

Roll. No.

Code No. 12/NLcs/English/100

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 100

General Instruction :-

SECTION – A READING 30

SECTION – B WRITING 30

SECTION – C LITERATURE & LONG READING TEXT 40

- (i) The paper is divided into three Section – A, B and C. All the sections are compulsory.
- (ii) Separate instructions are given with each section and questions, wherever necessary. Read these instructions carefully and follow them faithfully.
- (iii) Do not exceed the prescribed word limit while answering the questions. Marks will be deducted if this limit is crossed.
- (iv) Please write down the serial number of the question in the answer script before attempting it.

### SECTION – A (Reading Unseen Passages And Note-Making)

A.1 Read the following passage carefully :

1. Stress happens when you work constantly, without a break. This creates tension and panic. As a student, you need to avoid last-minute study; it is better to prepare in advance to avoid confusion and stress. From the start of the academic year, devote some time to study so that at the end, when exams have to be taken, there is no undue panic. This way, there will be time for revision.
2. A healthy diet, regular exercise and playing games are all important in your life. Practice of Vipassana is good for the memory. Pranayama or deep breathing and meditation contribute to physical and mental health; practitioners will find that they are mentally and spiritually fit and alert and equipped to overcome stress and are able to banish negative thoughts.
3. As a student, I would spend three hours daily during the last two months prior to final exams in solving five-to-seven-year-old question papers on related subjects as though I was in fact appearing for the finals. Thereby I not only gained confidence but also cultivated a positive attitude and appeared in the examination relaxed.
4. It is good to spend more time on difficult and important topics. The best time to do this is during the early hours of the morning when the mind is rested and fresh. Positive thinking not only provides us with new aspirations and hope but also gives us courage. Why get frustrated by failure? See it as an opportunity to do better the next time.
5. Anxiety should be avoided as it could lead to depression, poor memory and lack of attention. When you are full of fear, then even good preparation will not help. Before the exams, you need to stay calm to be able to perform well.
6. Worry, anxiety, confusion and lack of clarity lead to fear. However, poor performance ought not to make you feel inferior nor force you to blame others. Tell yourself that you can and will do your best, whatever the circumstances. You can overcome hurdles because you are not the only one facing problems, everybody is! Just will yourself to rise and accomplish whatever is within your capacity.
7. Parents need to ensure that their children are not overburdened with their expectations. Parents need to give moral support to their children and help maintain calmness and cultivate the art of listening. Kindly listen to your children and please avoid undue criticism. Parent could try to maintain serenity in the home and create a healthy atmosphere that engenders focus, concentration and study. Students need to resist the temptation to watch TV programmes as well as minimize use of computers so as to not get distracted, In fact, till such time when the children finish with their final examination, they should wrap up televisions and computers and give children moral support.

8. Students need to also remember that there are numerous examples of people who have, by sheer strength of character, taken themselves to heights through knowledge and experience gained by self-propelled efforts, despite handicaps or lack of formal education.

A.1.1 On the basis of your reading of the passage, answer the following question by choosing the best of the given option : 1×3=3

- (i) A man feels stressed when he ----- .  
(a) work persistently (b) sleeps regularly (c) eat too much (d) gets gifts
- (ii) Anxiety always leads to ----- .  
(a) Dejection (b) lack of concentration (c) poor memory (d) all of the above
- (iii) Parent must not ----- .  
(a) Criticise the child without reason (b) listen to their child's excuses  
(b) Maintain the atmosphere of serene (d) support their children

A.1.2 Answer the following :- 1×5=5

- (i) How can students avoid stress and confusion during the exam days?  
(ii) How can stress be overcome?  
(iii) Describe the advantages of positive thinking?  
(iv) Why should a student avoid anxiety?  
(v) What role should parents play?

A.1.3 Pick out the word from the passage which mean the same as each of the following : 3

- (i) innumerable (para 8) (ii) Dejection (para 5) (iii) Obstacles (para 6)

A.1 Read the passage given below and answer the questions that follow :

1. For many years now the governments have been promising the eradication of child-labour in hazardous industries in India. But the truth is that despite all the rhetoric no government so far has succeeded in eradicating this evil, nor has any been able to ensure compulsory primary education for every Indian child. Between 60 and 100 million children are still at work instead of going to school, and round 10 million are working in hazardous industries. India has the biggest child population of 380 million in the world, plus the largest number of children who are forced to earn a living.
2. We have many laws that ban child-labour in hazardous industries. According to the child-labour (Prohibition and Regulation) Act 1986, the employment of children below the age of 14 in hazardous occupations has been strictly banned. But each state has different rules regarding the minimum age of employment. This makes implementation of these laws difficult.
3. Also, there is no ban on child-labour in non-hazardous occupations. The Act applies to the organized or factory sector and not the unorganized or informal sector where most children find employment as cleaners, servants, porters, waiters etc. among other forms of unskilled work. Thus, child-labour continues because the implementation of the existing laws is lax.
4. There are industries, which have a special demand for child labour because of their nimble fingers, high level of concentration and capacity to work hard at abysmally low wages. The carpet industry in U.P. and Kashmir employs children to make hand-knotted carpets. There are 80,000 child workers in Jammu & Kashmir alone. In Kashmir because of the political unrest, children are forced to work while many schools are shut. Industries like gem cutting and polishing pottery and glass want to remain competitive by employing children.
5. The truth is that it is poverty which is pushing children into the brutish labour market. We have 260 million people below the poverty line in India, a large number of them are women. Poor and especially woman-headed families have no option but to push their little ones in this hard life in hostile conditions, with no human or labour rights.

6. There is a lobby which argues that there is nothing wrong with children working as long as the environment for work is conducive to learning new skills, but studies have shown that the children are made to do boring, repetitive and tedious jobs and are not taught new skills as they grow older. In these hell-holes like the sweet shops of the old there is no hope.
7. Children working in hazardous industries are prone to debilitating diseases which can cripple them for life. By sitting in cramped, damp and unhygienic spaces, their limbs become deformed for life. Inside matchstick, fire-works and glass industries they are victims of bronchial diseases and T.B. Their mental and physical development is permanently impaired by long hours of work. Once trapped, they can't get out of this vicious circle of poverty. They remain uneducated and powerless. Finally, in later years, they too are compelled to send their own children to work. Child-labour perpetuates its own nightmare.
8. If at all the government was serious about granting children their rights, an intensive effort ought to have been made to implement the Supreme Court's Directive of 1997 which laid down punitive action against employers of child-labour. Only compulsory primary education can eliminate child-labour.
9. Surely, if 380 million children are given a better life and elementary education, India's human capital would be greatly enhanced. But that needs, as former President Abdul Kalam says, "a second vision".

A.2.1 On the basis of reading choose the correct option : 1×3=3

1. We have ----- million people below the poverty line.  
 (a) 360 (b) 260 (c) 460 (d) 100
2. Children become the victim of ----- .  
 (a) TB (b) Bronchial disease (c) Blindness (d) TB and Bronchial disease
3. Government is promising the ----- of child labour from India.  
 (a) enhanced (b) eradication (c) implementation (d) concentration

A.2.2 Answer the following Questions briefly : 1×5=5

- (i) On which two counts has the government not succeeded so far in respect of children? 1
- (ii) What makes the implementation of child-labour law difficult? 1
- (iii) Why do the industries prefer child-labour? 1
- (iv) What are the adverse effects of hazardous industries on children? Give any two. 1
- (v) What does the Supreme Court's Directive of 1997 provide? 1

A.2.3 Find words from the passage which mean the same as the following : 1×3=3

- (i) risky / dangerous (para 1)
- (ii) very unfriendly (para 5)
- (iii) intended as punishment (para 8)

A.3 Read the passage given below and answer the questions that follow :

Research has shown that the human mind can process words at the rate of about 500 per minute, whereas a speaker speaks at the rate of about 150 words a minute. The difference between the two at 350 is quite large.

So a speaker must make every effort to retain the attention of the audience and the listener should also be careful not to let his make wander. Good communication calls for good listening skills. A good speaker must necessarily be a good listener.

Listening starts with hearing but goes beyond. Hearing, in other words, is necessary but is not a sufficient condition for listening. Listening involves hearing with attention. Listening is a process that calls for concentration. While listening, one should also be observant. In other words, listening has to do with the ears, as well as with the eyes and the mind. Listening is to be

understood as the total process that involves hearing with attention, being observant and making interpretations. Good communication is essentially an interactive process. It calls for participation and involvement. It is quite often a dialogue rather than a monologue. It is necessary to be interested and also show or make it abundantly clear that one is interested in knowing what the other person has to say.

