1. Read the poem given below carefully.

FEAR NO MORE

Fear no more the heat of the sun,
Nor the furious winter’s rages;
Thou thy worldly task hast done,
Home art gone and taken thy wages
Golden lads and girls all must,
As chimney sweepers, come to dust.

Fear no more the frown of the great,
Thou are past the tyrant’s stroke,
Care no more to clothe and eat,
To them the reed is as the oak,
The sceptre, learning physic must,

All follow this and come to dust.
Fear no more the lightening flash,
Nor the all-dreaded thunder-storm,
Fear not slanders, censures rash;
Thou hast finished joys and moan.
All lovers young, all lovers must
Consign to thee and come to dust.

Here is an incomplete summary of the poem. Complete it by filling one word for each blank space in your answer sheets along with the correct blank letter. The first one has been done as an example.

Those who are dead have nothing to fear. They have completed their (a)---------and now are resting in their (b)-----------------. They are beyond the reach of the (c)----------------- and the tyrant kings who can (d)-----------------them. The thunder and (e)-----------------too cannot harm or scare them. No harsh criticism will (f)---------- them any more. They alone have not met their death; (g)---------------- will come to all. It spares nobody great or small, learned (h)------------crypt ignorant. All the young and old, all the (i)----------------and low, finally find their way to (j)-----------------.
II. The following paragraphs have not been edited. There is an error in each line indicated. Write out the error and the correction in the space provided as given in the example.

A. Children love picnic and outings of their parents though they are equally happier doing things with them around the house. A parent may make his child feels special by following some simple rituals - bedtime stories, the game of cards or simply talking and laugh together before going to bed. Some give children a wonderful sense of well-being. They hardly ever forgot these moments and cherish them throughout these lives.

B. The giraffe is the taller of all living animals but the scientists are unable to explaining how they got its long neck. A famous French Zoologist, J.B.Lamarck had a theory that in one time the giraffe's neck was much short than it is now. He thought the neck grew with its present length because of a animal's habit of reaching for the tender leaf on the upper branch of the trees. But scientists in general don't accept Lamarck's theory.

e.g. taller tallest

III. In the following passages one word has been omitted in each line. Write out the omitted word along with the words that come before and after it in the space indicated as shown in the example.

A. The television has always very controversial While the positive aspects the electronic media innumerable, their negative impact children cannot be denied. For new piece of information that a child learns the Discovery or National Geographic channel, are also unrealistic stunt shows parents dislike. Computers and T.V have students to lose interest in studies.

e.g. always been very
B. In 14th and 15th centuries, wealthy and leisured society developed extremely complex code of manners, but rules of behaviour of fashionable society has influence on the daily life of the lower classes. Indeed of the rules such as how to enter banquet room, or how to use sword or handkerchief for ceremonial purposes, were irrelevant to way of life of average working man, who spent most of life outdoors or in his own poor hut.

e.g. centuries a wealthy
a)---------------------
b)---------------------
c)---------------------
d)---------------------
e)---------------------
f)---------------------
g)---------------------
h)---------------------

IV. Rearrange the following words or phrases to form meaningful sentences:

1. Is/ one / summer visitors / the/ of the/ swallow/ known/ best
   The swallow is one of the best known summer visitors.
   a) forked tail/ a sheen/ and wings/ on/ it has/ the back/ and/ a long
   b) often/ open spaces/ swallows/ seen skimming/ ponds/over/or/are/ in
   c) beneath it/at/with/dark red/its threat/ a/ it has/blue band/patches
   d) sometimes/busy/they may/in/the/be found/city streets/hunting insects

2. Important/ it is/ to observe/rules/traffic
   It is important to observe traffic rules
   a. not/children/below/of/ the age/must/drive/eighteen years
   b. protection/our/we must/helmets/own/wear/for
   c. used/phones/must/mobile/not be/driving/while
   d. traffic police/making/efforts/is/ to increase/on the roads/ safety

V. With the help of the information given below, complete the paragraph on how to use an oven-toaster-griller

- Do not use without reading the instructions
- Then plug the lead wire
- Place the item to be baked in a baking tray
- Set the temperature as required
- Cover the dish
- Bake till done
- Serve hot
The instruction manual warns us against (a)-----------------the appliance without reading the instructions. The first step is to (b)------------------the lead wire. Next is (c)------------------the oven for pre-heating. The item (d)------------------is placed in a baking tray. (e)------------------the oven at the required temperature is the next step. The dish is then covered. (f)------------------it till it is fully cooked. The dish is then ready to be served.

VI. Fill in the blanks using relative pronouns:

   An eight year old girl(a)------------------was coming with her parents from Dubai, (b)------------------she had been living for the past six years was crushed on the escalator. A fellow passenger’s bag (c)------------------had got stuck was pulled by him(d)------------------the staircase was ripped apart. The girl(e)------------------was just behind him fell into the gap(f)------------------was created as a result of the ripping.

