could always brighten someone's day. These are simple things that we are taught while growing but tend to forget as we move through life. So essentially, being better is an exercise in learning to be nice, and you will see that playing nice will get your work done better than scolding or frowning or passing orders.

5. A purposeful life should contain skills that lead to practical changes. After all, no people are alike, so why should your ideas be the only right solution? A company, where individual differences are nurtured, information is not suppressed, soon becomes a workplace that adds value to its employees, rather than merely extracting work out of them. It makes workers feel intrinsically rewarded. It is, therefore, imperative that co-workers and partners share a camaraderie that transcends mere professional conduct and delivery. Thus, for a person who wishes to remain

happy and content, it is as valuable to spend time on nurturing qualities like friendship and consideration as it is on acquiring skills and knowledge.

**I**   **On the basis of your understanding of this passage answer the following questions with the help of the given options.**   4

    (i)    The quality of our lives depends on ----------------- .
        (a)    the personalities we have cultivated for ourselves
        (b)    the number of New Year resolutions we make
        (c)    the challenges that people give us
        (d)    None of the above

    (ii)    Our New Year resolutions remain unfulfilled, according to Mary Thomas, because we --.
        (a)    make too many resolutions    (c) add more goals than what we can accomplish
        (b)    get caught up with our studies(d) feel happy about them

    (iii)    To add value to your life you ------------------ .
        (a)    must earn more money        (b)    become more hardworking
        (c)    should be nice to the people in your immediate surroundings
        (d)    Only (b) and (c)

    (iv)    Workers feel intrinsically rewarded if ----------------- .
        (a)    they are given bonuses        (b)    their work is given recognition
        (c)    their individual difference are acknowledged (d)    none of the above

**II**   **Answer the following questions briefly :**   6

    (i)    What kind of workplace adds value to its employees?
    (ii)    What is the key to remaining happy and content?
    (iii)    What are the advantages of being nice to people?
    (iv)    What are the advantages of extending courtesies to people?
    (v)    Mention three resolutions that people usually make in the New Year.
    (vi)    Why are New Year resolutions left unresolved?

**III**   **Find words from the passage which mean the same is :**   2

    (i)    the natural qualities of a person's character (para 1)
    (ii)    basic (para 2)

**Q.2**   **Read the passage given below carefully :**

    1.    The commonly known fact about artist Arpita Singh is that she is currently India's highest selling artist. Thus she is at a par with the great masters of Indian art, such as S. H. Raza, Francis Newton Souza. M.F.Husain, and the like. Her art can be easily recognizable because of their figurative quality. Her genius lies in being able to weave miniature figures of men and women, tiny forms of flags, or other objects into a canvas space, using vibrant colours such as bright red, vermilion, royal blue, sunny yellow, and bright pink. She uses colours to effortlessly create a themed story about the figures on the canvas. The many figures and forms on the painting seem to narrate a story to the viewer and as one looks closer at the work, the varied texture of the surface of the painting, combined with the minute forms and the play of colours on them one begins to see a composition of unusual quality. Thus Arpita Singh's paintings are not works that are at once eye-catching. They demand that the viewer stand beside them for some time and let the many images on the surface of the painting begin to relate to one's senses. A little while later, the inner meaning of the painting begins to surface and one can understand the genius of the painter.

    2.    As a person, Arpita Singh is much like her paintings. A soft spoken person, she welcomes visitors into her studio with quiet grace. Even the fact that she is now a top name in Indian art has not changed her demeanor. She still talks about the time when she and her mother used to live in the Gole Market area of New Delhi and she had seen disturbing riots around the town during the time of the Partition. It was her teachers at the school who spotted her unusual talent in art and had persuaded her mother to enroll her into art college. She began her studies at Delhi College of Art under tutors such as famed artist Sailoz Mukherjee. They had taught her the basics of fine art, instilling into her the need to

be original and to express her inner thoughts through the forms she create on the canvas. Quite early in life her works began to be noticed by reputable painters and collectors. One of her earliest successes followed a show by a famed Indian artist Tyeb Mehta. Though she dismisses that singular recognition as though the entire gallery had been transformed into a corner shop selling paan, the truth is that the spark of genius in her artistry had blossomed.

3.  Though her many works, Arpita Singh today has managed to embed her imagination on the happenings of the real world making each work become a canvas of immense possibilities. At one moment we are attracted by the exuberant spread of colours on them. At another, it is the pensive figures that catch our eye and make us curious about the thoughts that must be passing through the minds of these figures. In fact, there lies the genius of this artist who manages to imbue her works with a multitude of meanings.

**I**   **On the basis of your understanding of the passage answer the following questions with the help of the given options :**   2
   (i)   The most commonly known fact about Arpita Singh is that she is ……………. .
        (a) a female artist              (b) the highest selling female artist
        (c) the only artist from Delhi        (d) a living masterpiece
   (ii)  The figures and forms on her canvas …………. .
        (a) seem to narrate a story      (b) are drawn from memory
        (c) appear like flies and insects   (d) have no connection with each other

**II**  **Answer the following Questions briefly :**   6
   (i)    In what area does Arpita Singh's genius lie?
   (ii)   Why does the writer advise the viewer to look closer at her paintings?
   (iii)  What effects does a close look at the paintings have on the onlooker?
   (iv)   What has the artist managed to convey through her paintings?
   (v)    What do we know about her art education?
   (vi)   What is regarded as the genius of this artist?

**III** **Find words from the passage which mean the same as :**   2
   (i)   Diminutive (para 1)  (ii) melancholy (para 3)

**Q.3**  **Read the following passage :**

Ask anyone who has organized a traditional Indian wedding what the most painstaking task of all is, and the chances are the answer would be the entire process of sending out invitations. First one has to make a thousand calls to collect the addresses, write each of them on the card and then courier or post them. In addition to this, there is that special lot that needs to be delivered personally no matter how much time is wasted braving long hours in traffic jam.

It is little wonder that e-invites or e-vites as they are popularly called, are catching on with the young and techie these days. They save paper, time and money and can be personalized to suit the couple.

It is also environment-friendly. The people can also be non-traditional in the sense that they can send light, amusing messages in the e-vites retaining the main purpose but this liberty can be taken with just a handful of people who would understand.

Paper invites, especially the designer ones, are expensive and can even cost Rs. 10,000 per card. For a Delhi industrialist's wedding in Dubai, iPad Air Tabs were sent out as special invites and each reportedly cost Rs. 30,000. Excess, however doesn't always impress, no matter, how expensive or exotic the invitation, it eventually lands up in the trash!

E-invites have their pros. They are not only easy to create and cheap to make but also make the process of inviting the guests faster. There are no reports of cards getting lost on the way. However, a few cons cannot be overlooked. They make a wedding feel less formal, can land up in scam and guests may still keep waiting for a physical invite and not send online RSVPs. Some couples choose a middle path-send a save-the-date via e-mail followed by a physical invite.

**I**  **On the basis of your reading of the above passage make notes on it using headings and Subheading. Use Abbreviations wherever necessary and supply an appropriate title to it.** 5
**II**  **Write a summary of the passage in about 80 words.**   3

## Section – B ( Writing )

**Q.4** You are the School Prefect, Aditi Mohan. Draft a notice for the notice board about a trekking holiday that your school is organizing, giving all the necessary detail in not more than 50 words, asking the interested to give their names. 4

**Q.5** You are Anisha Sharma, librarian of Laxman Public School. Write a letter to Time Life Publishers enquires about concise dictionaries and illustrated children's encyclopedia for the school library. Ask them for discount and the mode of payment. (Word limit 120-150) 6

**Q.6** As Shreya write an article on 'Junk the Junk Food' to create an awareness among children that Junk is unhealthy and unhygienic. (Word limit 150-200) 10

**Q.7** Write a debate **FOR** the motion – Election are the best test of a Democracy. 10
(Word limit 150-200)

## Section – C ( Literature )

**Q.8** **Read the extract given below and Answer the Question that follow :**

        Therefore, on every morrow, we are wreathing.
        A flowery band to bind us to the earth
        Spite of despondence, of the inhuman dearth
        of noble nature, of the gloomy days.

(i)     What are we doing every morning? 1
(ii)    What binds us to the earth? 1
(iii)   What does the poet feel about the human life? 1
(iv)    What do we lack? 1

**Q.9** **Answer the following Question in 30-40 words :** **4×3=12**

(i)     What followed when Gandhiji arrived at Champaran?
(ii)    What was the attitude of the General towards the enemy soldiers?
(iii)   Why was Zitkala Sa so averse to the cutting of long hair? How did she try to avoid this injustice?
(iv)    Is the title of the story 'The Rat trap' justified?

**Q.10** Resolution needs complete sacrifice of one's time, wealth and physical stake. In view of this, highlight the role of Rajkumar Shukla as a resolute in the lesson Indigo. 6

**OR**

'we can certainly achieve success in all our endeavours if display courage, perseverance, have strong willpower and determination '.comment on this statement with reference to 'Deep water'.

**Q.11** The story, 'Going places' highlights the asperations of youth along with the pain of disappointments leading to daydreaming. Discuss. 6

**OR**

The story 'Should Wizard Hitraises many issues. What are they?