Good listening is an art that can be cultivated. It relates to skills that can be developed. A good listener knows the art of getting much more than what the speaker is trying to convey. He knows how to prompt, persuade but not to cut off or interrupt what the other person has to say. At times the speaker may or may not be coherent, articulate and well-organised in his thoughts and expressions. He may have it in his mind and yet he may fail to marshal the right words while communicating his thought. Nevertheless a good listener puts him at ease, helps him articulate and facilitates him to get across the message that he wants to convey. For listening to be effective, it is also necessary that barriers to listening are removed. Such barriers can be both physical and psychological. Physical barriers generally relate to hindrances to proper hearing whereas psychological barriers are more fundamental and relate to the interpretation and evolution of the speaker and the message.

- A.3.1 On the basis of your reading of the above passage, make notes in points only, using abbreviation wherever necessary. Supply a suitable title. 5
- A.3.2 Write a summary of the above in about 80 words. 3

### **SECTION – B WRITING (WRITING SKILLS)**

- B.4 As sports secretary of G.D.G. Public School, Pune. Draft a notice in not more than 50 words for your school notice board informing the student about the sale of old sports goods of your school. You are Rohini / Rohit. 4

OR

You wanted to buy second hand car in a good condition. You can afford not more than 3 lakh of rupees. Draft an advertisement for it (word limit 50 words)

- B.5 A book fair was arranged in your school. Describe the event in 100-125 words. 6

OR

You attended a PEACE RALLY by your school in order to draw the attention of the public to maintain communal harmony and peace. Write Report for school magazine in 100-125 words.

- B.6 You are Gaurav / Sonali, 20, Model Town, Jalandhar. You have seen an advertisement in 'The Tribune' for the post of a computer operator. Write an Application with complete Bio-Data. 10

OR

Draft a letter to the Editor, "The Hindu", New Delhi, expressing your opinion about the reservation of seats in centrally aided universities and other institutions, giving reasons. You are Mohan / Mona.

- B.7 You are concerned about the use of mobiles while driving by the young and the old. Write an article highlighting the dangers involved in the practice, giving some concrete suggestions to curb this tendency. (Word limit 150-200 words) 10

OR

Write a speech in not more than 150-200 words on the topic – "Time management : Essential for success" to be given at assembly time in school. You are Ramesh / Alka.

### SECTION C – (LITERATURE)

C.8 Read the extract given below and answer the questions :

but soon

put that thought away, and final

looked out at Young

Trees sprinting, the merry children spilling  
out of their homes.

(a) Which thought did the poet put away?

1

(b) What do the 'sprinting trees' signify?

1

(c) What does the fourth line mean?

1

(d) Where is the poet going?

1

OR

What I want should not be confused

with total inactivity

Life is what is about

I want no truck with death

(a) What does the poet want?

(b) What does "total inactivity imply?

(c) 'Life is all about' – Explain.

(d) Explain last line.

C.9 Answer any four of the following in 30-40 words :

4×3=12

1. How has the life of children living in the slum been described?

2. What type of students will create history?

3. How was Gandhi ji able to influence lawyers? Give instances.

4. Compare and contrast Derry and Lamb.

5. What was tempting Franz to keep away from school that morning?

C.10 Answer the following in 120-150 words.

6

On the basis of your reading of the story 'Evans Tries an O-level', what do you feel about Evans' having the last laugh?

OR

Despite being in the grip of Terror, Douglas retained his presence of mind and managed the crisis with a cool mind. Comment.

C.11 The story 'Rattrap' reveals that basic human goodness can be brought out by understanding and love. Justify your answer.

C.12 Write the characteristics of Mrs. Hall.

6

C.13 Describe the meeting of the Invisible man with Dr. Kemp.

6

**\*\*ALL THE BEST \*\***

Roll. No.

Code No. 12/NLCS/Mathematics/47

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 100

General Instruction :- The Questions paper divided into 4 Sections A, B, C & D.

Section – A Question No. 1 to 4 carry **One Mark** each.

Section – B Question No. 5 to 12 carry **Two Marks** each.

Section – C Question No. 13 to 23 carry **Four Marks** each.

Section – D Question No. 24 to 29 carry **Six Marks** each

### Section – A

Q.1 State the reason why the relation :

$$R = \{(a,b) : a \leq b^2\} \text{ on the set } R \text{ of real numbers is not reflexive.}$$

Q.2 For a  $2 \times 2$  matrix  $A = [a_{ij}]$  whose elements are given by  $a_{ij} = \frac{i}{j}$ , write the value of  $a_{12}$ .

Q.3 If  $A = \begin{bmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{bmatrix}$ , they for any natural number  $n$ , find the value of  $\text{Det}(A^n)$ .

Q.4 If the binary operation  $*$  on the set  $z$  of integers is defined by  $a * b = a + b + z$ , then write the identity elements for the operation  $*$  in  $z$ .

### Section – B

Q.5 If  $\tan^{-1} x + \tan^{-1} y = \frac{\pi}{4}$ ,  $xy < 1$  then write the value of  $x + y + xy$ .

Q.6 If  $A = \begin{bmatrix} 5 & 2 & a \\ b & c & -3 \\ 4 & d & -7 \end{bmatrix}$  is a symmetric matrix. Find  $a, b, c$  and  $d$ .

Q.7 Show that  $f(x) = 2x - |x|$  is continuous but not differentiable at  $x = 0$ .

Q.8 Find  $\frac{dy}{dx}$ , if  $(x^2 + y^2)^2 = xy$ .

Q.9 Find the point on the curve  $x^2 = 2y$  which is nearest to the point  $(0,5)$  is.

Q.10 Using differentials, find the approximate value of  $\sqrt{49.5}$ .

Q.11 Evaluate :  $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx$ .

Q.12 Evaluate :  $\int \frac{e^{\tan^{-1} x}}{1+x^2} dx$ .

### Section – C

Q.13 Show that :  $\tan \left[ \frac{1}{2} \sin^{-1} \left( \frac{3}{4} \right) \right] = \frac{4 - \sqrt{7}}{3}$ .

Q.14 Find the value of  $k$  for which.  $f(x) = \begin{cases} \frac{\sqrt{1+kx} - \sqrt{1-kx}}{x} & \text{if } -1 \leq x < 0 \\ \frac{2x+1}{x-1} & \text{if } 0 \leq x < 1 \end{cases}$  is continuous at  $x = 0$ .

Q.15 If  $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{bmatrix}$ . Prove that  $A^3 - 6A^2 + 7A + 2I = 0$ .

Q.16 Prove that the greatest integer function defined by  $f(x) = [x]$ ,  $0 < x < 3$  is not differentiable at  $x = 1$  and  $x = 2$ .

Q.17 Prove that : 
$$\begin{vmatrix} a^2 & bc & ac+c^2 \\ a^2+ab & b^2 & ac \\ ab & a^2+bc & c^2 \end{vmatrix} = 4a^2b^2c^2.$$

Q.18 Find the equation of the tangent line to the curve  $y = x^2 - 2x + 7$  which is perpendicular to the line  $5y - 15x = 13$ .

Q.19 Find :  $\frac{dy}{dx} \quad x = \frac{\sin^3 t}{\sqrt{\cos 2t}}, y = \frac{\cos^3 t}{\sqrt{\cos 2t}}.$

**OR**

If  $(x-a)^2 + (y-b)^2 = c^2$  for some  $c > 0$

Prove that  $\frac{\left[1 + \left(\frac{dy}{dx}\right)^2\right]^{3/2}}{d^2y/dx^2}$  is a constant independent of  $a$  and  $b$ .

Q.20 Prove that the volume of the largest cone that can be inscribed in a sphere radius  $R$  is  $\frac{8}{27}$  of the volume of the sphere.

Q.21 Evaluate :  $\int \frac{\sin x - x \cos x}{x(x + \sin x)} dx.$

Q.22 Prove that :  $y = \frac{4 \sin \theta}{2 + \cos \theta} - \theta$  is an increasing function in  $\left[0, \frac{\pi}{2}\right]$ .

**OR**

Find the intervals in which the function  $f$  given by  $f(x) = \sin x + \cos x, 0 \leq x \leq 2\pi$  is strictly increasing or strictly decreasing.

Q.23 Evaluate :  $\int \frac{x+2}{\sqrt{x^2+2x+3}} dx.$

**OR**

Evaluate  $\int \frac{x^3}{(x-1)(x^2+1)} dx$

### Section – D

Q.24 Let  $f : n \rightarrow R$  be a function defined as  $f(x) = 4x^2 + 12x + 15$ . Show that  $f : N \rightarrow S$  where  $S$  is the range of  $f$  is invertible also find the inverse of  $f$ .

**OR**

Let  $A = Q \times Q$  where  $Q$  is the set of all rational numbers and  $\ast$  be a binary operation on  $A$  defined by  $(a,b) \ast (c,d) = (ac, b + ad)$  for  $(a,b);(c,d) \in A$ . Find :

(i) The identity element in  $A$ . (ii) The invertible element of  $A$ .

Q.25 Three schools A, B and C organized a mela for collecting funds for helping the rehabilitation for flood victims. They sold hand made fans, mats and plates from recycled material at a cost of ₹ 25, ₹ 100 and ₹ 50 each. The numbers of articles sold are given below.