VII. Correct the following sentences using proper tense forms.

1. I am understanding the poem now.
2. As you will sow so shall you reap.
3. The sun is always rising in the east.
4. Where you got this pen from?
5. I am liking it very much.
6. Ravi is owning two cars.
7. It rains now, we can’t go out.
8. Ahmed reads at this moment.
9. Two and two are making four.
10. Mohit is seeing the bus coming.
GENERAL INSTRUCTIONS:

1) The numerical are based on application of theory content. Solve and submit as an assignment in physics.
2) Complete the practical record work during vacation and submit along with summer assignment within one week after re-opening of school.

UNIT 1 PHYSICAL WORLD AND MEASUREMENT

1 Magnitude of force experienced by a certain object moving with speed v is given by \( F = kv^2 \), where k is constant. Find the dimensions of k.
2 If force F, length L and time T are taken as fundamental units then what be the units of mass.
3 Find the value of 60 W on a system having 100g, 20cm and 1 min as the fundamental units.
4 A large fluid star oscillates in shape under the influence of its own gravitational field. Using the dimensional analysis, find the expression for period of oscillation (T) in terms of radius R, mean density of fluid \( \rho \) and universal gravitational constant G.
5 The specific resistance \( \rho \) of a wire is given by \( \rho = \pi r^2 R / l \) where r is radius, R the resistance and l the length of the wire. If \( r = 0.26 \pm 0.01 \) cm ; \( R = 30 \pm 2 \Omega \) and \( l = 75.00 \pm 0.01 \) cm, find the percentage error in \( \rho \).
6 The force \( F = A \cos Bx + C \sin Dt \) where x is displacement and t is time. Find the dimensions of A/C and B/D.

UNIT 2 KINEMATICS

1 A stone thrown vertically up went up to 98 m and came down. How long it was in air?
2 A particle is projected at 60\(^0\) to the horizontal with a kinetic energy K. What is the kinetic energy at the highest point?
3 Find out the time taken by a train of length 400 m to cross a tunnel of length 800 m. If the train is moving with a speed of 180 km/h.
4 Points P, Q and R are in a vertical line such that PQ = QR, a ball at P is allowed to fall freely. What is the ratio of times of descent through PQ and QR?
5 A car starting from rest accelerates at the rate of \( \alpha \) through a distance s, then continues at constant speed for time \( t \) and then decelerates at the rate \( \alpha/2 \) to come to rest. If the total distance is 5s, then prove that \( s = 1/2 \alpha \) ft\(^2\).
6 A particle moves along x-axis in such a way that the x-coordinate varies with time t according to expression \( x = 2 - 5t^2 + 6t \). Find the initial velocity of the particle and acceleration, x is in m and t in s.
A train passes three points A, B and C at 24 km/h, 36 km/h, 54 km/h respectively with uniform acceleration. If the distance AB = 2 km, find the distance BC.

On a foggy day two drivers spot each other when they are just 80 m apart. They are travelling at 72 km/h and 60 km/h respectively. Both of them applied brakes retarding their cars at the rate of 5 m/s^2. Determine whether they avert collision or not.

A ball dropped from a tower will strike the ground in 3 s. If the ball is launched horizontally from the tower at a speed of 10 m/s, how far horizontally from the base of a tower will the ball land on the level ground?

Consider a ball thrown straight upwards reaches its maximum height in 3 s.
• Find out the initial velocity of the ball.
• What is the magnitude of velocity and acceleration of the ball at the maximum height?
• Find out the maximum height reached by the ball.

The position of a particle is given by \( \mathbf{r} = (3.0 \mathbf{i} - 2 \mathbf{j} + 4.0 \mathbf{k}) \text{ m} \), where \( t \) is in s and coefficients have the proper units in m. Find a) velocity (\( \mathbf{v} \)) of the particle.

b) What is the magnitude and direction of the velocity of the particle at \( t = 2 \text{ s} \)?

Find the angular velocities of the minute hand and second hand of a clock.

A ball trapped in a circular path of radius 10 cm moves and completes 10 revolutions in 100 s. What is the angular velocity and linear velocity of its motion.

UNIT 3 LAWS OF MOTION

Three blocks are connected as shown on a horizontal frictionless table and pulled to the right with a force of \( T_3 = 60 \text{ N} \). If \( m_1 = 10 \text{ kg}, m_2 = 20 \text{ kg} \) and \( m_3 = 30 \text{ kg} \), prove that \( T_1 / T_2 = 1/3 \).

A ball P of mass 0.5 kg moving at 10 m/s collides with a 0.4 kg ball Q initially at rest. After the collision, ball P continues in the same direction with a velocity of 1.1 m/s. Neglecting friction, what is the velocity of ball Q after collision?

A block of mass \( m \) rests on a horizontal table of negligible friction. A string is tied to the block, passed over a pulley and another block of mass 4m is hung on the other end of the string. Find the acceleration of the system in terms of \( g \).
4. A 3 kg block is placed on a rough inclined plane. The coefficient of static friction between the plane and the block is 0.2 and the angle of incline is 30°. Will the block slide down the plane or remain at rest?