**Q.12** Compare and contrast Griffin and Kemp. Why did Kemp turn out differently with Griffin? After all, they are both Scientists. Is Kemp less isolated than Griffin? 6

**Q.13** Elucidate the statement. "Griffin is the representation of Science without humanity in the light of his character as portrayed in the novel". 6

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# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                                                                                          **M. M. 70**

Q.1   (i)   Explain in brief the purpose of function prototype with the help of a suitable example.          2

(ii)   Name the header file (S) that shall be needed for successful compilation of the following C++ Code
:                                                                                                            1

```
        void main ( )
{       char str, [20], str1 [20];
        get (str);
        strcpy (str1, str);
        strrev (str);
        puts (str);
        puts (str1);              }
```

(iii)   Following is the program for finding smallest number from 1D array with some logical error,
correct it without changing the logic.                                                                       2

```
        int find (int a [] , int n)
{       int s=a[0];
        For (int x=1;   x<n;     x++)
        If (a [x]>s)
        a[x]=s;
        return (s);

}
```

(iv)   Find output of the following program segment                                                          2

```
        # include < iostream,h>
        # include < ctype.h>
        void mycode (char MSg[], char CH)
{       for (in cnt = 0; MSg [cnt]!= '10'; cnt++)
{       if (MSg [cnt]> = 'B' &&Msg[cnt]<='G')
        MSg [cnt]= tolower (MSg [cnt]);
        else

         if (MSg[cnt]=='N' || MSg[cnt]=='n' || MSg [cnt]== ' ' )

        MSg [cnt]=CH;
        else
        if (cnt % 2 == 0)
        MSg [cnt]=toupper (MSg [cnt]);
        else
        MSg [cnt]=MSg [cnt –1 ];
        }
}
        void main ( )
{       char mytext[] = "Input Raw";
        Mycode (Mytext , '@');
        cout<< "New Text ="<<Mytext<<endl;
        }
```

(v)     Find the output of the following program :                                                      3
        # include <iostream.h>
        void in(int x, int y, int &z)
        {       x+=y;
                y− −;
                z ∗ =(x −y) ;
        }

                void out (int z, int y, int& x)
        {       x ∗ = y;
                y++;
                z/=(x+y);
        }

                void main ( )
        {       int a=20, b=30, c=10;
                out (a,c,b);
                cout <<a<< "#" << b<< "#" << c << "#" << endl;
                in (b,c,a);
                cout <<a<< "#" << b<< "#" << c << "#" << endl;
                out (a,b,c);
                cout <<a<< "$" <<b<<"$" <<c<<"$"<< endl;
        }

(vi)    Write a UDF DIVT () which takes an integer as parameter and returns whether it is divisible by 13
        or not. The function should return 1 if it is divisible by 13, otherwise it should return 0. 2

Q.2    (i)      Explain data hiding with an example.                                                    2
       (ii)     Define a class CONTEST in C++ with the following description :                           4
                Private data member :
                Event no                Integer
                Description             char (30)
                Score                   integer
                Qualified               char
                Public member functions :
                → A construction to assign initial values of EventNo  as 11, Description as "school level score as
                   100, qualified as 'N'.
                → Input ( ) to take input for EventNo, Description and score.
                → Award (int cut_of_ score)→ to assign qualified as 'y' if score is more than the cut of score that
                   is passed as argument to the function else assign qualified as 'N'.
                → Displaydata ( ) →To display all data members.
       (iii)    Answer the questions (a) and (b) after going through the following class.                2
                        class Schoolbag
                {       int pockets;
                        public :
                        Schoolbag ()             ||function1
                {       pockets = 30;
                        cout << "The bag has pockets" << endl;
                }

```
        void company          ||function 2
{       cout << "The company of the bag is ABC";
}
        Schoolbag (int D)     ||function 3
{       pockets = D ;
        cout << Now the bag has pockets "<< pockets << endl:
}
}       ~schoolbag( )          ||function 4
{       cout<<""Thanks";
}
        };
```

(a)    In OOPs, what is function 4 referred as an when does it get invoked / called?

(b)    In OOPs, which concept is illustrated by function 1, and function 3 together?

(iv)   Consider the following class state :                                              4

```
        class state
{       protected :
        int tp; // No of tourist places
        public :
                state ( )
                {       tp = 0;}
                        void inctip ( )
                {       tp ++ ; }
                        int get_tp ( )
                {       return tp; } };
```

Write a code in C++ to publically derive another class 'District' with the following additional member derived in the public visibility mode.

Data members :

        Distname – char (50)

        Population – long

Member functions →

→ dinput ( ) – To enter distname and population

→ doutput ( ) – To display distname and population on the screen.

Q.3    (i)    Write a function in C++ TWOTOONE ( ) which accepts two array X [],y [] and their size n as arguments. Both the arrays X [] and Y [] have the same number of elements. Transfer the content from two arrays X [], Y [] to array Z []. The even places (0,2,4…….) of array Z [] should get the content from the array X [] and odd places (1,3,5……) of array Z []should get the contents from the array Y [].

Example →if the X [] array contains 30,60,90 and Y [] array contains 10,20,50 then Z [] should contain 30,10,60,20,90,50.                                              3

(ii)    Given an array A [10], [12] whose base address is 10000. Calculate the memory location of A [2] [5] if each element occupies 4 bytes and array is stored column wise.                3

(iii)   Define member function delque ( ) perform delete operation on a linked queue where each node has the following structure :                                              4

```
        struct node
{       char name [20];
        int marks;
```

```
                node * link;
        };
                class queue
        {       node * front, * rear;
                public :
                queue ( )
        {       front = rear = NULL; }
                void delque ( );
        };
```

(iv)    Write a function  in C++ which accepts a 2 D array of integers and its size arguments and displays
        the elements which lie on mirror diagonal [Top right to bottom left diagonal ]
        Assuming the 2D array to be square matrix with odd dimension i.e. 3×3, 5×5……                    2
        For example :
        if the 2D array is

                6       7       8
                1       3       6
                7       9       3

         the following should be displayed :
                8
                3
                7

(v)     Evaluate the following postfix expression (show status of stock after each operation)
        100,40,8,/,20,10, − , +,* .                                                                       2

Q.4     (i)     A binary file "games, dat" contains data of 10 games where each game's data is an object of
                the following class.                                                                      1
```
                class game
        {       int gameno;
                char game_ name [20] ;
                public :
                void enterdetails ( )
        {       cin >> gameno; gets (game_home); }
                void enterdetails ( )
        {       cout << gameno << endl << game_name; }
        };
```
                with reference to this information, write the C++ statement in the blank given below to
                move the file pointer to the end of the file.
                ifstream ifile;
                game G:
                ifile. Open ("game.dat", ios : : binary|ios : : in);
                cout<<ifile_tellg( );

        (ii)    Write a function countaroma ( ) to count and display the no. of times "Aroma" occurs in a
                text file "cook.txst" Note, only complete word "Aroma" should be counted. Words like "Aromatic"
                should not be counted.                                                                    2

        (iii)   Given a binary file "SPORTS. DAT" containing records of the following class.              3
```
                class player
        {       char PNo. [10]; //player number.
```

char Name [20]; //Name of player
int rank;// Rank of the player
public :
void Enterdata ( )
{ gets (PNo); gets (Name); cin>>rank;m }
void DisplayData ( )
{       cout <<setw (12) << PNo;
cout<<setw (32)<<Name;
cout<<setw (3)<<rank<<endl; }
int Ret_rank ( ) { return rank:}};
Write a function in C++ that would read contents of the file "SPRTS.DAT" and display the details of those players whose rank is above 500.

Q.5    (i)    Observe the following table and answer the part (a) and (b)                                    2

Table : STORE

| Item Code | Item | Qty. | Rate |
|---|---|---|---|
| 10 | Gel Pen classic | 1150 | 25 |
| 11 | Sharpener | 11500 | 10 |
| 12 | Ball Pen 05 | 1600 | 12 |
| 13 | Eraser | 1600 | 5 |
| 15 | Ball Pen 0.25 | 800 | 20 |

(a) In the above table, can we have Qty as primary key, justify your answer.
(b) What is he cardinality and degree of the above table?

(ii)    Consider the following tables SCHOOL and ADMIN and answer (ii) and (iii) parts of this questions

SCHOOL

| Code | Teacher Name | Subject | DOJ | Periods | Experience |
|---|---|---|---|---|---|
| 1001 | Ravi Shankar | English | 12/03/2000 | 24 | 10 |
| 1009 | Priya Rai | Physics | 03/09/1998 | 26 | 12 |
| 1203 | Lisa Ananad | English | 09/04/2000 | 27 | 5 |
| 1045 | Yashraj | Maths | 24/08/2000 | 24 | 15 |
| 1123 | Ganan | Physics | 16/07/1999 | 28 | 3 |
| 1167 | Harish B | Chemistry | 19/10/1999 | 27 | 5 |
| 1215 | Umesh | Physics | 11/05/1998 | 22 | 16 |

Write solution statements for the following :                                                          4
(a) To display TEACHERNAME, PERIODS. Of all teachers whose periods are more than 25.
(b) To display all the information from the table SCHOOL in descending order of experience.
(c) To display DESIGNATION without duplicate entries from the table ADMIN.
(d) To display TeacherName, Code and corresponding DESIGNATION from tables SCHOOL and ACMIN of Male teachers.

| Code | Gender | Designation |
|---|---|---|
| 1001 | Male | Vice Principal |
| 1009 | Female | COORDINATOR |
| 1203 | Female | COORDINATOR |
| 1045 | Male | HOD |
| 1123 | Male | Senior Teacher |
| 1167 | Male | Senior Teacher |
| 1215 | Male | HOD |

(iii)    Give output of the following Sql queries :                                              2
         (a) SELECT Designation, count (∗) from ADMIN Group by Designation having count
             (∗) <2.
         (b) Select Max (Experience) From School;
         (c) Select Teacher Name from School where experience >12order by Teacher Name;
         (d) Select count(∗), Gender from ADMIN Group by Gender;

Q.6   (i)    State Distributive law and verify it using truth table.                             2
      (ii)   Write the equivalent Boolean expression for the following logic circuit.           2
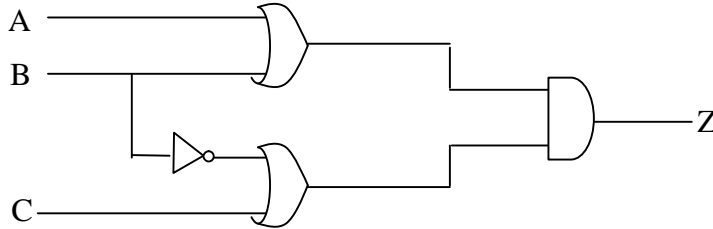


iii)    Convert the following Boolean expression into its equivalent canonical sum of product (SOP) form.
                                                                                                1

         ( U+V+W) (U+V+W′) (U′+V+W) (U′+V′+W′)
(iv)    Deduce the following Boolean expression using k-Map.                                     3
         F (A,B,C,D)=π (0,1,2,4,5,6,7,10)

Q.7   (i)    Write any two differences between twisted pair and coaxial cable.                   2
      (ii)   Define the following : (a) Firewall    (b) VoIP                                     2
      (iii)  Write any two example of server side script.                                       1
      (iv)   What is cloud computing?                                                           1
      (v)    Vidya Senior Secondary Public School is Nainital is setting up the network between its
             different wings. There are 4wings named Senior (S), Junior (J) Admin (A) and Hostel (H).
             Distance between various wings are given below :                        1×4=4

| Wing A to wing S | 100 m |
| Wing A to wing J | 200 m |
| Wing A to wing H | 400 m |
| Wing S to wing J | 300 m |
| Wing S to wing H | 100 m |
| Wing J to wing H | 450 m |

| Wing | No. of Computers |
|------|------------------|
| Wing A | 20 |
| Wing S | 150 |
| Wing J | 50 |
| Wing H | 25 |

(a)    Suggest a suitable Topology for networking the computers of all wings.
(b)    Name the most suitable wing where the server should be installed. Justify your answer.
(c)    Suggest where all should Hub (S) switch (es) be placed in the network.
(d)    Which communication medium would you suggest to connect this school with its main
       branch in Delhi?