↓ Article / School →	A	B	C
Hand-fans	40	25	35
Mats	50	40	50
Plates	20	30	40

Find the funds collected by each school separately by selling the above articles. Also find the cost funds collected for the purpose. Write one value generated by the above situation.

Q.26 Prove, using properties of determinants 
$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2b \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3.$$

**OR**

Prove that : 
$$\begin{vmatrix} 1 & x & x^2 \\ x^2 & 1 & x \\ x & x^2 & 1 \end{vmatrix} = (1-x^3)^2.$$

Q.27 Find all points of discontinuity of  $f$  where  $f(x) = \begin{cases} \frac{\sin x}{x} & \text{if } x < 0 \\ x+1 & \text{if } x \geq 0 \end{cases}.$

Q.28 Show that the semi vertical angle of the cone of the maximum volume and of given slant height is  $\tan^{-1} \sqrt{2}.$

Q.29 Evaluate :  $\int_0^{\pi/2} \log \sin x dx.$  **OR** Evaluate :  $\int_0^{\pi} \frac{xdx}{a^2 \cos^2 x + b^2 \sin^2 x}.$

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**Quarterly Examination 2016 – 17****Time: 3:00 Hrs.****M. M. 70**

- Q.1 What do you mean by function overloading? How are functions compared while calling in function overloading? 3
- Q.2 Explain (with example → syntax) : 1½×4=6
- (i) Static Data members of a class.
  - (ii) Encapsulation
  - (iii) Polymorphism
  - (iv) Virtual function
- Q.3 (i) Find the output of the following program :- 3
- ```
#include <iostream. h>
void main ( )
{
    int First = 25, Sec = 30;
    For (int I = 1; I <=2; I++)
    {
        cout << "OUTPUT 1 = "<<<First ++<< "&"Sec+5 <<endl;
        cout << "OUTPUT 2 = "<<<- -Sec<< "&"<< First - 5 <<endl;
    }
}
```
- (ii) Study the following program and select the possible output (S) from it. 2
- ```
#include <iostream . h>
#include <stdlib.h>
const int LIMIT=4;
void main ( )
{
    randomize ( );
    int points ;
    points=100+random (LIMIT);
    for (int P=Points ; P>=100; P --)
        cout <<P<<"#";
    cout <<endl;
}
```
- (a) 103 # 102 # 101# 100 #
  - (b) 100 # 101 # 102 # 103 #
  - (c) 100 # 101 # 102 # 103 # 104 #
  - (d) 104 # 103 # 102 # 101 # 100 #
- (iii) In the following program, find the output (s) possible :- 2
- ```
void main ( )
{
    randomize ( );
    int x = 125, y=99;
    int a = random (3) +4;
    int b = random (2) +2;
    for (int i=0; i <a ; i++)
        cout <<'&';
    cout <<x << " , " ;
    for (i=0; i<b ; i++)
        cout<< '*';
    cout << y << endl;
}
```
- (i) &&125,\*99
  - (ii) &&125,\*\*99
  - (iii) &&&&&125,\*\*99
  - (iv) \*\*\*\*\*125,\*\*99

(iv) Find the output of the following program :-

3

```
#include <isostream.h>
Struct THREE _ D
{
    int x, y, z;};
void MoveIn (THREE_D &T, int step=1)
{
    T . x + = step;
    T . y - = step;
    T . z - = step ;
}
void MoveOut (THREE_D & T, int step=1)
{
    T. x - = step;
    T. y += step;
    T . z - = step ;
}
void main ( )
{
    THREE _D   T1 = { 10, 20, 5 };
               T2 = {30, 10,40};
    MoveIn (T1);
    MoveOut (T2,5);
    cout<<T1. x<< “,” << T1. y << “,” << T1. z <<endl;
    cout<<T2. x<< “,” << T2. y << “,” << T2 . z <<endl;
    MoveIn ( T2, 10);
    cout << T2. x << “,” T2. y << “,” <<T2. z <<endl;
}
}
```

(v) Find the output of the following program :-

2

```
#include <iostream.h>
#include< ctype.h>
void main ( )
{
    char line [ ]= “Good @ LOG IC”;
    for (int I=0; line [I] !='\0'; I++)
    {
        if (! isalpha(line[I]))
            line [I]= ‘$’;
        else    if (islower (line [I]))
                line [I]=line [I]+1;
        else
                line [I] = line [I+1];
    }
    cout << line ;
}
}
```

Q.4 (a) Define a class RESTRA in C++ with following description : Private members :-

5

- Food code of type int
- Food of type string
- Ftype of type string
- Sticker of type string
- A member function Getsticker ( ) to assign the following values for food sticker as per the given ftype –

| Ftype           | sticker |
|-----------------|---------|
| Vegetarian      | GREEN   |
| Contains Egg    | YELLOW  |
| Non –Vegetarian | RED     |

Public Members :

- A function Getfood ( ) to allow user to enter values for food code, food, ftype and call function GetSticker ( ) to assign sticker.
- A function ShowFood ( ) to allow user to view the content of all the data members.

(b) Define a class applicant in C++ with following description : 5

Private members:

- A data member Name of type string.
- A data member Ano. (Admission number) of type long.
- A data member Agg (Aggregate marks) of type float.
- A data member Grade of type char.
- A member function GradeMe ( ) to find the grades as per the aggregate marks obtained by a student. Equivalent aggregate marks range and respective grades are shown as follows :

| Aggregate Marks            | Grade |
|----------------------------|-------|
| $\geq 80$                  | A     |
| Less than 80 and $\geq 65$ | B     |
| Less than 65 and $\geq 50$ | C     |
| Less than 50               | D     |

Public members :

- A function ENTER ( ) to allow user to enter value for Ano, Name, Agg and call function GradeMe to find the grade.
- A function RESULT ( ) to allow user to view the content of all data member.

(c) What do you mean by Inheritance? Explain its types. 6

(d) Answer the questions (i) to (iv) after going through the following class : 6

```
class Health
{
    int PId, DId;
    public :
        Health ( int PPIId); // Function1
        Health ( ); // Function2
        Health (Health &H); // Function3
        void Enter ( ); // Function4
        void display ( ); // Function5
};

void main ( )
{
    Health H (20); // statement1:
}
```

- (i) Which of the function out of function 1,2,3, 4 or 5 will get executed when the statement 1 is executed in the above code.
- (ii) Write a statement to declare a new object cr with reference to already existing object H using function3.
- (iii) Write definitions of function 1, function 2 and function 3 in the above code.
- (iv) Declare and define a destructor in the above class.

(e) Answer the questions (i) to (iv) based on the following : 5

```
class COMPANY
{
    char Location [20];
    double budget, income;
    protected :
        void Accounts ( );
    public :
        COMPANY ( );
        void Register ( );
        void Show ( );
```

```

};
class FACTORY : public COMPANY
{
char Location [20];
int Workers;
Protected :
double Salary;
void computer ( );
public :
FACTORY ( );
void Enter ( );
void Show ( );
};

class SHOP : private COMPANY
{
char Location [20];
float area;
double sale;
public :
SHOP ( );
void Input ( );
void Output ( );
};

```

- (i) Name the type of inheritance illustrated in the above code.
- (ii) Write the name of data members, which are accessible from the member functions of class SHOP.
- (iii) Write the names of all the member functions, which are accessible from the objects belonging to class FACTORY.
- (iv) Write the names of all the members, which are accessible from objects of class SHOP.

Q.5 (a) Write a function countTHE ( ) in C++ to count total number of word “THE” present in the text file “story.txt”. 2

(b) Assuming the class ANTIQUE as declared below, write a function in C++ to read the objects of ANTIQUE from binary file “ANTIQUE.DAT” and display those antique items which are priced between 10000 and 15000. 3

```

class ANTIQUE
{
int Ano;
char Aname [10];
float price;
Public :
void BUY ( )
{
cin>>Ano;gets (Aname);cin>>Price; }
void show ( )
{
cout <<Ano<<endl;
cout<<Aname<<endl;
cout<<Price<<endl;}
}

float Getprice ( ) {return price; } };

```

- Q.6 (a) What do you mean by degree and cardinality? 2
- (b) Write SOL queries for (a) to (f) and write the outputs for the SOL queries mentioned shown in (g1) to (g4) parts on the basis of tables ITEMS and TRADERS

| TABLE ITEMS |                    |     |       |            |       |
|-------------|--------------------|-----|-------|------------|-------|
| CODE        | INAME              | QTY | PRICE | COMPANY    | TCODE |
| 1001        | DIGITAL PAD 12;    | 120 | 11000 | XENITA     | TO1   |
| 1006        | LED SCREEN 40      | 70  | 38000 | SANTORA    | TO2   |
| 1004        | CAR GPS SYSTEM     | 50  | 21500 | GEOKNOW    | TO1   |
| 1003        | DIGITAL CAMERA 12Y | 160 | 8000  | DIGICLICK  | TO2   |
| 1005        | PEN DRIVE 32 GB    | 600 | 1200  | STORE HOME | TO3   |

| TABLE TRADERS |                  |         |
|---------------|------------------|---------|
| TCODE         | INAME            | CITY    |
| TO1           | ELECTRONIC SALES | MUMBAI  |
| TO3           | BUSY STORE CORP  | DELHI   |
| TO2           | DISP HOUSE INC   | CHENNAI |