![Diagram showing forces on a block on an inclined plane]

Hint: if upward force is more, it will remain in the state of rest.

5. A block of weight 180 N is pulled along a horizontal surface at a constant speed by a force of 80 N. The force acts at an angle 300 with the horizontal, as shown.
   i) Find the normal force by the surface on the block.
   ii) Find the frictional force acting between the block and the surface.
   iii) Find the coefficient of friction between the block and the surface.

6. A body of mass 2 kg is being dragged with a uniform velocity of 2 m/s on a rough horizontal plane. The value of \( \mu_k \) is 0.2. Calculate the work done to move it. (\( g = 10 \text{ m/s}^2 \))

7. What is the smallest radius in m of an unbanked circular track around which a cyclist moves with a speed of 54 km/h. Given the coefficient of friction is 0.4. (\( g = 10 \text{ m/s}^2 \))

8. A hammer weighing 1 kg moving with a speed of 20 m/s strikes the head of a nail driving it 20 cm into a wall. Neglecting the mass of the nail calculate
   i) Acceleration during the impact.
   ii) Time interval during the impact.
   iii) Impulse.
1. What would be the IUPAC name and symbol for the element of atomic number (a) 115 (b) 120

2. Give reasons:
   (i) First I.E. of Mg is more than Sodium but second Ionisation energy of Mg is less than Sodium.
   (ii) Cations are smaller and anions larger in radii than their parent atom.
   (iii) Fluorine has less negative electron gain enthalpy than chlorine.
   (iv) The electron gain enthalpy of oxygen is less negative than that of sulphur.
   (v) Lanthanides & actinides are placed in separate rows at the bottom of the periodic table.
   (vi) The bond dissociation energy of Fluorine is lesser than Chlorine.
   (vii) The first ionisation enthalpies for two isotopes of the same elements are same.

3. (i) Which of the following has largest and smallest size: Mg, Mg$^{2+}$, Al, Al$^{3+}$
   (i) Consider the following species: N$^{3-}$, O$^{2-}$, F$^{-}$, Na$^{+}$, Mg$^{2+}$ and Al$^{3+}$.
      (a) What is common in them? (b) Arrange them in the order of increasing ionic radii

4. (i) The first ionization enthalpy values (in kJ/mol$^{-1}$) of group 13 elements are:

<table>
<thead>
<tr>
<th>Elements</th>
<th>Al</th>
<th>Ga</th>
<th>In</th>
<th>TI</th>
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<tbody>
<tr>
<td>$\Delta H_1$</td>
<td>577</td>
<td>579</td>
<td>558</td>
<td>589</td>
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How would you explain this deviation from the general trend?

(iii) What is the basic difference between the terms electron gain enthalpy and electronegativity?

(iii) What is meant by Diagonal relationship in the periodic table. What is due to?

(iv) Predict the position of the element in periodic table satisfying the electronic electronic configuration $n-1)d^1\ ns^2\ for\ n=4$.

(v) write the general outer electronic configuration of d- & f- block elements.
1. (i) Define: (a) limiting reagent (b) Molarity (c) Molality (d) Mole fraction (e) Precision & accuracy
   
   (iii) State the law of definite proportions.

   (iii) Out of 1M and 1m, whose concentration is higher.

   (iv) Which one is temperature dependent, Molarity or Molality and why?

   **NUMERICALS**

   (i) There are two isotopes of an element with atomic mass y. The atomic mass heavier isotope is y+2 and that of lighter one is y−1. Calculate the abundance of lighter isotope.

   (ii) Boron has two isotopes, the relative abundance of $B^{10}$ is 20% and that of $B^{11}$ is 80%. Find the average atomic mass of Boron.

   (iii) 50 g of N$_2$(g) and 10 g H$_2$(g) are mixed to produce NH$_3$(g). Calculate the NH$_3$(g) formed. Identify the limiting reagent in the production of NH$_3$ in this situation.

   (iv) The density of 3M solution of NaCl is 1.25 g ml$^{-1}$. Calculate molality of the solution.

   (v) Concentrated H$_2$SO$_4$ is 98% by weight and has density 1.84 g / cm$^3$. What volume of concentrated acid is required to make 5L of 0.5 M H$_2$SO$_4$. (Molecular mass of H$_2$SO$_4$ = 98 u)

   **CHEMICAL BONDING & MOLECULAR STRUCTURE**

   1. Discuss the shape of the following molecules using the VSEPR model:

   BeCl$_2$, BCl$_3$, SiCl$_4$, AsF$_5$, H$_2$S, PH$_3$, NH$_3$, H$_2$O, ClF$_3$, XeF$_4$, SF$_4$

   2. Compare the bond order, relative stability, of the following species and indicate their magnetic properties:

   (i) N$_2$ (ii) O$_2$ (iii) O$_2^+$ (iv) O$_2^-$ (superoxide) (v) O$_2^{2-}$ (peroxide)

   3. Describe the hybridisation in case of PCl$_5$ and SF$_6$.

   4. Define hydrogen bond and its type. Is it weaker or stronger than the van der Waals forces?.

   5. Distinguish between: (i) sigma and pi bond (ii) Bonding and antibonding molecular orbital 6. Explain the following: (i) Dipole moment (ii) Hybridisation (iii) Resonance.
STRUCTURE OF ATOM

1. State the following: (i) Hund’s rule (ii) Heisenberg’s uncertainty principle. (iii) Aufbau principle (iv) Pauli’s exclusion principle (v) n + I rule (vi) de Broglie relation and its use

(vii) photo electric effect with expression.