*****

Roll No. [          ]  **Code. No.** 12/Business St. (054)/NLCS/65

# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                                                                                           **M.M. 80**

**Question No. 1 to 8 carry One Mark each.**

Q.1 "Is management concerned only with doing the right task, completing activities and achieving goals without talking in to consideration the cost benefit?" Give reason in support of your answer?    1

Q.2 Give the meaning of "organizing as a process"?    1

Q.3 Name the type of organizational structure which promotes flexibility and initiative?    1

Q.4 State the role of "route clerk" in functional foremanship?    1

Q.5 The size of assets, the profitability and competitiveness are affected by one of the financial decisions. Name and state the decision?    1

Q.6 Poorva and Sakshi who are young fashion designers left their job with a famous fashion designers chain to set up a company "Fashinate Pvt Ltd. they decided to run a boutique during the day and coaching classes for entrance examination of National Institute of fashion designing in the evening. For the coaching centre they hiered the first floor of a nearby building. There major expenses was money spent on photocopying of notes for their students. They thought of buying a photocopier knowing fully that their scale of operations was not sufficient to make full use of the photocopier.

In the basement of building of "fachionate Pvt. Ltd. Praveen and Ramesh were caring on a printing and stationary business in the name of "Neo prints Pvt. Ltd. Poorva approached Praveen with the proposal to buy a photocopier jointly which could be used by both of them without making separate Investment, Praveen agreed to this.

Identify the factor affecting fixed capital requirements of fashionate private Ltd.?    1

Q.7 Name of the function of marketing process which concerned with informing the customers about the firms products?    1

Q.8 Aman bought a packet of chips from a local shopkeeper and found that the ingredients given on the label were not legible. He complained about it to the company. The company sent a written Apology starting that they will make sure that existing packets are withdrawn from the market and new packets with legible labels are soon made available?

State the consumer right which Aman exercised?    1

**Question No. 9 to 13 each carry Three Marks.**

Q.9 Explain any three features of "planning"?    3

Q.10 Mr. Raghave Bose is the owner of "Bikmac enterprises" carrying on the business of manufacturing various kinds of biscuits. There was a lot of discontentment in the organization and the targets were not being met.

He asked his son, Naval who has recently completed his MBA, to find out the reason. Naval found that all decision making of the enterprise were in the hands of his father. His father did not believe in his employees. As a results both the employer and the employees were neat able to understand each others message in the same sense. Thus, the Employees were not happy and targets were not met.

(i) Identify any two communication barriers because of which "Bikmac enterprises" was not able to achieve its target.

(ii) State one more barrier each of the types identified in (i) above?    2+1=3

Q.11 Ashish ,the markting head, Arpit, the Assistant manager, Anshika, the HR manager of company. The CEO of company called Anshika and requested her to fill up the vacancies before leaving the organization. Informing, that her subordinate Miss Alka was very competent and trustworthy, Anshika suggested that if she could be moved up in the hierarchy, she would do the needful. The CEO agreed for the same. Miss Alka contacted "Keith recruiters who advertised for the post of marketing head for 'Senar Enterprises Ltd. They were able to recent a suitable candidate for the company.

Arpit's vacancy was filled up by screeing the database of unsolicited applications lying in the office.

(i) Name the saree of Recruitment uses by 'Senar Enterprises Ltd.' to fill up the above stated vacancies.

(ii) Also state any one merit of each of the above identified source of recruitment.    2+1=3

Q.12 Mr. Ajay Vays was the chairman of "Taran Bank" the bank was earning good profits sare holders were happy as the Bank was paying regular dividends. The market price of their shares was also steadily rising. The bank was about to announce the taking over of Vena Bank. Mr. Ajay Vyas knew that the share price of "Taran Bank" would rise on this announcement. Being a part of the Bank, he was not allowed to buy shares of the Bank. He called one of his rich friends Kapil and asked him to invest Rs. 5 crores in shares of his bank promising him the capital gains.

   As expected the share prices went up by 40% and the market price of Kapil's shares was now Rs. 7 crores. He earned a profit of Rs. 2 crores. He gave Rs. 1 crore to Ajay and kept inspection and by conduction enquires of the brokers involved, SEBI was able to detect this irregularity. The SEBI imposed a heavy penalty on Mr. Ajay.

   By quoting lines form above para identify and state any two function that were performs by SEBI in the above case? 3

**Question No. 14 to 19 each carry Four Marks.**

Q.13 State any three functions performed by non Govt. organization for consumer protection? 3

Q.14 Explain any Four points of importance of management? 1×4=4

Q.15 A recent rate cute in the interest on loans announced by the Banks encouraged Manish, a Science students of progressive school to take a loan from SBI to experiment and develop cars to be powered by fuels produced from garbage. He developed such a car and exhibited it in the Science fair organized by Directorate of education. He was awarded first prize for this invention.

   Identify and explain the dimensions of business environment discussed in the above case? 4

Q.16 "Steelo Ltd" decided to set-up its steel manufacturing factory in the backward area of Orissa where very less job opportunities were available people of that area welcomed this effort of "Steelo Ltd." To attract people to work in its factory it also decided to proved many other facilities like school, hospital, market etc., in the factory premises. Steelo Ltd. started earning huge profits another competing company asked its production manager Aslam to Investigate the reasons of earning huge profits by Steelo Ltd.

   Aslam found that in both the companies there was systematic co-ordination among the various activities to achieve organizational goal. Every employee knew who was responsible and accountable to whom. The only difference was that in his organization communication took place only through the scalar chin, where as "Steelo Ltd." was allowing flow of communication in all the directions as per the requirement which lead to faster spread of information as well as quick feedback.

   (i) Identify the type of organization which permits "Steelo Ltd." the flow of communication in all the direction?

   (ii) State another advantage of the type of organization Identified in (i) above.

   (iii) State any two values which "Steelo Ltd." wanted to communicate to the society. 1+1+2=4

Q.17 "Alfia Ltd." was dealing in Renewable energy. To get the business, the team leader and his team used to travel to different states to give presentation to their clients. As per the policy of the company, the leader used to travel by air, where as his team travelled by road / train. It was not only time consuming but also at time forced the female team members to travel alone.

   As a result, the subordinates were not acting in a desired manner to achieve organizational goals. The CEO of the company came to know about it. He called the team leader, discussed the matter with him and decided to change the travel policy of the company. It was decides that all the members including the leader would travel together in future and would usefully utilize the travelling time in discussion with the subordinates about presentation to be given to the clients. This made a positive impact and every member of the team started acting in a manner as desired by the team leader.

   State the features of the element of the function of management used by CEO? 1×4=4

Q.18 A company was marketing "water purifiers" which were very popular due to their quality and after sales services provided to the customers. The company was leading company in the market and earning huge profit. Because of huge profits the company ignored the after sales services. As a result its relation with the public / customers got spoiled and the image of the company was damaged in the public. Top management became concerned when the profit for the current quarter fell steeply on analysis is was revealed that ignoring the after sales services was its reason. Therefore the company tool all possible measures to protect

and promote its favourable image in the eyes of the public. As a result the goodwill of the company improved in public.

(i)     Name an explain the communication tool used by the marketer in the above case to improve its image.

(ii)    Also explain role of the tool as identified in part (i).                                    2+2=4

Q.19    State any Four functions of secondary market?                                            1×4=4

**Question No. 20 to 22 each carry Five Marks.**

Q.20    Two years ago Komal complete her degree in food technology. She worked for some time in a company manufacturing chutneys, pickles and murabbas. She was not happy in the company and decided to have her own organic food processing unit for the same. She setthe objectives and the targets and formulated action plan to achieve the same.

One of her objective was to earn 10% profit on the amount invested in the first year. It was decided that row materials like Fruits, vegetables, spices etc. will be purchased on three months credit from farmers cultivating organic crops only. She also decided to follow the steps required for marketing of the products through her own outlets. She appointed Mayank as a production manager who decided the exact manner in which the production activities are to carried out. Mohan as a production manager who decided to exact manner in which the production activities are to carried out. Mohan also prepared a statement showing the numbers of workers that will be required in the factory through out the year. Komal informed Mayank about her sales target for different products, area wise for the forthcoming quarter. While working on the production table a penalty of Rs. 100 per day for not wearing the caps, gloves and apron was announced.

Quoting lines from the above para identify and explain the different types of plans discussed. 1×5=5

Q.21    Mudit is working in a MNC in Gurgaon. He was running temperature for the last many days when his blood was tasted, he was found positive for dengue with a very low platelets count. Therefore, he was admitted in the hospital and a blood transfusion was advised by the doctors one of his colleagues sent a text message about itto his immediate superior "Mr. Hemant. Mr. Hemant, in turn sent a text message to the employees of the organization requesting them to donate blood for Mudit. When the General Manager came to know about it, he ordered for fumigation in the company premises and cleanliness of the surroundings.

(i)     From the above para quote lines that indicate formal and informal communication.

(ii)    State any two features of informal communicate.

(iii)   Identify any two values that are being communicated to the soc iety in the above case?

1+2+2=5

Q.22    Explain any five points which highlight the importance of controlling function of management.

1×5=5

**Question No. 23 to 25 each carry Six Marks.**

Q.23    One of the principles of F.W.Taylor aims at eliminating the class conflict existing between the management and the workers.

(i)     Identify the principle in above and explain.

(ii)    Also state two values associated with this principle.

(iii)   And also explain any two principle which provide strength to the point (i).          2+2+2=6

Q.24    "Use of debt, during a bearish phase, it may easy to raise funds" do you agree, give reason and explain in detail?                                                   1+5=6

Q.25    Hardika purchased a bottle of tamato sauce from the local grocery shop. The information provided on the bottle was not clear. She fell sick on consuming it. She file a case in the consumer court and got relief.

(i)     Identify the important aspect neglected y the market in above case.

(ii)    Explain briefly the functions of the aspects identified in (i) above.                   1+5=6

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**Roll No.** [   ]  Code. No. 12/Physics(042)/NLCS/30

# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**  **M. M. 70**

General Instructions

1. All questions are compulsory. There are 26 questions in all.
2. This question paper has five sections: Section A, Section B, Section C, Section D and
3. Section E.
4. Section A contains five questions of one mark each, Section B contains five questions of two marks each, Section C contains twelve questions of three marks each, Section
5. D contains one value based question of four marks and Section E contains three questions of five marks each.
6. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all the three questions of five marks weight age. You have to attempt only one of the choices in such questions.
7. You may use the following physical constant wherever necessary:
8. C=3×10$^8$ m/s, h=6.6×10$^{-34}$ Js, e=1.6×10$^{-19}$c, μ$_0$=4Π×10$^{-7}$ TM/A, Boltzmann's constant=1.38×10$^{-23}$,
9. Avogadro's number=6.023×10$^{23}$ Mass of neutron m$_n$=1.6x10$^{-27}$kg.