- (a) To display the details of all the items in ascending order of item names (ie. INAME)
- (b) To display item name and price of all those, whose price is in the range of 10000 and 22000 (both values inclusive).
- (c) To display the number of items, which are traded. The expected output of this query should be
- |     |   |
|-----|---|
| TO1 | 2 |
| TO2 | 2 |
| TO3 | 1 |
- (d) To display the price, item name (i.e. INAME) and quantity (i.e. Qty) of these items which have quantity more than 150.
- (e) To display the names of those traders, who are either from DELHI or from MUMBAI.
- (f) To display the names of the companies and the names of the items in descending order of company name.
- (g) Obtain the output of the following SOL queries based on the given tables.
- (g1) SELECT MAX (PRICE) MIN (PRICE) FROM ITMES;
- (g2) SELECT PRICE \* QTY Amount FROM ITEMS where CODE=1004;
- (g3) SELECT DISTINCT TCODE FROM ITEMS;
- (g4) SELECT TNAME, INAME, FROM ITEMS I, TRADERS T WHERE I.TCODE=T. TCODE AND QTY <100;

$$1 \times 6 + \frac{1}{2} \times 4 = 8$$

- Q.7 (a) State and verify and De Morgan's law. 2
- (b) Write the POS form of Boolean function on H, which is represented in a TT as follows : 1

| X | Y | Z | H |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

- (c) Simplify following Boolean function using K-Map. 2  
 $F(A,B,C,D) = \sum (0,1,2,4,5,7,8,9,14,15)$
- (d) Draw circuit diagram for the following :- 1×2=2
- (i)  $A'BC + AB'C' + A'B'C'$  (ii)  $AB' + BC + AC'$  (using NAND gates only)

\*\*ALL THE BEST\*\*

Roll. No.

Code No. 12/NLCS/Physics/43

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 70

Question No. 1 to 5 carry One Mark only.

- Q.1 What is the power dissipation in an a.c. circuit in which voltage and current are given by –  
 $E=150 \sin ( \omega t+ \frac{\pi}{2} )$  and  $I=10 \sin \omega t$ .
- Q.2 Can repulsion considered to be the surest test of magnetisation?
- Q.3 Is there some way of producing high voltage on your body without getting shock?
- Q.4 Draw a graph between charge and capacitance of a capacitor? Define nature also.
- Q.5 A beam of  $\alpha$  particle projected along +  $x$  – axis experience a force due to magnetic field along +  $y$  axis. What is the direction of magnetic field?

Question No. 6 to 10 carry Two Marks each.

- Q.6 Why is it more economical to transmit electrical energy at high voltage and low current?
- Q.7 A current is set up in a long copper pipe. Is there a magnetic field – (i) Inside (ii) outside the pipe.
- Q.8 Why is the value of dielectric constant (K) for a metal infinite?
- Q.9 When we say that power produced in a resistor of resistance  $R, P = I^2 R$  OR  $P = \frac{V^2}{R}$ , how do we get the relationship of power and resistance? Which formula should one use?
- Q.10 A bird sitting on a high voltage line fly off as soon as current is passed through the wire. Why?

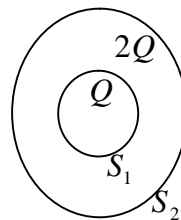
Question No. 11 to 22 carry Three Mark each.

- Q.11 What is a wheat stone bridge? Deduce the condition for which wheat stone bridge is balanced?
- Q.12 An inductor acts as conductor for D.C. Why?
- Q.13 State and prove Ohm's law in vector form?
- Q.14 Calculate the potential energy of a system of equal charges each of magnitude  $q$  coulomb placed at the corners of a cube of side  $r$  meter.
- Q.15 Name the constituent radiation of electromagnetic spectrum which –
- (i) Is used in satellite communication?      (ii) Is used for studying crystal structure?
  - (iii) Is similar to the radiations emitted during decay of radioactive nucleus?
  - (iv) Has its wave length range between 390nm and 770nm?
  - (v) Is absorbed from sunlight by ozone layer.
  - (vi) Produces intense heating effect.
- Q.16 The vertical component of earth magnetic field at a given place is  $\sqrt{3}$  times its horizontal component. If total intensity of earth's magnetic field at a place is  $I$ , find the value of – (i) Angle of dip (ii) The horizontal component of earth's magnetic field.

Q.17 Find out the Equivalent E.m.f. and equivalent internal resistance, when number of cells are connected in parallel.

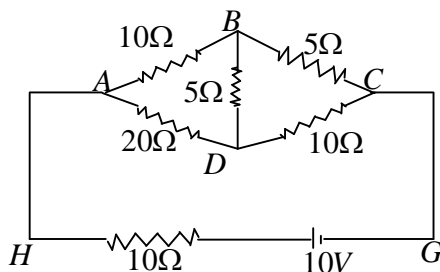
Q.18  $S_1$  and  $S_2$  are two hollow concentric sphere enclosing charges  $Q$  and  $2Q$  respectively as shown in fig.

- (i) What is the ration of the electric flux through  $S_1$  and  $S_2$  ?
- (ii) How will the electric flux through the sphere  $S_1$  change, if a medium of dielectric constant  $5K$  is introduced in the space inside  $S_1$  in place of air?



Q.19 To find out the torque on a rectangular current loop placed in a uniform magnetic field.

Q.20 Determine the current in each branch of the network as shown in fig.



Q.21 Find magnetic field due to a current carrying circular coil at any point on the axis of the coil

Q.22 “Lenz law is the consequence of conservation of energy”. Explain this statement with suitable example.

**Question No. 23 Value Based carry Four Mark only.**

**Q.23 One of the school teacher left her car headlight on while parking. The car would not start when she returned seeing her struggle some junior students of the school went to her help. Not knowing much about cars they ran and rought the help of plus two students of their school. The senior students realized that the battery had got discharged as the headlights had been left on for a long time. They brought another battery and connected its terminals to the terminals of the car battery to get the engine started. Once the engine was running they disconnected the second battery. The teacher thanked all the students for helping her.**

- (i) What values did junior students have?
- (ii) What values did senior student have?
- (iii) What negative and positive values teacher have?
- (iv) The storage battery of a car has an e.m.f. of 12V. If the internal resistance of battery is  $0.4 \Omega$ , what is the maximum current that can be drawn from the battery?

**Question No. 24 to 26 carry Five Marks each.**

Q.24 Three concentric spherical metallic shells A, B and C of radii  $a$ ,  $b$  and  $c$  [ $a < b < c$ ] have surface charge densities  $\sigma$ ,  $-\sigma$  and  $\sigma$  respectively.

- (i) Find potential of three shells A, B and C.
- (ii) If A and C are at same potential, obtain a relation between  $a$ ,  $b$  and  $c$ .

OR

- (i) Show that the force on each plate of a parallel plate capacitor has a magnitude equal to  $\frac{1}{2}QE$ , where  $Q$  is the charge on the capacitor and  $E$  is magnitude of electric field between the plates. Explain the origin of the factor  $\frac{1}{2}$ .
- (ii) A small sphere of radius  $r_1$  and charge  $q_1$  is enclosed by a spherical shell of radius  $r_2$  and charge  $q_2$ . Show that if  $q_1$  is positive, charge will necessarily flow from the sphere to shell no matter what the charge  $q_2$  on the shell is?

Q.25 What is a cyclotron? What the help of a diagram, describe its principle, construction, working and explain the resonance condition in cyclotron?

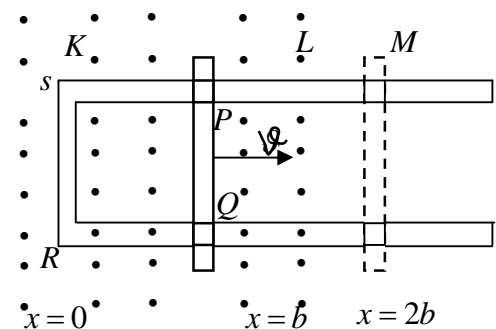
OR

Explain the phenomenon of hysteresis. Draw hysteresis curve and explain it, use this graph to define type of ferromagnetic materials.

Q.26 A series LCR circuit is connected to an a.c. source using the phasor diagram, derive the expression for the impedance of the circuit. Plot a graph to show variation of current with frequency of the source, explaining the nature of variation.