2. (i) How many electrons in an atom may have the following quantum numbers?

(a) n = 4, s = \(-\frac{1}{2}\)  (b) n = 3, l = 0

(ii) Using s,p,d,f notations, describe the orbital with the following quantum numbers.

(a) n =3, l=2  (b) n=4, l=1  (c) n =1, l=0  (d) n=4, l=3

3. (i) How will you explain the formation of Balmer lines in the emission spectra of Hydrogen.

(ii) Write the electronic configuration of (a) Chromium (Z = 24) (b) Copper(Z = 29)

(iii) Draw the shapes of orbitals with l = 1 & l = 2.

(iv) Distinguish between: (i) 1s & 2s (ii) orbit and orbital (iii) emission and absorption spectra

NUMERICALS

<table>
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<th>Page number</th>
<th>Question number</th>
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<tr>
<td>67</td>
<td>2.33, 2.34, 2.47</td>
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<td>68</td>
<td>2.49, 2.50, 2.54, 2.55, 2.56, 2.58</td>
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</tbody>
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BASIC PRINCIPLES OF ORGANIC CHEMISTRY

Q 1. What are hybridisation states of each carbon atom in the following compounds?

(i) CH₂=C≡O (ii) CH₃CH=CH₂, (iii) CH₂=CHCN, (iv) C₆H₆ (v) CH₃Cl, (vi) (CH₃)₂CO, (vii) CH₃CN, (viii) HCONH₂,

Q 2. Indicate the σ and π bonds in the following molecules:

(i) C₆H₆ (ii) C₆H₁₂ (iii) CH₂Cl₂, (iv) CH₂ = CH₂, (v) CH₃NO₂, (vi) HCONHCH₃

(vii) HC≡CCH=CHCH₃ (viii) CH₂=CH=CHCH₃

Q 3. Write bond line formulas for (i) Isopropyl alcohol, (ii) 2,3-Dimethyl butanal, (iii) Heptan-4-one. (iv) Cyclopropane (v) Cyclopentane (vi) chlorocyclohexane

Q 4. Give the IUPAC names of the following compounds:

(i) 3-phenyl propane (ii) 2-methyl-1-cyanobutane (iii) 2,5-dimethyl heptanes (iv) 3-bromo-3-chloro heptane (v) 3-chloropropan-1-ol (vi) 1, 1-dichloro-2-ethanol
LABORATORY RECORD

Following is the list of activities to be written in the record book from laboratory manual.

a. General characteristics of families: SOLANACEAE, FABACEAE, and LILIACEAE.
b. Test for the presence of Sugar, Starch, Proteins and Fats in a given plant and animal materials.
c. Study of Osmosis through Potato Osmometer.
d. Study of Plasmolysis.
e. Study of Imbibition using raisins.
f. Experiment to prove anaerobic respiration.
g. Study of different modifications of Roots, Stem and Leaves in plants.
h. Study of cell divisions MITOSIS and MEIOSIS.

PROJECT WORK

1. Structural Organization of COCKROACH.
3. Draw the labeled diagrams of:
   a. Plant tissues
   b. Animal tissues
   c. Cross-sections of Dicot and Monocot Roots, Stems and Leaves.
   d. Human digestive system-alimentary canal and duct system of liver, pancreas, and duodenum.
   e. Human respiratory system.
   f. Human circulatory system-L. S of Heart showing Purkinje system.
   g. Human excretory system
   h. Human nervous system-(i) Section of Human Brain (ii) Eye (iii) Cross section of Spinal cord (iv) Human Ear

Record Book and the project to be submitted in the last week of September 2016.
1. Why a program should have a good presentation style?
2. What are the different stylistic guidelines in a program development?
3. What is the role of comments and indentation in a program?
4. What is a prologue?
5. What is free formatting?
6. What is pretty printing?
7. What is echo printing?
8. What are the characteristics of a good program?
9. What are the different stages of program development?
10. What do you mean by source code and object code?
11. What is meant by robustness?
12. What is meant by guard code?
13. What is a bug?
14. What are the different types of errors?
15. What are the different types of compilation errors?
16. What are run time errors?
17. What are logical errors? Why are logical errors harder to locate?
18. What is known as exception?
19. What is exception handling?
20. Mention the different steps you would follow while writing a program.
22. What is testing?
23. What is debugging?
24. What is program verification?
25. What is program documentation? Explain the different types of documentation.
26. What is meant by program maintenance?
27. Explain the different types of maintenance.
28. What is modular programming?
29. Name and explain the two types of modular programming.
INTERNATIONAL INDIAN SCHOOL, DAMMAM