## Section – A (Question 1 to 5 carrying **One Mark** each)

Q.1 A wire of resistance 4R is bent to form a circle. What will be the equivalent resistance across diameter PQ.
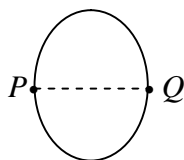


Q.2 A small circular disc is placed in the path of light from a distant source. Will the centre of shadow be bright or dark. Give reason?

Q.3 Half life of a radioactive substance is 20 days. What percentage of a sample will decay in 10 days 25%, less than 25% or more than 25%?

Q.4 In what medium should two charges be placed so that force between them may become $\frac{1}{3}^{rd}$ of that in vaccum?

Q.5 Show on a graph the variation of the de Broglie wave length ($\lambda$) associated with an electron with the square root of accelerating potential ($v$).

## Section – B (Question 6 to 10 carrying **Two Marks** each)

Q.6 Two point charges 10 $\mu$c and 40 $\mu$c are placed 6cm.apart in vaccum. At what distance from 10 $\mu$c charge. Will the net electric field is zero.

OR

Two capacitors of capacitance 6 $\mu$F and 12 $\mu$F are connected in series with a battery. The voltage across the 6 $\mu$F capacitor is 2$V$ Compute the total battery voltage?

Q.7 Calculate the magnetic field strength at the centre of a flat circular coil having 500 turns of radius 50 cm. each and carrying a current of 2A?

Q.8 In young's double slit experiment, the two slits are having width ratio 4:9. Calculate the ratio of $I_{max.}$ to $I_{min.}$ in interference pattern?

Q.9 (i) Draw the block diagram of a communication system?
(ii) What is meant by "detection" of modulated carrier wave? Describe briefly the essential steps for detection?

Q.10 The value of ground state energy of hydrogen atom is −13.6ev.
(i) What does the negative sign signify?
(ii) How much energy is required to take an electron in this atom from the ground state to the first excited state?

## Section – C (Question 11 to 22 carrying **three marks** each)

**Q.11** Figure shows a small magnetized needle 'p' placed at a point "O". The arrow shows the direction of its magnetic moment. The other arrow show different positions of another identical magnetized needle Q.

(i) In which configuration is the system in
(a) stable     (b) Unstable equilibrium

(ii) Which configuration corresponds to the lowest potential energy among all the configuration shown?
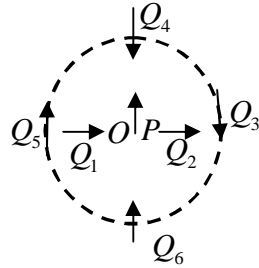


**Q.12** Draw the graphs showing the variations of photoelectric current with anode potential of a photocell for (i) the same frequencies but different intensities $I_1 > I_2 > I_3$ of incident radiation, (ii) the same intensity but different frequencies $v_1 > v_2 > v_3$ of incident radiation.

Explain why the saturation current is independent of anode potential.

**Q.13** (i) In the circuit shown here, what will happen to the brightness of the lamp when a solid iron rod is inserted in the air-cored coil C connected in the circuit.
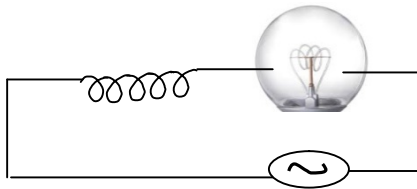


(ii) An attenuating voltage of frequency $w$ is applied across a series LCR circuit. Let $w_r$ be the resonance frequency for the circuit. Will the current in the circuit lag, lead or remain in phase with the applied voltage when (a) $w > w_r$ (b) $w < w_r$ ? Explain your answer in each case?

**Q.14** A beam of light converges at a point P. A concave lens of focal length 16cm. is placed in the path of this beam 12cm. is placed in the path of this beam from P. Draw a ray diagram and find the location of the point at which the beam now converge.

**Q.15** Define the term resistivity of a conductor. Give its SI unit. Show that resistance R of a conductor is given by $\dfrac{ml}{ne^2 eA}$, where symbols have their usual meaning.

**Q.16** A wire frame of size 5mm×2mm is placed at a distance of 8cm from a convex lens of focal length 10cm held close to the eye.

(i) How big will the frame appear to be?

(ii) What is the angular magnification produced by the lens?

**Q.17** Draw a plot of potential energy of a pair of nucleons as a function of the their separations. Mark the regions where the nuclear force is (i) attractive and (ii) repulsive. Write any two characteristic features of nuclear forces.

**Q.18** Two identical circular coils each of radius 10 un are arranged concentrically with their plane perpendicular to one another as shown in the figure. If current in each coil is 10A, what is net magnetic field at the common centre O.
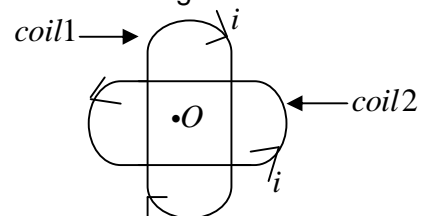
Q.19   What is LOS communication and what is its limitation? Name the waves used for it.
Q.20   (i)      Write down following in decreasing order of their wave lengths:
                  r-rays, x-rays, microwaves, u-v rays.
        (ii)     Electromagnetic radiations with wave length :
                  (a) $\lambda_1$ are used to kill germs in water purifiers
                  (b) $\lambda_2$ are used in TV communication systems,
                  (c) $\lambda_3$ play an important role in maintaining the earth's warmth.
                  Name the part of electromagnetic spectrum to which these radiations belong. Arrange these
                  wavelength in decreasing order of their magnitude.
Q.21   (i)      Name the type of biasing of a p-n junction diode so that the
                  junction offers very high resistance.
        (ii)     Why input characteristics for various values of $V_{CE}$ in common emitter configuration of n-p-n
                  transistor gives almost identical curves?
Q.22   A silver wire has a resistance of $2.1\Omega$ at $27.5°C$ and resistance of $2.7\Omega$ at $100°C$. Determine the
        temperature coefficient of resistivity of silver?

## Section – D (Question 23 value based question carrying **Four Marks** only)

**Q.23   Narayan was doing social work during vacation. He visited a village where there was no electricity.
        He decided to help the villagers in purchasing solar panels. For this he Awarded them about the
        technology and advantages. Villagers applied for solar panels and got them from Government at
        nominal charges.**
        **(i)      What type of a person is Narayan?**
        **(ii)     What is the principle of solar cells? How does it work?**

## Section – E (Question 24 to 26 carrying **Five Marks** each)

Q.24   You are given two convex lenses of short aperture having focal length 4cm and 8cm respectively. Which
        one of these will you use as an objective and which one as an eyepiece for constructing a compound
        microscope? Draw a ray diagram to show the formation of the image of a small object due to a compound
        microscope. Derive an expression for its magnifying power.
                                              **OR**
        Derive lens maker formula by considering convex lens. For a converging lens $R_1=R_2=24cm$. and refractive
        index 1.6 (i) calculate its focal length in air and (ii) if the lens is split vertically into two identical parts, what
        is the focal length of each part?
Q.25   Derive an expression for magnitude of electric field intensity at any
        point along the equatorial line of a short electric dipole. Give the direction of electric field intensity at that
        point. For a short dipole what is the ratio of electric field intensities at two equidistance point from the
        centre of dipole? One along the axial line and another on equatorial line?
                                              **OR**
        (a) State Gauss theorem. To find electric field intensity due to two plane sheet of surface charge densities
             $+\sigma$ and $-2\sigma$ (i) on left side of $+\sigma$ (ii) on right side of $-2\sigma$ (iii) Between $+\sigma$ & $-2\sigma$
        (b) If the electric field between the plates is $2.25\times10^4$ N/C and an oil drop having 12 excess electrons is
             held stationary between the plates, estimate the radius of the drop. (Density of oil=$1.26gm/cm.^3$)
Q.26   (i)      A rod of length $\ell$ is put in a uniform magnetic field which is
                  vertically inward. One end of rod is fixed and other end is free to rotate and put on circumference of
                  radius $\ell$ describe by circle path of rod. Find emf induced by the circular path travelled by the rod.
        (ii)     The find out mutual inductance of two concentric coil of radius $r_1$ and $r_2$ in such a way that $r_2>>r_1$.
                                              **OR**
        (i)      To find out electric field intensity due to long straight current carrying conductor without using
                  gauss law?
        (ii)     Derive coulomb law with the help of Gauss law?
                                              *****

# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                                                                                       **M. M. 80**

## Part - A

Q.1     What share of profits would a sleeping partner who has contributed 70% of the total capital get in the absence of a deed.                                                                                              1

Q.2     Anna and Bobby were partner sharing profits and losses in the Ratio of 5 : 3 on 1 April 14 their capital account showed balances of Rs. 3,00,000 and 2,00,000 respectively, Calculate the amount of profit to be distributed between the partners if the partnership deed provides for Interest on capital 10% p.a. and the firm earned of 45,000 for the year ended 31 March 15.                                                                  1

Q.3     XYZ are partners sharing profits and losses in the ratio of 4 : 3 : 2. Y dies and surrenders $\frac{1}{9}$ of his share in favour of X and the remaining in favour of Z. Calculate new profit sharing ratio.                          1

Q.4     List any two grounds on which a court may dissolve a firm.                                                  1

Q.5     State the provision of the company Act 2013 for the creation of Debenture Redemption Reserve.       1

Q.6     Distinguish between shares and Debentures on the basis of convertibility.                                  1

Q.7     Suvidha Ltd. is registered with at authorizes capital of ì 10,00,00,000 divided into 10,00,000 equity share or Rs. 100 each the company issued 1,00,000 shares for public subscription. A share holder holding 100 shares failed to pay the final call of Rs. 20 per share. His shares were forfeited. The forfeited shares were re issued at ì 90 per share as fully paid. Present the share Capital in the Balance Sheet as per schedule VI.   3

Q.8     R Ltd. purchased machine ì 178000 from P Ltd. and paid to P Ltd. as follow :                         3
   (i)      By issuing 200 10% debenture of ì 100 each at a discount 10%.
   (ii)     by Issuing shares of ì 10 each at a premium of 10%.
   (iii)    Balance by accepting a bill of exchange of ì 50,000 payable after one months.
           Pass necessary journal entries in the books of R Ltd. for the purchase of machinery.