OR

- (i) Show that the induced charge does not depends upon rate of change of magnetic flux.
- (ii) In a given fig. the arm  $PQ$  of a rectangular conductor is moved from  $x = 0$ , outwards. The uniform magnetic field is perpendicular to the plane and extends up to  $x = b$  and is zero for  $x > b$ . Further, only the arm  $PQ$  possess substantial resistance  $r$ . Consider the situation when the arm  $PQ$  is pulled outwards from  $x = 0$  to  $x = 2b$ , and is then move back to  $x = 0$  with constant speed  $v$ . Obtain expressions for the flux, the induced e.m.f., the force necessary to pull the arm and the power dissipated as Joule loss. Sketch the variation of these quantities with distance.



**\*\*ALL THE BEST \*\***



Roll. No.

Code No. 12/NLCS/Biology/15

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 70

**General Instruction :- All the Questions are compulsory.**

Section A consists of 5 questions of **One Mark** each. Section B consists of 5 questions of **Two Marks** each. Section C consists of 12 questions of **Three Marks** each. Section D consists of a value based question that carries **Four Marks**. Section E consist of 3 questions of **Five Marks** each, wherein an internal choice has been provided.

### Section A

- Q.1 Mention any two events that are inhibited by the intake of oral contraceptive pills to prevent pregnancy.
- Q.2 Mention the importance of LH surge in menstrual cycle.
- Q.3 Name the event, during cell division cycle that results in gain or loss of chromosomes.
- Q.4 Why is hr RNA required to undergo splicing?
- Q.5 What is cosmozoic theory of origin of life?

### Section B

- Q.6 What are okazaki fragments. Explain briefly.
- Q.7 Explain why DNA is considered a better hereditary material than RNA?
- Q.8 (i) What is the difference between a meiocyte and a gamete as regards to chromosome number?
- (ii) Why is a whiptail lizard referred to as parthenogenetic?
- Q.9 Differentiate between a grazing and a detriters food chain. Also give examples of each.
- Q.10 Draw the L.S. of an embryo of grass and label it.

### Section C

- Q.11 A tall pea plant with yellow seeds (heterozygous for both traits) is crossed with a dwarf pea plant with green seeds. Using a punnett square, work out a cross to show the phenotypes and genotypes of F<sub>1</sub> Generation.
- Q.12 State the conditions of (characteristic features) of genetic code and explain them.
- Q.13 Explain natural selection with respect to industrial melanism.
- Q.14 Differentiate between DNA polymerase and RNA polymerase.
- Q.15 Explain the three basic types of interspecific interaction.
- Q.16 What is polyblend? Explain the case study associated with it. Also write its advantages.
- Q.17 Describe the processes and products of decomposition. Also write its importance.

- Q.18 (a) Explain the competition exclusion principle with appropriate example.  
(b) Why do cattle avoid browsing on calotropis?
- Q.19 Draw the well labeled diagram of Graafian follicle.
- Q.20 Differentiate between the embryo of grass & that of a bean. Also draw the diagram of an albuminous seed.
- Q.21 Differentiate between micro and megasporogenesis write any six differences.
- Q.22 Briefly explain IVF and ET, what are the conditions in which these methods are advised.

**Section D ( Value Base)**

- Q.23 Presently, air quality of Delhi has significantly improved in comparison to what existed before 1997. This is the result of a lot of conscious human efforts. You are being asked to conduct an awareness programme in your locality where in you will comment on the steps taken by Delhi Govt. to improve the air quality.**
- (i) Write any two of your comment.**
- (ii) List any two ways that you would include in your programme so as to ensure the maintenance of good quality of air.**
- (iii) State any two values your programme will inculcate in the people of your locality.**

**Section E**

- Q.24 Give a schematic representation of oogenesis in human female indicating the chromosomal number at each step. Mention at what stage of female life does each phase occur.

**OR**

Explain pollen pistil interaction. Also explain the different outbreeding devices.

- Q.25 Explain the Lac operon? How is the operon switched 'on' and off in the expression of gene in this operon? Explain.

**OR**

Give an account of the factors that affect Hardy Weinberg equilibrium.

- Q.26 (a) Explain with the help of a graph the population growth curve when resources are -  
(i) limiting (ii) not limiting.
- (b) Nature has a carrying capacity for a species. Explain.

**OR**

What is ecological succession. Explain Xerarch succession.

\*\*ALL THE BEST \*\*

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 100

**General instructions:**

1. All questions are compulsory. Marks for questions are indicated against each. Answer should be brief and to the point and word limit should be adhered to as far as possible.
2. All parts of a question should be answered at one place.
3. Questions 1-5 and 16-20 are MCQ carrying 1 mark.
4. Questions 6-8 and 21-23 are short answer carrying 3 marks. Word limit not exceeds 60 words each.
5. Questions 9 -11 and 24-26 carrying 4 marks word limit 70.
6. Question 12-15 and 27-30 carrying 6 marks word limit 100 words each.

### SECTION – A ( MICRO ECONOMICS )

- Q.1 When demand curve is parallel to  $x$  axis  $E_d$  would be ----- ? 1  
 (a)  $E_D=1$                       (b)  $E_D=\infty$                       (c)  $E_D=0$                       (d)  $E_D>1$
- Q.2 In case of indifference, consumer is in equilibrium when -----? 1  
 (a)  $MRS_{xy} = \frac{P_x}{P_y}$                       (b)  $MRS_{xy} > \frac{P_y}{P_x}$                       (c)  $MRS_{xy} = \frac{P_y}{P_x}$                       (d)  $MRS_{xy} < \frac{P_x}{P_y}$
- Q.3 Define production function. 1
- Q.4 Price discrimination is found in ----- market. 1  
 (a) Perfect                      (b) Monopoly                      (c) Oligopoly                      (d) Monopolistic competition
- Q.5 In monopoly market, new firm can enter the industry to raise the supply (True / False). 1
- Q.6 Define Micro economic. What are its components? 3
- Q.7 Explain why a PPC is concave? 3

OR

Explain MOC with the help of an example.

- Q.8 Supply of a goods increases from 1000 units to 1200 units and its prices rises by 10% determine elasticity of supply. 3
- Q.9 Explain with examples factors affecting elasticity of demand. (Any Four) 4

OR

Explain factor affecting demand of commodity with examples. (Any Four)

- Q.10 By spending his entire income only on two goods  $x$  and  $y$  a consumer finds that  $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$ .

Explain how will the consumer react.

OR

By spending his entire income only on two goods  $x$  and  $y$  a consumer finds that  $\frac{MU_x}{Px} < \frac{MU_y}{py}$ .

Explain how will consumer react. 4

Q.11 Market of commodity is in equilibrium. "Demand for the commodity increases". Explain the chain effect of this change till the market again reaches equilibrium. Use diagram. 4

Q.12 Derive the law of demand from the single commodity equilibrium condition "**marginal utility price**". 6

Q.13 Show that the rising portion of marginal cost curve is the supply curve of a competitive firm. 6

Q.14 With the help of a suitable diagram, explain the relationship between TC, TFC and TVC. 6

OR

How can one obtain total variable cost from marginal cost curve?

Q.15 Give reason whether the statement is true or false : 6

- (i) Firm's demand curve under oligopoly is indeterminate.
- (ii) In a situation of excess supply, market price of the commodity falls.
- (iii) Demand curve facing a monopolistically. Competition firm is likely to be very elastic.

**SECTION – B ( MACRO ECONOMICS)**

Q.16 Whether arms used by force are a ----- . 1

- (a) Final goods      (b) intermediate good      (c) semi finished goods      (d) None of above

Q.17 Which of the following income is not a domestic factor income? 1

- (a) output of tertiary sector      (b) profit from bank  
(c) Interest paid on capital lent      (d) Amount sent by son working abroad

Q.18 Which of the following is part of money supply? 1

- (a) Current with public (b) Current Deposit      (c) other Deposits with RBI      (d) All

Q.19 Is money supply a stock and flow? 1

Q.20 Define Bank Rate. 1

Q.21 Define average propensity to consume. How it is measured? 3

Q.22 In an economy  $S = -50 + 0.5Y$  is the saving function and investment expenditure is 7000 calculate equilibrium level of national income. 3

Q.23 Explain the 'store of value' function of money. 3

OR

Explain the 'standard of deferred payment' function of money.

Q.24 What are the components of aggregate expenditure? 4

Q.25 Explain problem of double counting in estimating National Income with help of an example. 4

Q.26 If government spending leads to multiple times increases in G.D.P., why should fiscal deficit be curbed? 4

OR

Shouldn't greater saving imply greater investment and greater flow of goods and services.