HOLIDAY ASSIGNMENT: 2016-2017 CLASS: - 11TH

SUBJECT: MATHEMATICS

TRIGONOMETRIC FUNCTIONS

1) Find the values of the following:

   (i) \( \tan \frac{19\pi}{3} \)  (ii) \( \sin \frac{-11\pi}{3} \)  (iii) \( \cot \frac{-15\pi}{4} \)  (iv) \( \csc \frac{-19\pi}{3} \)  (v) \( \sin (-330^\circ) \)

2) Prove that, \( \cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = \frac{1}{16} \)

3) Prove that, \( \cos^2 x + \cos^2 \left(x + \frac{\pi}{3}\right) + \cos^2 \left(x - \frac{\pi}{3}\right) = \frac{3}{2} \)

4) Prove that: \( \frac{\sin x \sin 2x + \sin 3x \sin 6x}{\sin x \cos 2x + \sin 3x \cos 6x} = \tan 5x \)

5) Prove that: (i) \( \frac{\cos 11^\circ + \sin 11^\circ}{\cos 11^\circ - \sin 11^\circ} = \tan 56^\circ \) (ii) \( \cos 6x = 32 \cos^6 x - 48 \cos^4 x + 18 \cos^2 x - 1 \)

6) Prove that: (i) \( \frac{\sin 5x - 2 \sin 3x + \sin x}{\cos 5x - \cos x} = \tan x \) (ii) \( \frac{\sin A + \sin 3A + \sin 5A + \sin 7A}{\cos A + \cos 3A + \cos 5A + \cos 7A} = \tan 4A \)

7) Prove that: (i) \( \frac{\sin 11A \sin A + \sin 7A \sin 3A}{\cos 11A \cos A + \cos 7A \cos 3A} = \tan 8A \) (ii) \( \frac{\sin 5A - 2 \sin 3A + \sin A}{\cos 5A - \cos A} = \tan A \)

8) Find the principal solution of the following: (i) \( \sin x = \frac{1}{2} \) (ii) \( \cos x = -\frac{1}{2} \) (iii) \( \tan x = -\sqrt{3} \)

   (iv) \( \cot x = \frac{1}{\sqrt{3}} \) (v) \( \csc x = -\sqrt{2} \) (vi) \( \sec x = -\frac{2}{\sqrt{3}} \) (vii) \( \sin x = -\frac{\sqrt{3}}{2} \) (viii) \( \tan x = -1 \)

9) Solve the following trigonometric equations:

   (i) \( \cos^2 x + 3 \sin x = 0 \)  (ii) \( \cos x - \cos 2x + \cos 3x - \cos 4x = 0 \)  (iii) \( \sin x = \tan x \)

   (iv) \( 2 \sin^2 x + \sin^2 2x = 2 \)  (v) \( 2 \tan x - \cot x = -1 \)  (vi) \( \cos 3x = \sin 2x \)

10) If \( \tan x = \frac{3}{4} \) and \( x \) lies in the 3rd quadrant, find the values of \( \sin \frac{x}{2}, \cos \frac{x}{2} \) and \( \tan \frac{x}{2} \).

11) Prove that, \( \sqrt{2} + \sqrt{2} + 2 \cos 4x = 2 \cos x, 0 < x < \frac{\pi}{4} \)

12) Evaluate: \( \sin \frac{7\pi}{12} \cos \frac{\pi}{4} - \cos \frac{7\pi}{12} \sin \frac{\pi}{4} \)

13) Convert \( 40^\circ 21' \) and \( 5^\circ 37' 30'' \) into radian measure.
MATHEMATICAL INDUCTION

1) By P.M.I, prove that:
\[ \frac{1}{1 \cdot 2 \cdot 3} + \frac{1}{2 \cdot 3 \cdot 4} + \frac{1}{3 \cdot 4 \cdot 5} + \ldots + \frac{1}{n(n+1)(n+2)} = \frac{n(n+3)}{4(n+1)(n+2)} \]

2) \((1 + \frac{3}{1})(1 + \frac{5}{4})(1 + \frac{7}{9}) = (1 + \frac{2n+1}{n^2}) = (n + 1)^2\)

3) \(1^2 + 3^2 + 5^2 + \ldots + (2n-1)^2 = \frac{n(2n-1)(2n+1)}{3}\)

4) \(1 + \frac{1}{1+2} + \frac{1}{1+2+3} + \ldots + \frac{1}{1+2+3+\ldots+n} = \frac{2n}{n+1}\)

5) \(x^{2n} - y^{2n}\) is divisible by \(x + y\).

6) \(12^n + 2 \cdot 5^{n-1}\) is divisible by 7.