Q.9     Ashok Babu and Chetan were Partners in a firm sharing profits in the ratio of 4: 3 : 3. The firm closes its books on 31 March every year on 31st Dec. 2016 Ashok died. The partnership deed provided that on the death of a partner his executors will be entitled for the followings :                                            3
   (i)      Balance in his capital Accounts on 1-4-2016 there was a balance of ì 90,000 in Ashok's capital A/c.
   (ii)     Interest on capital @ 12% p.a.
   (iii)    His shares in the profits of the firm in the year of his death
           will be calculated on the basis of rate of net profit on sale of the previous year. Which was 25%. The sales of the firm till 31 Dec. 2016 were 4.00,000.
   (iv)     His share in the goodwill of the firm the goodwill of the firm on Ashoks death was valued at 4,50,000. The partnership deed also provided for the following deductions from the amount payable to the executor of the deceased partner.
   (v)      His drawing in the year of his death. Ashoks drowing till 31th December 2016 were 15,000.
   (vi)     Interest on drawing 12% per annum which was calculated as ì 1500.The accountant of the firm prepared Ashok's capital account to be presented to the executor of Ashok but in a hurry he left complete . Ashok's capital A/c as prepared by the firms accountant is given below :

### Ashok's Account

Dr                                                                                                                    on

| Date | Particulars | Amount | Date | Particular | Amount |
|------|-------------|--------|------|------------|--------|
| 2016 |             |        | 2016 |            |        |
| Dec. 31 | -------- | 15000 | Apl | -------- | 90,000 |
| Dec. 31 | -------- | -------- | 31 Dec. | -------- | 8,100 |
| Dec. 31 | -------- | -------- | -------- | -------- | 40,000 |
|         | -------- | -------- | -------- | -------- | 90,000 |
|         | -------- | -------- | -------- | -------- | 90,000 |
|         |          | 3,18,100 |        |            | 3,18,100 |

You are required to complete Ashok's capital A/c.

Q.10   Pass necessary Journal entries in the following cases :                                                          3
   (i)      Moon Ltd. converted 1000 9% Debentures of ì 100 each issued at a discount of 10% in to equity
            shares of ì 100 each issued at a Premium of 25%.
   (ii)     Reliance Ltd has ì 5,00,000 10% debentures of 100 each outstanding on 31 March 2016. On this
            date company decided to purchases ì 60,000 worth debentures at ì 96 in the open market for
            immediate cancellation pass necessary journal Entries.

Q.11   Singh & Gupta decides to start a Partnership firm to Manu facture low cost jute bags as plastic bags were
       creating many environmental problems. They contributed capital of ì 1,00,000 and ì 50,000 on 1 April 2012
       for this. Singh expressed his willingness to admit Shakti as a partner without capital. Who is specially abled
       but a very creative and intelligent friend of his Gupta agreed to this. The term of partnership were as
       follows :                                                                                                         4
   (i)      Singh, Gupta and Shakti will share profits in the ratio of 2 : 2 : 1.
   (ii)     Interest on capital will be provided @ 6% p.a.
            Due to shortage of capital. Singh contributed ì 25,000 on 30 Sept. 2012 and Gupta contributed ì
            10,000 on 1 January 2013 as additional capital. The profits of the firm for the year ended 31 March
            2013 was ì 1,68,900.
            (a) Indentify any two values which the  firm wants to communicate to the society.
            (b) Prepare profit & loss Appropriation for the year ending 31 March 2013.
Q.12   A, B & C were partners in a firm sharing profits & loses in the ratio of 3 : 2 : 1 on 31 March 2017 their
       Balance Sheet was as follow :                                                                                     4

### Balance Sheet

| Cap. A 50,000 | | Fixed Assets | 1,80,000 |
|---|---|---|---|
| B 40,000 | | Current | |
| C 30,000 | 1,20,000 | Assets | 35,000 |
| Reserve fund | 18,000 | | |
| Creditors | 27,000 | | |
| Employees Provident Fund | 50,000 | | |
| | 2,15,000 | | 2,15,000 |

From April 1,2017 they divided to share future profits equally, for this  followings were-
1.  Goodwill  of the firm was valued at Rs. 30000
2.  Fixed Assets will be depreciated by 10%
3.  Capitals of the partners will be in proportion to their new profit sharing ratio. For this purpose currents
    accounts will be opened pass necessary Journal entries for the above transactions in the books of the
    firm.
Q.13   On 1 April 2015 X Ltd. issued 15000 9% debentures of Rs. 100 each at a discount of 7% redeemable at a
       premium of 10% after 10 year the company closes its books on 31 March every year. Interest on 9%
       debenture is payable on 30 September and 31 March every year.
       The rate of tax deducted at source is 10% pass necessary journal entries for the issue of 9% debentures and
       debenture interest for the year ended 31 March 2016.                                                              6
Q.14   Hanif and Jubed were partners in a firm sharing profits in the ratio of their capitals :-                         6

### Balance Sheet
### As on March 2013

| Creditor | 150000 | Bank | 200000 |
|---|---|---|---|
| Workmen compensation | 300000 | debtor | 340000 |
| fund | | stock | 150000 |
| General reserve | 75000 | furniture | 460000 |
| Hanif's current A/C | 25000 | Machinery | 820000 |
| Capital | | Jubed's current | |
| Hanif | 1000000 | A/C | 80000 |
| Jubed | 500000 | | |
| | 2050000 | | 2050000 |

 On the above date the firm was dissolved.

1. Debtors were realized at a discount of 5%, 50% of the stock was taken over by Hanif at 10% less than the book value. Remaining stock was sold for Rs. 65000.
2. Furniture was taken over by Jubed for Rs. 135000. Machinery was sold as scrap for 74000.
3. Creditors were paid in full.
4. Expenses on realization 8000 were paid by Hanif.
   Prepare realization account & partner's capital a/c.

Q.15 A, B and D are partners in a firm, on 1 April 2011 the balance of their capital account stood 800000, 600000 and 400000 respectively they shared profit in the proportion of 5:3:2 respectively. Partners are entitled to interest on capital 5% p.a. and salary to B 3000 per month and commission of Rs. 12000 to D as per the provision of the partnership deed.

A's share of profit excluding interest on capital is guaranteed at not less than 25000 P.a. B Share of profit including interest on capital but excluding salary is guaranteed at not less than 55000 p.a. any deficiency arising on that account shall be met by D. The profit of the firm for the year ended 31 march 2012 amounted to 216000. Prepare P&L appropriation for the year ended 31 March 2012.                    6

Q.16 C and D are partners in a firm Sharing profits in the ratio of 4: 1

Balance Sheet

| | | | |
|---|---|---|---|
| Creditors | 40,000 | Cash | 24,000 |
| P.BD | 4,000 | Debtors | 36,000 |
| Outstanding Salary | 6,000 | Stock | 40,000 |
| General Reserve | 10,000 | Furniture | 80,000 |
| Cap C | 1,20,000 | Machine | 80,000 |
| D | 80,000 | | |
| | 2,60,000 | | 2,60,000 |

On the above date E was admitted for ¼ share in the profits on the following terms.                    8
1. E will bring Rs. 100000 as his capital and 20000 for his share of goodwill premium half of which will be withdrawn by C & D.
2. Debtors 2000 will be written off as bad debts and a provision of 4% will be created on debtors for bad and doubtful debts.
3. Stock will be reduced by 2000 furniture will be depreciated by 4000 and 10% depreciation will be charged on plants & machinery.
4. Investments of 7000 not Shown in the balance Sheet will be taken in to accounts.
5. There was an outstanding repairs bill of 2300 which will be recorded in the books.
6. By Bringing in or with drawing cash the capitals of C and D are to be made proportionate to that of E on their profit sharing ratio prepare revaluation A/C partners capital A/C & Balance Sheet

OR

ABC were partners in a firm Sharing profit in the ratio of 4:3:2.

Balance Sheet
As on 1-04-14

| | | | |
|---|---|---|---|
| Creditors | 41,400 | Cash | 33,000 |
| Capital | | Debtors 30,450 | |
| A | 1,20,000 | −PDD       1050 | 29,400 |
| B | 90,000 | Stock | 48,000 |
| C | 60,000 | Plant | 51,000 |
| General | | Land & Building | 1,50,000 |
| Reserve | 9,000 | Advertise | |
| | | Suspense | 9,000 |
| | 3,20,400 | | 3,20,400 |

B had been suffering from ill health and thus gave notice of retirement from the firm an agreement was therefore, entered into as on 1-4-14 the terms of which were as follow :
(i)     That Land and building be appreciated by 10%.
(ii)    The provision for bad debts is no longer necessary.

(iii) That stock be appreciated by 20%.
(iv) That goodwill of the firm ì 54,000.
(v) The entire capital of the newly firm be readjusted by bringing or paying necessary cash. So that the future capital of A and C will be in their profit sharing ratio 2 : 1 Prepare revaluation A/c Partners capital A/c and Balance Sheet.

Q.17 S.K. Ltd. invited applications for issuing 3,20,000 equity shares of ì 10 each at a premium of ì 5 per share.
8
(i) On application 3 Rs. per share (including premium ì 1)
(ii) On allotment ì 5 per share (including premium 2)
(iii) On first and final call balance. Application for 4,00,000 shares were received. Application for 40,000 shares were rejected and application money refunded. Share were allotted on pro-rata basis to the remaining applicant Jeevan holding 800 share failed to pay the allotment money and his share were immediately forfeited. Afterwards final call was made. Ganesh who had applied for 2700 share failed to pay the final call. His shares were also forfeited out of the forfeited shares 1,500 share were re-issued at 8 per share fully paid up. The re-issued shares included all the forfeited shares of Jeevan. Pass necessary journal entries for the above transactions.

OR

J.J.K. Ltd. invited application for issued 50,000 equity shares of ì 10 each, on application ì 2, on allotment ì 4
On first and final call-balance amount. The issue was over sub scribes three times. Applications for 30% share were rejected.

| Category | No. of share Applied | No. of shares Allotted |
|---|---|---|
| I | 80,000 | 40,000 |
| II | 25,000 | 10,000 |

Excess money paid by the applicants who were allotted shares was adjusted towards the sums due on allotment.
Deepak a share holder belonging to category I who had applied for 1,000 shares failed to pay the allotment money. Raju a share holder holding 100 share also failed to pay the allotment money. Raju belonged to category II. Share of both were forfeited immediately after allotment. Afterwards first and final call was made and was duly received. The forfeited shares were reissued at ì 11 per share fully paid up.
Pass necessary journal entries for the above transactions in the books of the company.