Q.27 Outline the steps in deriving saving curve from the given consumption curve. Use diagrams. 6

Q.28 Calculate 'Gross National Disposable Income' From the following data : 6

|                                     | ₹ in crore |
|-------------------------------------|------------|
| NET DOMESTIC PRODUCT AT FACTOR COST | 3000       |
| INDIRECT TAXES                      | 300        |
| NET CURRENT TRANSFERS FROM ROW      | 250        |
| CURRENT TRANSFERS FROM THE GOVT.    | 100        |
| NET FACTORS INCOME TO ABROAD        | 150        |
| CONSUMPTION OF FIXED CAPITAL        | 200        |
| SUBSIDIES                           | 100        |

Q.29 Explain the functions of Central Bank? 6

**OR**

Explain credit creation by Commercial Bank.

Q.30 State briefly the various instruments of monetary policy. 6

**OR**

Calculate  $NDP_{MP}$  and  $GNDI$  .

|                                              | ₹ in crore |
|----------------------------------------------|------------|
| (i) Private final consumption expenditure    | 400        |
| (ii) Opening stock                           | 10         |
| (iii) Consumption of fixed capital           | 25         |
| (iv) Import                                  | 15         |
| (v) Govt. Final consumption Expenditure      | 90         |
| (vi) Net current transfers of rest of world. | 5          |
| (vii) Gross domestic fixed capital formation | 80         |
| (viii) Closing stock                         | 20         |
| (ix) Exports                                 | 10         |
| (x) Net factor income to abroad              | -5         |

**\*\*ALL THE BEST \*\***

Roll. No. 

Code No. 12/NLCS/Chemistry/43

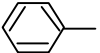
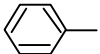
## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 70

General Instruction :-

Question No. 1 to 5 carry **One Mark** each.Question No. 11 to 22 carry **Three Marks** each.Question No. 24 to 26 carry **Five Marks** each.Question No. 6 to 10 carry **Two Marks** each.Question No. 23 carry **Four Mark**.

- Q.1 What is the order of the reaction which has rate constant  $K=3 \times 10^{-4} \text{ L mol}^{-1} \text{ S}^{-1}$ ?
- Q.2 What is the effect of temperature on Chemisorption?
- Q.3 What do you mean by flux?
- Q.4 Write IUPAC name of  $\text{K}_3[\text{Fe}(\text{C}_2\text{O}_4)_3]$ .
- Q.5 Give the structure of 1-phenylpropan-2-ol.
- Q.6 Analysis shows that nickel oxide has the formula  $\text{Ni}_{0.98}\text{O}_{1.00}$ . What fractions of the nickel exist as  $\text{Ni}^{+2}$  and  $\text{Ni}^{+3}$  ions.
- Q.7 The conductivity of 0.001M acetic acid is  $4 \times 10^{-5} \text{ s/cm}$ . Calculate the dissociation constant of  $\text{CH}_3\text{COOH}$  of molar conductivity at infinite dilution for  $\text{CH}_3\text{COOH}$  is  $390 \text{ scm}^2/\text{mol}$ .
- Q.8 Copper can be extracted by Hydrometallurgy but not zinc. Explain?
- Q.9 Draw isomers of - (i)  $[\text{CO}(\text{NH}_3)\text{Cl}(\text{en})_2]^{2+}$  (ii)  $[\text{Pt}(\text{NH}_3)(\text{H}_2\text{O})\text{Cl}_2]$ .
- Q.10 Complete the reactions - (i)   $\text{OH} \xrightarrow{\text{SOCl}_2}$   
(ii)   $\text{CH}_2 \xrightarrow{\text{Peroxide}} \text{CH}=\text{CH}_2 + \text{HBr}$
- Q.11 Niobium crystallises in a body centered cubic structure. If density is  $8.55 \text{ g cm}^{-3}$ . Calculate atomic radius of niobium using its atomic mass is 93u.
- Q.12 A solution of glucose in water is labeled as 20% w/w. What would be the molality and mole fraction of each component in the solution? If the density of the solution is  $1.5 \text{ g ml}^{-1}$ , then what shall be the molarity of the solution?
- Q.13 Aluminium crystallises in a cubic closed packed structure. Its metallic radius is 125 PM.  
(i) What is the length of the side of the unit cell?  
(ii) How many unit cells are there in  $1 \text{ cm}^3$  of Aluminium?
- Q.14 The rate constant for the 1<sup>st</sup> order decomposition of  $\text{H}_2\text{O}_2$  is given by the following equation  
 $\log K = 14.34 - \frac{1.25 \times 10^4 K}{T}$  calculate  $E_a$  for this reaction and at what temperature will its half period be 256 min?
- Q.15 The decomposition of A into product has value of K as  $4.5 \times 10^3 \text{ sec}^{-1}$  at  $10^\circ\text{C}$  and energy of activation  $60 \text{ kJ mol}^{-1}$ . At what temperature would K be  $1.5 \times 10^4 \text{ sec}^{-1}$ ?

- Q.16 Define – (i) Macro molecular solution (ii) peptisation (iii) Emulsion
- Q.17 Explain what happen :
- When a beam of light is passed through a colloidal solution.
  - An electrolyte, NaCl is added to hydrated Ferric oxide solution
  - Electric current is passed through colloidal solution
- Q.18 Write the principle of refining metals by the following method :
- Zone refining
  - electrolytic refining
  - vapour phase refining
- Q.19  $[\text{Cr}(\text{NH}_3)_6]^{3+}$  is paramagnetic while  $[\text{Ni}(\text{CN})_4]^{2-}$  is diamagnetic. Explain. Why?
- Q.20 How will you bring about the following conversion :
- Ethanol to but-1-yne
  - Ethane to bromoethane
  - Propene to I-nitropropane
- Q.21 (i) Why are arylhalides less reactive towards nucleophilic substitution reaction than alkyl halides?
- (ii) Which of the following undergo SN 1 reaction faster & why?
- Q.22 Explain why P-nitrophenol is more acidic than phenol.
- Q.23 One day some mischievous students removed the label of the bottle containing methanol and diethylether. Drishti, an obedient student informed the teacher about this.**
- Which of the above reagent will not react with grignard reagent?
  - What test we should perform to distinguish the chemical?
  - Write the value shown by Drishti.
- Q.24 (i) Conductivity of 0.00241M acetic acid is  $7.896 \times 10^{-5} \text{ scm}^{-1}$ . Calculate its molar conductivity. If  $\Lambda^{\circ}_m$  acetic acid is  $390.5 \text{ scm}^2 \text{ mol}^{-1}$ , what is its dissociation constant.
- (ii) State Kohlrausch law.

**OR**

The molar conductivity of 0.025 mol L<sup>-1</sup> methanoic acid is  $46.1 \text{ scm}^2 \text{ mol}^{-1}$ . Calculate its degree of dissociation & dissociation constant.  $\lambda^{\circ}(\text{H}^+) = 349.6 \text{ scm}^2 \text{ mol}^{-1}$  and  $\lambda^{\circ}(\text{HCOO}^-) = 54.6 \text{ scm}^2 \text{ mol}^{-1}$ .

- Q.25 19.5g of CH<sub>2</sub>FCOOH is dissolved in 500g of water. The depression in the freezing point of water dissolved is 1.0°C. Calculate the Volt Haff factor and dissociation constant of fluoroacetic acid if for water is 1.86 K Kg mol<sup>-1</sup>?

**OR**

- Define : (a) ideal solution (b) Azeotrope
  - The vapour pressure of pure liquids A & B are 450 and 700 mm mg at 350K, respectively. Find out the composition of the liquid mixture, if total vapour pressure is 600 mm mg. Also find the composition of the vapour phase.
- Q.26 (i) For a first order reaction, show that the time required for 99% completion is twice the time required for the completion of 90% of reaction.
- (ii) Define : (i) Pseudo first order reaction (ii) Half life period of reaction ( $t_{1/2}$ )

**OR**

- Distinguish between molecularity and order of reaction.
- The reaction,  $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{NO}(\text{g})$  contributes to air pollution wherever a fuel is burnt in air at a high temp. At 1500K, equilibrium constant K for it, is  $1.0 \times 10^{-5}$ . Suppose in a case  $[\text{N}_2] = 0.80 \text{ mol L}^{-1}$  and  $[\text{O}_2] = 0.20 \text{ mol L}^{-1}$  before any reaction occurs. Calculate the equilibrium concentration of reaction and the product after the mixture has been heated to 1500K.

\*\*ALL THE BEST \*\*

Roll. No.

Code No. 12/NLCS/Business Studies/60

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs.

M. M. 80

General Instruction :-

This Question paper consists of 25 Questions.

- Question No. 1 to 8 carry **One Mark** each. Answer should be in One Word OR One Sentence.
- Question No. 9 to 14 carry **Three Marks** each. Answer should be in about 50-75 words.
- Question No. 15 to 19 carry **Four Marks** each. Answer should be in about 75-100 words.
- Question No. 20 to 22 carry **Five Marks** each. Answer should be in about 75-100 words.
- Question No. 23 to 25 carry **Six Marks** each. Answer should be in about 200 words.