7) \((2n + 7) < (n + 3)^2\).

8) \(1^2 + 2^2 + 3^2 + \ldots + n^2 > \frac{n^3}{3}\)

COMPLEX NUMBERS & QUADRATIC EQUATIONS

1) For complex number \(z, z_1, z_2\), prove each of the following:
(i) \(\overline{z_1 + z_2} = \overline{z_1} + \overline{z_2}\)  (ii) \(\overline{z_1 \cdot z_2} = \overline{z_1} \cdot \overline{z_2}\)  (iii) \(|z| = |\overline{z}|\)  (iv) \(z + \overline{z} = 2Re(z)\)

2) Find the magnitude and conjugate of the number \(\left(\frac{1}{1-4i} - \frac{2}{1+i}\right)\left(\frac{3-4i}{5+i}\right)\)

3) Write the complex number \(\frac{1+7i}{(2-i)^2}\) in the polar form.

4) Find the square roots of each of the following:
   (i) \(-16 - 30i\)  (ii) \(12 - 5i\)  (iii) \(-7 + 24i\)  (iv) \(-2 - 2\sqrt{3}i\)  (v) \(8 - 5i\)  (vi) \(\frac{2+3i}{5-4i} + \frac{2-3i}{5+4i}\)

6) Find the modulus and the argument of the following complex numbers; hence express them in polar form.
(i) \(4\sqrt{3} + 4i\)  (ii) \(\frac{1+2i}{1-(1-i)^2}\)  (iii) \(\frac{5}{2}(\cos 30^\circ + i\sin 30^\circ)\)  (iv) \(-\sqrt{3} - i\)  (v) \(\frac{1+3i}{1-2i}\)

7) Solve the following equations.
(i) \(3x^2 - 7x + 5 = 0\)  (ii) \(ix^2 - 4x - 4i = 0\)  (iii) \(x^2 + 20ix + 21 = 0\)
(iv) \(x^2 - (3\sqrt{2} + 2i) + 6\sqrt{2}i = 0\)  (v) \(2x^2 + ix^2 - 2i = (5 - i)x - 2\)
8) For what value of $\theta$, $\frac{3+2i \sin \theta}{1-2i \sin \theta}$ is purely real & purely imaginary.

**LINEAR INEQUALITIES**

1) A solution of 8% boric acid is to be diluted by adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid. If we have 640 litres of 8% solution, how many litres of the 2% solution will have to be added?

2) Solve the system of inequalities: \( \frac{x+3}{x-2} \leq 2, \frac{2x+5}{x+7} \geq 3. \)

3) Solve graphically: \( x + y \leq 4; \ 3x + y \geq 4; \ x + 5y \geq 4; \ x \leq 3; \ y \leq 3, x \geq 0, y \geq 0 \)

4) Solve graphically, \( 3x - 4y + 12 \geq 0, 2x - y + 2 \geq 0, 2x + 3y - 1 \geq 0, x \leq 4, \)
\[ y \geq 2, x, y \geq 0 \]

5) Solve graphically, \( x + y \geq 1, 7x + 9y \leq 63, x \leq 6, y \leq 5, x, y \geq 0 \)

**Sets , Relations and Functions**

1) If \( A = \{ x: x = 2n + 1, n \leq 6, n \in N \}, B = \{ x: x = 3n - 2, n \leq 3, n \in N \}, \) then prove that \( (A \cup B)' = A' \cap B' \) and \( (A \cap B)' = A' \cup B' \)

2) Let \( A \) and \( B \) be sets. If \( A \cap X = B \cap X = \emptyset \) and \( A \cup X = B \cup X \) for some set \( X \), show that \( A = B. \)

3) In a town of 10,000 families, it was found that 40% families buy newspaper A, 20% families buy newspaper B and 10% families buy newspaper C. 5% buy A and B, 3% buy B and C, 4% buy A and C. If 2% buy all three, find the number of families which buy (i) A only (ii) B only (iii) none of three.

4) In a class of 60 students, 23 play Hockey, 15 play Basketball and 20 play Cricket. 7 play Hockey and Basketball, 5 play Cricket and Basketball, 4 play Hockey and Cricket and 15 do not play any of these games. Find: (i) How many play all three games? (ii) How many play Hockey but not Cricket? (iii) How many play Hockey and Cricket but not Basketball?