# Part - B

Q.18 State any two objectives of preparing 'cash flow statement.                                                1
Q.19 State whether the following will increase decrease or have no effect on cash flow from operating activities while preparing cash flow statement.                                                1
(i) Decrease in outstanding employees benefits expenses by 3,000.
(ii) Increase in prepared insurance by 2,000.
Q.20 Under which major headings and subheading will the following items be shown in the Balance Sheet of a company as per schedule III of the company Act 2013.                                                4
(i) Capital Redemption Reserve   (ii) Bonds     (iii) Trade Marks        (iv)    Unpaid Dividend
(v) Long Term Loan              (vi) Raw Materials            (vii) Stores and spares (viii) Loose Tools
Q.21 State the objectives of Analysis of financial statements.                                                4
Q.22 (I) The quick ratio of a company is 1.5 : 1. State with reason which of the following transactions would
(i) increase (ii) decrease or (iii) not change the ratio
(a) Paid rent 3,000 in Advance
(b) Trade receivable included a debtor Ashok who paid his entire amount due 9,700.
(II) From the following information compute 'proprietory Ratio'.
Long term Boaro wings        2,00,000
Long term Provisions        1,00,000
Current Liabilities            50,000
Non-current Assents        3,60,000
Current Assets                90,000                                                4

**Q.23** From the following Balance Sheet of ABC Ltd. and the additional information as on 31.3.16 prepare cash flow statement. 6

| I Equity & Liabilities | Note No. | 31.3.16 | 31.3.15 |
|---|---|---|---|
| 1. Share holder's fund | | | |
| (a) Share capital | | 4,50,000 | 3,50,000 |
| (b) Reserves & surplus | 1 | 1,25,000 | 50,000 |
| 2. Non-Current Liabilities | 2 | | |
| Long term Borrowings | | 2,25,000 | 1,75,000 |
| 3. Current Liabilities | | | |
| (a) Short term Borrowing | 3 | 75,000 | 37,500 |
| (b) Short term Provision | 4 | 1,00,000 | 62,500 |
| | | 9,75,000 | 6,75,000 |
| II Assets | | | |
| 1. Non current Assets | | | |
| (a) (i) Tangible | 5 | 7,32,500 | 4,52,500 |
| (ii) Intangible | 6 | 50,000 | 75,000 |
| (b) Non current Investment | | 75000 | 50000 |
| 2. Current Assets | | 20,000 | 35,000 |
| (a) Current Investment | | 61,000 | 36,000 |
| (b) Inventories | | 36,500 | 26,500 |
| Cash & Cash equivalents | | | |
| | | 9,75,000 | 9,75,000 |

Notes to Accounts :

| Note No. | | 31.3.16 | 31.3.15 |
|---|---|---|---|
| 1 | Reserve and surplus | | |
| | Surplus | 1,25,000 | 50,000 |
| 2 | Long term Borrowing | | |
| | 12% Debentures | 2,25,000 | 1,75,000 |
| 3 | Short term Borrowing | | |
| | Bank overdraft | 75,000 | 37,500 |
| 4 | Short Term Provision | | |
| | Proposed Dividend | 1,00,000 | 62,500 |
| 5 | Tangible Assets | | |
| | Machinery | 8,37,500 | 5,22,500 |
| | Accumulated Depreciation | (1,05,000) | (70,000) |
| | | 7,32,500 | 4,52,500 |
| 6 | Intangible Assets Goodwill | 50,000 | 75,000 |

Additional Information :

(i) ì 50,000 12% Debentures were issued on 31.3.16.

(ii) During the year a piece of Machine costing 40,000 on which accumulated deprecation was 20,000 was sold at loss of 5,000.

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# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                            **M. M. 100**

**GENERAL INSTRUCTIONS:**

**(i)**       All Questions are compulsory.
**(ii)**     This Questions paper consists of 29 questions divided into Four Sections A, B, C & D.
**(iii)**    Question **1 – 4** in **Section A** are very short – answer type Questions carrying 1 Mark each.
**(iv)**    Question **5 – 12** in **Section B** are short – answer type Questions carrying 2 Marks each.
**(v)**     Question **13 – 23** in **Section C** are long – answer – I type Questions carrying 4 Marks each.
**(vi)**    Question **24 – 29** in **Section D** are long – answer – II type Questions carrying 6 Marks each.

## Section - A

**Q.1** If $\begin{bmatrix} y+2x & 5 \\ -x & 3 \end{bmatrix} = \begin{bmatrix} 7 & 5 \\ -2 & 3 \end{bmatrix}$, find the value of $y$.

**Q.2** Evaluate : $\int \dfrac{\cos ec^2 x}{\sec^2 x} dx$.

**Q.3** Write the degree of differential equation $\left(\dfrac{dy}{dx}\right)^4 + 3x\dfrac{d^2 y}{dx^2} = 0$.

**Q.4** Write the direction ratio of normal to the plane $3x - 2y + 4z - 11 = 0$.

## Section - B

**Q.5** An operation $*$ on $Z^+$ is defined as a $*$ b = a – b. Is the operation $*$ a binary operation? Justify your answer.

**Q.6** Without expanding the determinant show that : $A = \begin{vmatrix} \cos ec^2\theta & \cot^2\theta & 1 \\ \cot^2\theta & \cos ec^2\theta - 1 & 1 \\ 42 & 40 & 2 \end{vmatrix} = 0$.

**Q.7** If $y = \tan^{-1}\left(\dfrac{\cos x - \sin x}{\cos x + \sin x}\right)$ then find $\dfrac{dy}{dx}$.

**Q.8** Form the differential equation of the family of circles touching the $y - axis$ at the origin.

**Q.9** If $\vec{a} = \hat{i} - 2\hat{j} + 3\hat{k}, \vec{b} = 2\hat{i} + 3\hat{j} - 5\hat{k}$, then evaluate $\vec{a} \times \vec{b}$. Verify that $\vec{a}$ and $\vec{a} \times \vec{b}$ are mutually perpendicular.

**Q.10** Find the volume of a parallelopiped whose adjacent edges are given by vectors $\vec{a} = 2\hat{i} - 3\hat{j} + \hat{k}$, $\vec{b} = \hat{i} - \hat{j} + 2\hat{k}$ and $\vec{c} = 2\hat{i} + \hat{j} - \hat{k}$.

**Q.11** Find the angle between the line $\dfrac{x+1}{2} = \dfrac{3y+5}{9} = \dfrac{3-z}{-6}$ and the plane $10x + 2y - 11z + 3 = 0$.

**Q.12** A balloon which always remains spherical has a variable diameter $\dfrac{3}{2}(2x+1)$. Find the rate of change of its volume with respect to $x$.

## Section - C

**Q.13** Show that the function $f : R \to R$ defined by $f(x) = \dfrac{x}{x^2 + 1}$ for all $x \in R$ is neither one-one nor onto.

**Q.14** Show that : $\tan\left[\dfrac{1}{2}\sin^{-1}\dfrac{3}{4}\right] = \dfrac{4 - \sqrt{7}}{3}$.

**Q.15** Using properties of determinants, prove that : $\begin{vmatrix} a^2 & bc & c^2 + ac \\ a^2 + ab & b^2 & ca \\ ab & b^2 + bc & c^2 \end{vmatrix} = 4a^2 b^2 c^2$.

Q.16 Find the value of $k$, for with the function : $f(x) = \begin{cases} \dfrac{\sqrt{1+kx}-\sqrt{1-kx}}{x} & if \ -1 \le x < 0 \\ \dfrac{2x+1}{2x-1} & if \ \ 0 \le x < 1 \end{cases}$ is continuous at $x = 0$.

Q.17 If $y = \dfrac{\sin^{-1} x}{\sqrt{1-x^2}}$, show that $(1-x^2) y_2 - 3xy_1 - y = 0$. **OR**

If $y = \tan^{-1}\left[\dfrac{5ax}{a^2 - 6x^2}\right]$, prove that $\dfrac{dy}{dx} = \dfrac{3a}{a^2 + 9x^2} + \dfrac{2a}{a^2 + 4x^2}$.

Q.18 Evaluate : $\displaystyle\int_0^{\pi} \dfrac{x \tan x \, dx}{\sec x + \tan x}$.

Q.19 Evaluate : $\displaystyle\int \dfrac{\sin(x-a)}{\sin(x+a)} dx$. **OR** Evaluate : $\displaystyle\int \dfrac{x+2}{\sqrt{(x-2)(x-3)}} dx$.

Q.20 Evaluate : $\displaystyle\int \dfrac{e^x (\sin 4x - 4)}{(1 - \cos 4x)} dx$.

Q.21 Solve the differential equation $\dfrac{dy}{dx} = \dfrac{y^2}{xy - x^2}$.

Q.22 If the vertices of $\triangle$ ABC are having co-ordinates as A(1,2,3) B $(-1,0,0)$ C (0,1,2). Then find the magnitude of $\angle$ ABC using vectors. Also find the area of $\triangle$ ABC.

**OR**

Find a vector of magnitude 6 units, perpendicular to each of the vectors $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$, where $a = \hat{i} + \hat{j} + \hat{k}$ and $\vec{b} = \hat{i} + 2\hat{j} + 3\hat{k}$.

Q.23 Find the equation of a line passing through the point $(1, 2, -4)$ and perpendicular to the lines $\vec{r} = (i + j + k) + \lambda(3i - 16j + 7k)$ and $\vec{r} = (2i - j + 3k) + \mu(3i + 8j - 5k)$.

**Section - D**

Q.24 Using matrix method solve the system of equations $2x - 3y + 5z = 16, 3x + 2y - 4z = -4$ and $x + y - 2z = -3$.

**OR**

Using elementary operations find the inverse of matrix : $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$.

Q.25 Show that the semi-vertical angle of the cone of the maximum volume and of given slant height is $\cos^{-1}\left(\dfrac{1}{\sqrt{3}}\right)$.

Q.26 Using integration find the area of the circle $x^2 + y^2 = 16$ exterior to the parabola $y^2 = 6x$.

Q.27 Find the distance of the point $(-2, 3, -4)$ from the line $\dfrac{x+2}{3} = \dfrac{2y+3}{4} = \dfrac{3z+4}{3}$ measured parallel to the plane $4x + 12y - 3z + 1 = 0$.

**OR**

Find the co-ordinates of the foot of perpendicular and the perpendicular distance of the point $P(3, 2, 1)$ from the plane $2x - y + z + 1 = 0$. Also find the image of the point in the plane.

Q.28 Maximize $Z = 8x + 9y$, subject to the constraints given as $2x + 3y \le 6$; $3x - 2y \le 6$; $y \le 1$; $x, y \ge 0$.