- Q.1 What do you understand by efficiency in management? 1
- Q.2 Workers should be encouraged to develop and carry out their plans for improvements. Identify the principles of management. 1
- Q.3 Define Globalization as a process of economic reforms in one sentence. 1
- Q.4 Reserve 10% seats for women in xyz Ltd. Identify the type of plan? 1
- Q.5 "It is grouping of activities necessary to attain enterprise objective and the assignment of each grouping to a manager with authority necessary to supervise it". In above statement find out the function of management? 1
- Q.6 Name the steps of staffing process which perform before recruitment. 1
- Q.7 It is a paid form of non personal presentation and promotion of ideas, goods or services by an identified sponsor". Identify the function of marketing? 1
- Q.8 How does packaging act as a silent salesman? 1
- Q.9 Which consumer right is highlighted in the advertising for "**Jago Grahak Jago**" and "**Apne Adikar**"? Explain it. 3
- Q.10 Why is selection considered to be a negative process? 3
- Q.11 Radhika Ltd. is thinking of decentralization of the decision-making power to every level in the organization. Name the values that the company show by this decision? 3
- Q.12 Mohan, a manager Expects his subordinates to work only for the happiness and pleasure of being in the organization. Which principles is being overlooked in this? Explain. 3
- Q.13 Coordination is needed only at top level". Do you agree with this statement? Give reasons. 3
- Q.14 Somya believes that the five functions of management are needed in sports club, hospitals, schools etc., as they are not run on commercial basis. 1+3=4
- (i) Do you agree with Somya?
- (ii) Identify the features of management ignored in the given case? Explain.
- Q.15 Name and explain the principle of management according to which a manager should replace "I" with "we" in all this conversation with workers? 4
- Q.16 What does the term "span of management" refer to? 4



- Q.17 Priya Ltd. decided to advertise its products on FM channels of radio. What type of plan is it. 4
- Q.18 External sources of recruitment are considered better than internal sources". Give any three reasons in support of this statement? 4
- Q.19 Product is a bundle of utilities. Do you agree? Comment. 4
- Q.20 **"The Indian corporate sector has come face to face with several challenges due to Govt. policy changes"**. Explain such challenges. 5
- Q.21 You are the personal manager of Kapila and company Ltd., you have been directed by the Directors of the company to select a chartered Accountant for the company. Explain the procedure you will follow for the same. 5
- Q.22 Explain the importance of consumer protection from the point of view of business? 5
- Q.23 **"An important task in the marketing of goods relates to designing the label as it provides useful and detailed information about the product"**. In the light of the above statement **draw a label for "Tea"** and highlight the important information to be provided on it? 6
- Q.24 LG Company is producing televisions, computers and Air conditioners. All the activities of company with respect to each type of electronic item are under one department. Due to this, the company is not able to achieve its objectives.
- (a) Which principle of mgt. is not observed by LG Company.
- (b) What should be done so that company can achieve its objectives. 6
- Q.25 The sales manager of sell well Ltd. visited a hospital to sell his company's products. The purchase manager of the hospital was keen to purchase the products in fact for all the branches of his hospital across India but he asked the sales manager to give him 30% discount. Though the manager knew that it was a big order and company would be able to make profits even after offering 30% discount but he could not offer prices better than the price he had been given by the sales director.
- He tried to contact the director but he was unavailable. As a result the order could not be finalized.
- Identify and explain the limitations of planning the sales manager had to face while discussing order with the prospective customer? 6

**\*\*ALL THE BEST \*\***

**Quarterly Examination 2016 – 17****Time: 3:00 Hrs****M.M. 80****Part – A**

- Q.1 Under what circumstance will the premium for goodwill paid by the incoming partner not be recorded in the books of accounts ? 1
- Q.2 Name the asset that is not transferred to the debit side of Realisation account, but brings certain amount of cash against its disposal at the time of dissolution of the firm. 1
- Q.3 What is meant by private placement of shares of shares ? 1
- Q.4 The partnership deed is silent on payment of salary to partners. Amita, a partner, claimed that since she managed the business, she should get a monthly salary of ₹ 10,000. Is she entitled for the salary ? Give reason. 1
- Q.5 P, Q and R were partners in a firm sharing profits in the ratio of 5 : 4 : 3 respectively. Their capitals were ₹ 60,000, ₹ 30,000 and ₹ 40,000 respectively. State the ratio in which the goodwill of the firm, amounting to ₹ 6,00,000, will be adjusted in the capital accounts of the remaining partners on the retirement of Q. 1
- Q.6 What do you mean by Reserve Capital ? 1
- Q.7 (a) Write any two difference between Private company and Public company.  
(b) What do you mean by ESOP ? (2+1)=3
- Q.8 Vijay Ltd. Purchased plant and machinery of ₹ 5,00,000. Vijay Ltd issued a bills of exchange ₹ 70000, ₹ 38000 paid in cash and for balance company issued equity shares at 12% premium. You required to prepare journal entries for the above transactions in the books of vijay ltd. 3
- Q.9 A Ltd. was registered with an authorised capital of ₹ 10,00,000 divided into equity shares of ₹ 10 each. The company invited applications for the issue of 50,000 shares. Applications for 48,000 shares were received. All calls were made and were duly received except the final call of ₹ 2 per share on 1,000 shares. Second call of ₹ 3 per share was not made. All these shares were forfeited and later on re-issued at ₹ 9,000 as ₹ 7 paid up.  
(i) Show how —Share Capital will appear in the Balance Sheet of A Ltd. as per the Companies Act,  
(ii) Also prepare —Notes to Accounts for the same. 3

Q.10 Raman, Ratan and Rajan were partners sharing profits in the ratio of 4 : 2 : 1 respectively. Following was their Balance Sheet as at 31st March, 2013 :

| Liabilities     | Amount (₹)      | Assets       | Amount (₹)      |
|-----------------|-----------------|--------------|-----------------|
| Capitals :      |                 | Cash         | 14000           |
| Raman           | 60000           | Stock        | 30000           |
| Ratan           | 40000           | Debtors      | 22000           |
| Rajan           | 30000           | Building     | 40000           |
| Bills Payable   | 4000            | Plant        | 53000           |
| Creditors       | 30000           | Motor Van    | 26000           |
| General Reserve | 21000           |              |                 |
| <b>Total</b>    | <b>1,85,000</b> | <b>Total</b> | <b>1,85,000</b> |

On the above date Raman retired and following were agreed :

(i) The assets and liabilities were valued as : Stock ₹ 24,000, Debtors ₹ 21,000, Building ₹ 45,200, Plant ₹ 50,000 and Creditors ₹ 28,000.

(ii) Amount due to Raman will be transferred to Raman's loan account. Prepare Revaluation Account and Raman's Capital Account. 3

Q.11 Give journal entries for following transactions at the time of Dissolution :

1. 50% stock take over by Karan ( partner of firm ) at 10% discount and remaining stock sold at 20% profit at ₹ 78000.

2. Expenses of realisation borne by Harsh up to ₹ 1800. Actual expenses ₹ 2300 Paid by Karan. ( Karan & Harsh Both are partner of firm) 4

Q.12 Gopal, Govnd & Krishna are partners ia a firm sharing profit in ratio of 5:3:2. They admit Murari as a new partner in to the firm for 1/3 share in profit. Remaining profit distributed by old partners equally. Goodwill of the firm valued at ₹ 90,000. Murari give his share of goodwill in cash. Give journal entries of goodwill in the books of firm. 4

Q.13 Rohan Ltd invited applications for issuing 400000 shares of ₹ 10 each at 20% premium.

The amount was payable as follows:

On Application ₹ 4 , On Allotment ₹ 5 ,On first and final call- Balance.

Company allotted shares in following group

( I ) 40000 shares ( application : share ratio is 100% )

( II ) 120000 shares ( application : share ratio is 80% )

( III ) 240000 shares ( application : share ratio is 50% )

30000 applications were rejected. Any excess amount adjusted in allotment amount

Rajiv holder of 4000 shares ( from II group ) & Kamal ( from III group ) applied for 5000 shares both are failed to pay allotment amount.

Calculate amount received at time of application and allotment for company. 6

Q.14 A, B and C were partners in a firm. On 1st April, 2012 their capitals stood as ₹ 5,00,000; ₹ 2,50,000 and ₹ 2,50,000 respectively. As per provisions of the partnership deed :

(i) C was entitled for a salary of ₹ 5,000 per month.

(ii) A was entitled for a commission of ₹ 80,000 p.a.

(iii) Partners were entitled to interest on capital @ 6% p.a

(iv) Partners will share profits in the ratio of capitals.