5) Let \( A, B \) and \( C \) be three sets such that \( A \cup B = A \cup C \) and \( A \cap B = A \cap C \), show that \( B = C. \)

6) Find domain and range of the real function \( f(x) \) defined by \( f(x) = \begin{cases} 1 - x, & x < 0 \\ 1, & x = 0 \\ x + 1, & x > 0 \end{cases} \) and draw its graph.
7) Find the domain and range of the following functions:

(i) \( f(x) = \frac{x^2 + 2x + 1}{x^2 - 8x + 12} \)

(ii) \( \frac{1}{\sqrt{x - 4}} \)

(iii) \( \sqrt{x^2 - 6x + 8} \)

(iv) \( \frac{x + 3}{|x + 4|} \)

(v) \( \sqrt{9 - x^2} \)

(vi) \( f(x) = \begin{cases} 
  x + 7 & \text{if } -3 \leq x \leq 5 \\
  x^2 & \text{if } 5 \leq x < 7 \\
  6 - 2x & \text{if } x \geq 7 
\end{cases} \)

8) If \( A = \{1, 2\}, \ B = \{1, 2, 3\}, \ C = \{1, 5, 7\}, \ D = \{2, 4, 7\} \), then verify that:

(i) \( (AXB) \cap (CXD) = (A \cap C) \times (B \cap D) \)

(ii) \( (AXB) \cup (CXD) \subseteq (A \cup C) \times (B \cup D) \)

9) Let set \( A \) and \( B \) be two sets such that \( AXB \) consists 6 elements. If three elements are \( (1, 4), \ (2, 6), \ (3, 6) \), find \( AXB \) and \( B \times A \).

10) If \( A = \{-1, 1\} \), find \( AXAXA \).

11) In a group of 50 people, 30 like to play cricket, 25 like to play football and 32 like to play hockey. Assume that each one likes to play at least one of the three games. If 15 play cricket & football, 11 football & hockey, 18 cricket & hockey, then

(i) How many like all three games?

(ii) How many like only football?

(iii) How many like only hockey?

11) Show that: \( (A \cup B) - (A \cap B) = (A - B) \cup (B - A) \)

12) If \( P(A) = P(B) \), show that \( A = B \).

13) If \( U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}, \ A = \{2, 4, 6, 8\} \) and \( B = \{2, 3, 5, 7\} \), verify that:

\( (A \cup B)^c = A^c \cap B^c \) and \( (A \cap B)^c = A^c \cup B^c \)

14) A class has 175 students. The following is the description showing the number of students studying one or more of the following subjects in the class. Mathematics 100, Physics 70, Chemistry 46, Maths & Physics 30, Maths & Chemistry 28, Physics & Chemistry 23, all three subjects 18. Find: (i) The number of students who have not offered any of these three subjects. (ii) The number of students who enrolled in Mathematics alone, Physics alone and Chemistry alone.

15) Let \( A = \{1, 2, 4\}, \ B = \{3, 5, 7\} \) and \( C = \{5, 7, 9\} \), verify that: \( AX(B \cap C) = (AXB) \cap (AXC) \)
I. Collect an Invoice, Cash memo, Cheque leaf, Pay - in- slip and a copy of Bank statement.
II. Answer the following
   1. Define accounting.
   2. Explain the following terms:
      a) Debtor  b) Voucher  c) Drawings  d) Capital
   3. Explain cash basis and accrual basis of accounting.
   4. Explain the advantages of accounting.
   5. Explain the advantages of IFRS?
   6. Differentiate between cash discount and trade discount.
   7. Explain the disadvantages of accounting.
   8. Explain the following concepts:
      a) Conservatism  b) Full disclosure  c) Business entity
III. Journalise the following
   1. Commenced business with cash Rs 50,000.
   2. Purchased machinery for Rs 5,000 from Ramesh.
   3. Deposited into bank Rs 9,000.
   4. Sold furniture to Mahesh of the list price of Rs 1,000 and allowed him 5% trade discount.
   5. Received a first and final dividend of 60 paisa in a rupee from the official receiver Mr. Ranjan, who owed us Rs 1,000.
   6. Purchased goods from Raja Rs 50,000 less trade discount of 20% plus VAT @ 5%.
   7. Sold goods for Rs 15,000 to Niranplus Vat @ 5%.
   8. Received Rs 765 from Narindra in full settlement of a debt to his account for Rs800.
IV. Prepare triple column cash book from the following transactions:
    2015  Jan. 1 Commenced business with cash Rs. 60,000.
    Jan. 2 Deposited in to Bank Rs. 40,000.
    Jan. 3 Bought building by cheque Rs. 25,000.
    Jan. 5 Paid to Mohan by cheque Rs.1,900 in full settlement of his account Rs. 2,000.
    Jan. 6 Withdrew from bank for office use Rs.1,000.
    Jan. 15 Received a cheque from Rohan Rs. 2,450. Allowed him discount Rs. 50.
V. Prepare purchase book from the following transactions.
   2009
   February 1: Purchased from M/s Brown & Co. on credit. Invoice no 1125
      5 gross pencils @ Rs 100 per gross
      1 gross registers @ Rs 200 per dozen
      Less: Trade discount @ 10%
   February 2: Purchased for cash from Stationary Mart. Invoice no 1320
      10 gross exercise books @ Rs 60 per dozen
   February 3: Purchased computer printer for office use from M/s Office Goods Co. on credit.
      Invoice no 1420, for Rs 4000.
   February 4: Purchased on credit from the Paper Co. Invoice no 1640
      5 reams of white paper @ Rs 100 per ream
      10 reams of ruled paper @ Rs 65 per ream
      Less: Trade discount @ 10%
      Cartage paid Rs 20.
VI. Prepare a sales book from the following information for M/s. Hutch Traders