Q.29 Two cards are drawn simultaneously from a well shuffled pack of 52 cards. Write the distribution table for the No. of kings. Also find the mean and variance of the number of kings.

# Pre Board Examination 2017 – 18

Time: 3:00 Hrs.                                                                          M. M. 80

**GENERAL INSTRUCTIONS:**
1. All Questions are compulsory.
2. Marks for Questions are indicated against each Questions.
3. Answer should be brief and to the point.

## SECTION A (Micro-Economics)

Q.1   When Marginal cost is equal to average cost than Average cost?                1
(a) Falls      (b) Rises      (c) Maximum (d) Minimum

Q.2   As output increase per unit fixed cost :                                      1
(a) Increases           (b) Remains unchanged
(c) Decreases              (d) None of the above

Q.3   Which of the following is not a type of oligopoly?                            1
(a) Collusive Oligopoly      (b) Non collusive Oligopoly
(c) Perfect oligopoly        (d) None of the above

Q.4   Excess demand for a good will cause :                                         1
(a) Competition amongst sellers which will push the price down
(b) Competition amongst buyer which will push the price down
(c) Competition amongst sellers which will push the price up.
(d) Competition amongst buyers which will push the price up.

Q.5   Explain law of diminishing marginal utility with the help of total utility schedule.    3

Q.6   Distinguish between "change in supply" and "change in quantity supplied" of two commodity.    3
OR
When and how producer's equilibrium can be get by MR MC approach?

Q.7   At a price of ì 8 per unit the quantity supplied of a commodity is 200 units. Its price elasticity of
supply is 1.5. If its price rises to ì 10 per unit calculate its quantity supplied at the new price.    4

Q.8   Calculate equilibrium price and equilibrium quantity from the following : Qd = 1000 – p
Qs=400+2p
Now suppose Govt. imposes tax of ì 3 on sale of each unit. Calculate equilibrium price and
equilibrium quantity in this situation.                                             4

Q.9   Explain the problem of 'what to produce' with the help of an example.            4

Q.10  Complete the following table :                                                6

| Output | TC | AFC | AVC | MC | AC |
|---|---|---|---|---|---|
| unit | ì | ì | ì | ì | ì |
| 1 | ------ | ------ | ------ | 18 | ------ |
| 2 | ------ | 36 | 16 | 14 | ------ |
| 3 | 120 | 24 | ------ | ------ | ------ |
| 4 | ------ | 18 | 18 | ------ | ------ |

Q.11  Explain the consumer equilibrium with help of indifference curve. Write its conditions.    6
OR
Explain utility analysis equilibrium in both condition –
(i)      in case of one commodity
(ii)     In cash of two commodity on its equilibrium price and equilibrium quantity.

Q.12  Explain the effect of an increase in the income of the buyer of a commodity on its equilibrium
price and equilibrium quantity.                                                      6

## SECTION B (Macro-Economics)

Q.13  What is the different between CRR and SLR?                                      1
Q.14  What is forward market?                                                        1

Q.15 Which of the following is not an objective of Govt. budget?     1
     (a)     Redistribution of Income and wealth
     (b)     Management of Public enterprises
     (c)      Managements of Private enterprises
     (d)     None of these

Q.16 Suppose the present foreign exchange rate is 1\$=50 and if it falls to 1\$=ì 60. It indicates :     1
     (a)     US \$ is depreciating and Indian ì is appreciating.
     (b)     US \$ is appreciating and Indian ì is devaluating
     (c)     US \$ is appreciating and Indian ì is depreciating
     (d)     None of these

Q.17 (i)     What is legal reserve ratio?
     (ii)     How does legal reserve ratio determined the values of credit multiplier?
     (iii)     If the fresh deposits with the commercial Bank ì 10000, what will be total deposit creation
          assuming legal reserve ratio of 20%?     3

Q.18 If National Income is ì 90 crore and consumption expenditure ì 81 crore. Find out average propensity to save. When income rises to ì 100 crore and consumption expenditure to ì 88 crore, What will be the marginal propensity to consume and marginal propensity to save.     3

Q.19 Excess money supply is necessary for rapid economic development but it creates inflationary situation, Justify write any two fiscal measures to control inflationary situation.     4

Q.20 Give relationship between the revenue deficit and the fiscal deficit.     4
<p align="center">OR</p>
What is a balanced budget? Explain its merits and demerits?

Q.21 Distinguish between :     4
     (i)     Stock and flow     (ii) Real GDP and Nominal GDP

Q.22 Why Aggregate demand should be equal to aggregate supply at the equilibrium level of income and output? If planned savings are greater than planned investment then how these can be put in equilibrium?     6

Q.23 State the causes of disequilibrium in the balance of payment. Write two measures to correct it. 6
<p align="center">OR</p>
The Government has reduced import duty. Explain its effect on flexible exchange rate and import.

Q.24 Cal. Net Domestic Product at factor cost by :     6
     (i)     income method and (ii)     Production method from the following data:

| Items | ì in Crores |
|---|---|
| (a) Net value added at market price by Primary Sector | 1000 |
| (b) Wages and salaries | 2000 |
| (c) Social security contribution by employers | 100 |
| (d) Net value added at market price by the secondary sector | 600 |
| (e) Corporation tax | 30 |
| (f) Retained earning of private corporation | 10 |
| (g) Net value added at market price by the tertiary sector | 1400 |
| (h) Dividend | 60 |
| (i) Rent | 300 |
| (j) Interest | 300 |
| (k) Net Indirect tax | 200 |
| (l) Social security contribution of employees | 80 |

<p align="center">*****</p>

# Pre Board Examination 2017 – 18

Time: 3:00 Hrs.          M. M. 70

**General Instruction :**
     All Questions are compulsory.
     Question No. 1 to 5 carry **One Mark** each.      Question No. 6 to 10 carry **Two Marks** each.
     Question No. 11 to 22 carry **Three Marks** each. Question No. 23 is a value based carrying **Four Marks** each. Question No. 24 to 26 carrying **Five Marks** each.

Q.1     Why does $NO_2$ dimerise?

Q.2     How many atoms can be assigned to its unit cell if an element forms :

     (i)     A body centred cubic cell     (ii)     a face centred cubic cell

Q.3     Give IUPAC name of the following compound :

$$CH_3 - C = C - CH_2OH$$
$$\quad\quad\; | \quad\; |$$
$$\quad\quad CH_3 \; Br$$
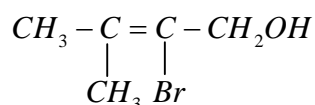
Q.4     Write the structure of 3-oxopentanal.

Q.5     $(C_2H_5)_4 \, N^+$ is neither an electrophile nor a nucleophile. Explain.

Q.6     Draw the structures of :     (i) $XeF_2$     (ii) $SF_4$

Q.7     Sucrose decomposes in acid solution into glucose and fructose according to the first order rate law with $t_{1/2} = 3$ hrs. Calculate the fraction of sucrose with remains after 8hrs.
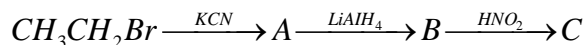
Q.8     Complete the following reaction equations :

     (i)     $Cr_2O_7^{2-} + Sn^{2+} + H^+ \rightarrow$      (ii)     $MnO_4^- + Fe^{2+} + H^+ \rightarrow$

Q.9     A reaction is 50% complete in two hours and 75% complete in four hours. What is the order of this reaction?

Q.10   (i)     Explain why is orthonitrophenol more acidic than ortho methoxyphenol?

       (i)     Give the structures of products A, B and C in the following reaction :

$$CH_3CH_2Br \xrightarrow{\;KCN\;} A \xrightarrow{\;LiAlH_4\;} B \xrightarrow{\;HNO_2\;} C$$

Q.11   15.0g. of an unknown molecular material is dissolved in 450g of water. The resulting solution freezes at –0.34°C. What is the molar mass of the material? ($Kf$ for water=1.86 K kg) $mol^{-1}$)

Q.12   (i)     Write two features to distinguish between a metallic solid and an ionic solid.

       (ii)     A compound formed by elements A and B crystallizes in the cubic structure where A atom are at the corners of a cube and B atoms are at the face centres. Find out the formula of the compound.

       (iii)     Explain F-centres with suitable example.

Q.13 Consider the following data for the reaction : A + B → products

| Run | Initial conc. [A] | Initial conc. [B] | Intitial rate (Mol $L^{-1} s^{-1}$) |
|-----|------------------|-------------------|-------------------------------------|
| 1.  | 0.10M            | 1.0M              | $2.1 \times 10^{-3}$                |
| 2.  | 0.20M            | 1.0M              | $8.4 \times 10^{-3}$                |
| 3.  | 0.20M            | 2.0M              | $8.4 \times 10^{-3}$                |

Determine the order of reaction with respect to A and with respect to B and the overall order of the reaction.

Q.14 For the complex $\left[ Fe(en)_2 Cl_2 \right] Cl$ (en=ethylene diamine), identify the following :
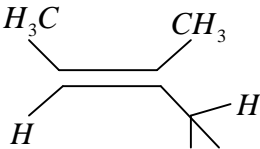
(i)     Oxidation number of iron
(ii)    Hybrid orbitals and the shape of the complex
(iii)   Magnetic behavior of the complex
(ii)    Number of its geometrical isomers
(iii)   Whether there is an optical isomer also
(iv)    Name of the complex, (At. No. of Fe=26)

Q.15 Explain the following observations :

(i)     Transition metals exhibit variable oxidation states.
(ii)    Cobalt (II) is stable in aqueous solution but in the presence of complexing reagents, it is easily oxidized.
(iii)   The actinoids exhibit a greater range of oxidation states than the lanthanoids.

Q.16 Account for the following observations :

(i)     Aniline does not undergo Friendl-Crafts reaction.
(ii)    $pK_b$ for aniline is more than that for methylamine.
(iii)   Methylamine in water reacts with ferric chloride to precipitate ferric hydroxide

Q.17 (i)     Write the IUPAC name of



(ii)    Completer the following chemical equation :

$$CH_3 \cdot CH_2 \cdot CH = CH_2 + HBr \xrightarrow{\;Peroxide\;} \cdots$$

(iii)   A solution of KOH hydrolyses $CH_3CHClCH_2CH_3$ and $CH_3CH_2CH_2CH_2Cl$. Which one of these is more easily hydrolysed and why?

Q.18 (i)     Describe how the following changes are brought about :
(a)     Zinc oxide into metallic zinc
(b)     Impure titanium into pure titanium
(ii)    Out of C and CO, which is better reducing agent for ZnO?