Net profit for the year ended 31.03.2013 was ₹ 3,00,000 which was distributed equally, without taking into consideration the above provisions. Showing your workings clearly, pass necessary adjustment entry for the above. 6

Q.15 A, B and C are partners in a firm sharing profits in the ratio of 5 : 3 : 2 respectively. Their Balance Sheet as on 31st March, 2013 was as follows : 6

**Balance Sheet as on 31st March, 2013**

| Liabilities  | Amount (₹)   | Assets       | Amount (₹)   |
|--------------|--------------|--------------|--------------|
| Creditors    | 12000        | Cash         | 13000        |
| Reserves     | 10000        | Debtors      | 8000         |
| Capitals :   |              | Stock        | 10000        |
| A            | 30000        | Machinery    | 30000        |
| B            | 20000        | Buildings    | 20000        |
| C            | 15000        | Patents      | 6000         |
| <b>Total</b> | <b>87000</b> | <b>Total</b> | <b>87000</b> |

On 1st October, 2013, due to illness B died. It was agreed between the firm and B's executors that the amount due to B will be used for construction of a community hall in the village. As per the agreement :

(i) Goodwill is to be valued at two years purchase of the average profits of previous five years, which were : 2009 - ₹ 10,000; 2010 - ₹ 13,000; 2011 - ₹ 12,000; 2012 - ₹ 15,000 and 2013 - ₹ 20,000.

(ii) Patents were valued at ₹ 8,000; Machinery at ₹ 28,000 and Buildings at ₹ 30,000.

(iii) B's share of profit till the date of his death will be calculated on the basis of profit of the year 2013.

(iv) Interest on capital will be provided at 10% p.a.

(v) Amount due to B's executors will be transferred to Charity account.

(a) Prepare B's capital account to be presented to his executor and

(b) Identify any one value being highlighted in the question.

Q.16 Alfa and Beta were partners in a firm. They were trading in artificial limbs. On 1st April, 2013 they admitted Gama, a good friend of Beta into the partnership. Gama lost his one hand in an accident and Alfa and Beta decided to give one artificial hand free of cost to Gama. The Balance Sheet of Alfa and Beta as at 31st March, 2013 was as follows :

**Balance Sheet of Alfa and Beta as at 31st March, 2013**

| Liabilities                  | Amount (₹)     | Assets              | Amount (₹)     |
|------------------------------|----------------|---------------------|----------------|
| Provision for Doubtful Debts | 40,000         | Cash                | 1,00,000       |
| Workmen's Compensation Fund  | 56,000         | Sundry Debtors      | 8,00,000       |
| Outstanding Expenses         | 30,000         | Stock               | 2,00,000       |
| Creditors                    | 3,00,000       | Machinery           | 3,86,000       |
| Capitals :                   |                | Profit and Loss A/c | 40,000         |
| Alfa                         | 5,00,000       |                     |                |
| Beta                         | 6,00,000       |                     |                |
| <b>Total</b>                 | <b>1526000</b> | <b>Total</b>        | <b>1526000</b> |

Gama was admitted in the firm on the following terms :

- (i) Gama will bring in ` 2,50,000 as his share of capital, but he was unable to bring any amount for goodwill.
- (ii) The new profit sharing ratio between Alfa, Beta and Gama will be 3 : 2 : 1.
- (iii) Claim on account of workmen compensation was ` 30,000.
- (iv) To write off bad debts amounted to ` 40,000.
- (v) Creditors were paid ` 20,000 more.
- (vi) Outstanding expenses be brought down to ` 12,000.
- (vii) ` 20,000 be provided for an unforeseen liability.
- (viii) Goodwill of the firm was valued at ` 1,80,000.
- (ix) Old partners adjusted their capital according new partner. For this current account will be opened

Prepare Revaluation Account, Capital Accounts of Partners and the opening Balance Sheet of the new firm. Also identify any one value which the partners wanted to communicate to the society. 8

Q.17 R.K. Ltd. Invited applications for issuing 70000 Equity Shares of ` 10 each at a premium of 35 per share. The amount was payable as follows:

On Application ` 15 ( including ` 12 premium)

On Allotment ` 10 ( Including ` 8 premium )

On first and final call- Balance

Application for 65000 share were received and allotment was made to all applicants. A shareholder Ram who was allotted 2000 shares failed to pay allotment money and his share forfeited to immediately after allotment. Afterwards the first and final call was made. Sohan who had 3000 shares failed to pay first and final call. His share also forfeited. Out of the forfeited share 4000 share were reissued at ` 50 per share fully paid up. The reissued shares included all the share of Ram.

Pass necessary Journal Entries for the above transactions in the books of R.K. Ltd. 8

### Part -B

Q.18 State any one objective of analysis of financial statements. 1

Q.19 What is meant by Cash flow ? 1

Q.20 State under which major headings and sub heading the following items will be presented in the Balance Sheet of a company as per the Companies Act, 2013 : 4

- (i) Computer software
- (ii) Accrued Incomes
- (iii) Capital reserve
- (iv) Goods in transict

Q.21 From the following calculate the amount of capital employed : 4

|                   |             |
|-------------------|-------------|
| Total debts       | ` 62,50,000 |
| Working capital   | ` 15,00,000 |
| Current ratio     | 5:3         |
| Debt Equity ratio | 2:3         |

Q.22 Following information is extracted from the Statement of Profit and Loss for the years ended 31st March, 2012 and 2013. Prepare a Comparative Statement of Profit and Loss :

| Particulars                | Note no. | 31.03.2013 ` | 31.03.2012 ` |
|----------------------------|----------|--------------|--------------|
| Revenue from Operations    |          | 50,00,000    | 40,00,000    |
| Employees Benefit Expenses |          | 24,00,000    | 20,00,000    |
| Other Expenses             |          | 3,00,000     | 2,00,000     |
| Tax Rate                   |          | 50%          | 40%          |

Q.23 Prepare a Cash Flow Statement from the following Balance Sheet :

6

| Particulars                         | Note No. | 31.3.2013               | 31.3.2012              |
|-------------------------------------|----------|-------------------------|------------------------|
| <b>I – Equity and Liabilities :</b> |          |                         |                        |
| <b>1. Shareholder’s Fund :</b>      |          |                         |                        |
| (a) Share Capital                   |          | 6,30,000                | 5,60,000               |
| (b) Reserves and Surplus            |          | 3,08,000                | 1,82,000               |
| <b>2. Current Liabilities :</b>     |          |                         |                        |
| Trade Payables                      |          | <u>2,80,000</u>         | <u>1,82,000</u>        |
| <b>Total</b>                        |          | <b><u>12,18,000</u></b> | <b><u>9,24,000</u></b> |
| <b>II – Assets :</b>                |          |                         |                        |
| <b>1. Non-Current Assets :</b>      |          |                         |                        |
| <b>Fixed Assets :</b>               |          |                         |                        |
| Plant                               |          | 3,92,000                | 2,80,000               |
| <b>2. Current Assets</b>            |          |                         |                        |
| (a) Inventories                     |          | 98,000                  | 1,40,000               |
| (b) Trade Receivables               |          | 6,30,000                | 4,20,000               |
| (c) Cash and Cash Equivalents       |          | <u>98,000</u>           | <u>84,000</u>          |
| <b>Total</b>                        |          | <b><u>12,18,000</u></b> | <b><u>9,24,000</u></b> |

***Additional Information :***

- (i) An old machinery having book value of ` 42,000 was sold for ` 56,000.
- (ii) Depreciation provided on machinery during the year was ` 28,000.
- (iii) Equity share of ` 40,000 issued for purchased for plant during the year.

**\*\* ALL THE BEST \*\***

## Quarterly Examination 2016 – 17

Time: 3:00 Hrs

M.M. 70

### Part - A

Question No. 1 to 8 each One Mark.

Question No. 9 to 11 each Two Marks.

Question No. 12 to 18 each Three Marks.

Question No. 19 to 25 each Five Marks.

- Q.1 Define planning?
- Q.2 What is 'seeding'?
- Q.3 What do you mean by balanced diet?
- Q.4 Define nutrition.
- Q.5 What do you mean by motor development?
- Q.6 What do you mean by 'food supplement'?
- Q.7 What do you meant by 'stress'?
- Q.8 What do you meant by 'anxiety'?
- Q.9 Discuss about trakking in detail.
- Q.10 Write the types of common postural deformities?
- Q.11 What do you mean test and measurement in sports?
- Q.12 What are Intramural and Extramural programmes?
- Q.13 What are objectives of Adventure Sports?
- Q.14 What do you mean by food myths? Explain about Three myths of food.
- Q.15 Discuss about types of spinal deformities.
- Q.16 What is weight training? Discuss its advantages and disadvantages.
- Q.17 Discuss about of cardiovascular fitness test.
- Q.18 What is personality? Write dimensions of personality.
- Q.19 What do mean by knock-out Tournament? Draw the fixture of 21 teams on knock out basis.
- Q.20 Define leadership. Explain the leadership Qualities in Physical Education.
- Q.21 What are Nutritive components of Diet?
- Q.22 Mention any five advantages of correct posture.
- Q.23 What are Physical and Physiological Benefits of exercise for children?
- Q.24 What is motor fitness? Explain 'AAPHER' motor fitness test.
- Q.25 What do you mean by motivation. Explain its types and techniques of motivation.