Q.19 (i)     How would you carry out the following conversion?
(a) Ethyl magnesium chloride to propan -1-ol
(ii)        Toluene to benzyl alcohol
(b)     How will you distinguish between ethyl alcohol and 2-propanol?

Q.20 (i)     Name the polymers, their type and monomers used to make –
(a) Unbreakable cups and plates     (b) Non-stick cook wares
(ii)    Write the name and structure of one of the common initiator used in free-radical addition polymerization.

Q.21 (i)     Explain denaturation in relation to proteins.
(ii)    Write two important structural and functional differences between DNA and RNA.

Q.22 (i)     What are micelles? How do they differ from ordinary colloidal particles? Give two examples of micelles forming substances.
(ii)    When are gas masks used and how do they work?

**Q.23 (i)** We know that certain chemical substances are used as food preservatives, artificial sweetening agents and tranquilizers. What is the value associated with it?

**(ii)** Explain the following terms with one example in each case :

**(a) Food Preservatives      (b) Tranquilizers          (c) Artificial sweetening Agents**

Q.24 (i)    Give chemical tests to distinguish between the following pairs of compounds :

(a)    Benzoic acid to Ethyl benzoate

(b)    Benzaldehyde and Acetophenone

(ii)    How will you bring out the following conversions?

(a)    Benzoic acid to benzaldehyde

(b)    Nitrobenzene to benzoic acid

(c)    Propanone to propene

OR

(i) Write the structures of products of the following reactions:

(a) ⬡ + $C2H5-\overset{\overset{O}{\|}}{C}-Cl \xrightarrow[CS_2]{AlCl_3}$

(b) $(C_6H_5CH_2)_2 Cd + 2CH_3COCl \rightarrow$

(ii) An organic compound (A) with molecular formula $C_8H_{16}O_2$ was hydrolysed with dilute sulphuric acid to give a carboxylic acid (B) and an alcohol (C). Oxidation of (C) with chromic acid also produced (B). On dehydration (C) gives but-1-ene. Write the equations for the reactions involved.

Q.25 State reasons for each of the following :

(i)    All the P–Cl bonds in $PCl_5$ molecule are not equivalent.

(ii)    Fluorine is a stronger oxidizing agent than chlorine.

(iii)    Sulphur has greater tendency for catenation than oxygen.

(i)    $SF_6$ is kinetically an inert substance.

(ii)    Fluorine does not exhibit any positive oxidation state.

OR

(a)    Explain the following :

(i)    Why does $R_3P = O$ exist but $R_3$–N =O does not (R=alkyl group)?

(ii)    Why do noble gases have comparatively large atomic sizes?

(iii)    In what way it can be proved that $PH_3$ is basic in nature?

(b)    Complete and balance the equation : $PbS+O_3 \rightarrow$

(c)    Draw the structure of pyrophosphoric acid, $H_4P_2O_7$.

Q.26 (i)    The chemistry of corrosion of iron is essentially and electro-chemical phenomenon. Explain the reactions occurring during the corrosion of iron in the atmosphere.

(ii)    In the button cell, widely used in watches, the following reaction takes places :

$$Zn(s) + Ag_2O(s) + H_2O(l) \rightarrow Zn^{2+}(aq) + 2Ag(s) + 2OH^-(aq)$$
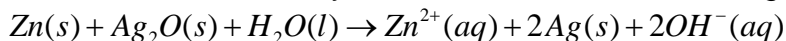
Determine $E°$ and $\Delta G°$ for the reaction.

Given : $E°_{Ag+/Ag} = +0.80V ; E°_{Zn+/Zn} = -0.76V$

OR

(i)    Why does the conductivity of a solution decrease with dilution?

(ii)    Define Adsorption.

(iii)    A voltage cell is set up at 25°C with the half cells, $Al/Al^{3+}$ (0.001M) and $Ni/Ni^{2+}$ (0.50M). Write the equation for the reaction that occurs when the cell generates an electric current and determine the cell potential. (Given : $E°_{Ni^{2+}/Ni} = -0.25V ; E°_{Al^{3+}/Al} = -1.66V$ ).

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**Roll No.** [        ]       Code. No. 12/Biology(044)/NLCS/12

# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**          **M. M. 70**

**General Instructions :**

1. *All Questions are compulsory.*
2. *Question paper consists of four section A, B, C, D. Sec. A consists 5 question of 1 mark each. Sec. B is of 5 questions of 2 marks each. Sec. C contain 12 questions of 3 marks each where as Sec. D contains 1 questions of 4 marks each and section E contain 3 questions of 5 Marks each.*
3. *There is no overall choice. However Internal Choices has been given in Section E.*

## SECTION-A

Q.1 How many pollen grains and ovules are likely to be formed in the anther and the ovary of an angiosperm bearing 25 microspore mother cells and 25 megaspore mother cells respectively?

Q.2 How does the flow of genetic information in HIV deviates from the central dogma, proposed by Francis Crick?

Q.3 What did Louis Pasteur's experiment on 'Killed yeast' demonstrate? Name the theory that got disproved on the basis of his experiment?

Q.4 State the purpose for which the Indian Govt. has set up GEAC?

Q.5 Mention the effect of UV rays on DNA and proteins in living organisms?

## SECTION-B

Q.6 Why are mosses and liverworts unable to complete their sexual mode of reproduction in dry conditions? Give reasons.

Q.7 (i) List the biotic components an organism interacts within its natural habitat?

     (ii) Mention how have organisms optimized their survival and reproduction in a habitat.

Q.8 Indentify A, B, C and D.

| Crop | variety | Resistance to disease |
|---|---|---|
| → wheat | A | Leaf & stripe rust |
| → B | Pusa shubhra | Black – rot |
| → Cowpea | Pusa komal | C |
| → Brassica | Karan Rai | D |

Q.9 Explain the advantage of cross-breeding of the two species of sugarcane in India?

Q.10 Name two group of organisms which constitute 'flocs'. Write their influence on the level of BOD during biological treatment of sewage?

## SECTION-C

Q.11 (i) Draw a sectional view of human ovary and label –

     (a) Primary follicle (b) Graffian follicle (c) Corpus leuteum

     (ii) Mention the effect of pituitary hormones on the parts labelled.

Q.12 Explain the role of RNA polymerase in transcription in bacteria?

Q.13 Differentiate between the explanation given by Darwin and De-vries respectively on the mechanism of evolution?

Q.14 (I) Name the agent that causes amoebiasis and the human body organ that it infects?

     (ii) Write the symptoms and the mode of transmission of the disease.

Q.15 (i) Mention the property of plant cells that has helped in growing crops by tissue culture?

     (ii) Explain how it is possible to grow on a commercial scale Banana crop.

Q.16 Describe the experiment that demonstrated the semi-conservative mode of DNA replication?

Q.17 Explain the role of following in increasing the soil fertility and crop-yield –

(i) Leguminous plants (ii) Cyanobacteria (iii) Mycorrhizae

Q.18 Following table gives certain terms associated with ART. Fill in the spaces a,b,c,d :

| → IUF and ET | A |
| → b | Introduction of zygote / embryo with 8 blastomeres into oviduct |
| → c | Introduction of ova of a donor into the fallopian tube |
| → IUI | D |

Q.19 How does the study of fossils support evolution. Explain.

Q.20 Given below are the sequence of nucleotides in a particular m-RNA and amino acids coded by it:

UUUAUGUUCGAGUUAGUGUAA

Phe-met-Phe-glu-Leu-val

Write the properties of genetic code that can be and cannot be correlated from the above given data.

Q.21 Explain the rivet popper hypothesis?

Q.22 "Microbes play a dual role when used for sewage treatment as they do not only help to retrieve usable water but also generate fuel". Explain.

## SECTION-D

**Q.23 A group of scientists are working on creating transgenic cows to produce milk with medicinal properties. But there are adverse side-effects on the cows due to this procedure. Their lifespan shortens; they become prone to diseases and die very early.**

**(i) What value are being neglected by the scientists in the above situation?**

**(ii) Should they continue with their production of transgenic cow? Give reason.**

**(iii) What has been the reaction of different communities and various organizations to such acts?**

## SECTION-E

Q.24 (i) Explain the role of E cori in the formation of Recombinant DNA.

(ii) Explain insertional activation used in the relation of recombinants in biotechnology experiments.

OR

(i) List any four beneficial effects of GM plants.

(ii) Explain how has Bacillus thuringiensis contributed in developing resistances cotton bollworm in cotton plants.

Q.25 (i) Plan an experiment and prepare a flowchart of the steps that you would follow to ensure that the seeds are formed only from the desired sets of pollen grains. Name the type of experiment that you carried out.

(ii) Write the importance of such experiments.

OR

How is detritus decomposed step-by-step by different agents and made available as nutrients to the plants? Explain.

Q.26 Mention the site of fertilization of a human ovum. List the events that follow in sequence until the implantation of the blastocyst.

OR

(i) Why is Ozone layer required in the stratosphere? How does it degraded? Explain.

(ii) Why is Ozone depletion a threat to mankind?

☀All the Best☀

# Pre Board Examination 2017 – 18

**Time: 3:00 Hrs.**                                                      **M. M. 70**

Question No. 1 to 11 carry **One Mark** each.

Q.1   Define planning.

Q.2   What do you mean by 'Hypertension'?

Q.3   Define 'Disability'.

Q.4   What are the categories is sources of protein?

Q.5   What do you mean by 'Disorder'?

Q.6   What do you mean by menstrual Dysfunction?

Q.7   Define Test and Measurements.

Q.8   What is cardiac out-put?

Q.9   Define Sports Medicine.

Q.10   Define Biomechanics.

Q.11   What meaning of stress?

Question No. 12 to 19 carry **Three Marks** each.

Q.12   Define strength and write there types.

Q.13   Vitamins are very essential for working of the body and are divided into two groups explain about it.

Q.14   Discuss the benefits of Asanas for prevention of diseases in brief.

Q.15   Discuss about any three committees for organization of track and field meet / sports.

Q.16   Draw a fixture of eight teams on league basis according to cyclic methods.

Q.17   Write about Macro and Micro nutrients.

Q.18   What are methods to development of endurances?

Q.19   Discuss the types of disability.

Question No. 20 to 26 carry **Five Marks** each.

Q.20   Weight training is one of the oldest methods for development of strength, what are its advantages and disadvantages.

Q.21   Discuss about Rikli and Joues Senior Citizen Fitness Test.

Q.22   What are the reasons for less participations of woman in sports?

Q.23   Elucidates the gender differences in physical and physiological parameters.

Q.24   Define coping. Explains its types.

Q.25   What do you mean by sports injuries, classification of sports injuries?

Q.26   What is projectile and factors affecting projectile trajectory?

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