<table>
<thead>
<tr>
<th>DATE</th>
<th>PARTICULARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.12.2015</td>
<td>Sold to Arrow Traders</td>
</tr>
<tr>
<td></td>
<td>33 squares @ Rs. 100 each</td>
</tr>
<tr>
<td></td>
<td>24 shirts @ Rs. 180 each</td>
</tr>
<tr>
<td></td>
<td>36 T-shirts @ Rs. 125 each</td>
</tr>
<tr>
<td>08.12.2015</td>
<td>Sold for cash to Linen Traders</td>
</tr>
<tr>
<td></td>
<td>26 pants @ Rs. 400 each</td>
</tr>
<tr>
<td></td>
<td>32 suits @ Rs. 1,200 each</td>
</tr>
<tr>
<td></td>
<td>12 shirts @ Rs. 300 each</td>
</tr>
<tr>
<td>19.12.2015</td>
<td>Sold to Indigo Nation &amp; Co</td>
</tr>
<tr>
<td></td>
<td>100 cotton saris @ Rs. 350 each</td>
</tr>
<tr>
<td></td>
<td>75 silk saris @ Rs. 600 each</td>
</tr>
<tr>
<td></td>
<td>200 chiffon saris @ Rs. 250 each</td>
</tr>
</tbody>
</table>

VII. Prepare accounting equation based on the following information:
   a. Commenced Business with Cash: Rs. 2, 25, 000
   b. Purchased goods for Rs. 40, 000
   c. Wages paid Rs. 600
   d. Sold goods for Rs. 2, 500
   e. Salary paid in advance Rs. 2, 000
   f. Purchased Machinery Rs. 5, 400

VIII. Post the following transactions into ledger & prepare a trial balance

<table>
<thead>
<tr>
<th>DATE</th>
<th>PARTICULARS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.01.15</td>
<td>Started business with cash</td>
<td>50,000</td>
</tr>
<tr>
<td>03.01.15</td>
<td>Purchased Furniture</td>
<td>7,000</td>
</tr>
<tr>
<td>08.01.15</td>
<td>Purchased goods from Suresh</td>
<td>16,000</td>
</tr>
<tr>
<td>13.01.15</td>
<td>Paid to Suresh in full settlement</td>
<td>14,800</td>
</tr>
<tr>
<td>19.01.15</td>
<td>Deposited into bank</td>
<td>6,000</td>
</tr>
<tr>
<td>23.01.15</td>
<td>Paid Salary</td>
<td>3,500</td>
</tr>
<tr>
<td>25.01.15</td>
<td>Commission Received</td>
<td>1,250</td>
</tr>
<tr>
<td>28.01.15</td>
<td>Withdrew goods for personal use</td>
<td>2,000</td>
</tr>
</tbody>
</table>

NOTE:
1. Collect the documents for question No. 1 and keep it ready for project.
2. Prepare a booklet for all the questions from 2 to 8 and submit before 30 - 09-2016.
1. Distinguish between economic and non-economic activities.
2. How do Auxiliaries to trade help industry and trade.
3. Explain the characteristics of business.
4. "Profit maximization should not be the sole objectives of a business." Explain by giving any four reasons.
5. Explain the nature of business risks. What are the various types of business risks faced by an enterprise?
6. What is the position of a partner, when
   (a) He is a minor?
   (b) He attains majority?
7. Explain the merits and demerits of partnership form of business?
8. "One man control is the best in the world if that man is big enough to manage everything." Comment?
9. "Company is an artificial person with separate legal entity, perpetual succession and common seal." Comment.
10. "A private company is superior to a public company." Discuss this statement in the light of privileges of a private company.
11. Explain the merits and limitations of Joint Hindu Family.
12. State and explain the six steps required to raise the funds from the public, i.e., capital subscription by the company.
13. Difference between certificate of incorporation and certificate of commencement.
14. Why Memorandum of association is referred to as 'Charter or Constitution of Company'?
15. Explain the steps taken by the Promoters in the Promotion of company.
16. What is prospectus? Is it necessary for every company to file a prospectus?
17. List the documents required for the incorporation of a company.
18. Explain the advantages of Public Private Partnership.
19. Define joint venture and explain its various benefits.
20. Distinguish between departmental undertaking, statutory corporation and government company.
21. Briefly explain the rationale of public sector enterprises in India.
22. "MNCs are not able to fulfill the hopes with which they were allowed to enter Indian markets". State the safeguards which can be adopted by Government to ensure effective role of MNCs in the country.
23. How does Memorandum of Understanding help in improving performance of a Public sector Undertaking?
24. What was the role of the public sector before 1991?
25. Identify the following
   a) The clause which mentions the name of the state, in which the registered office of the company is to be situated.
   b) A document which invites deposits from the public or offers from the public for the subscription of shares or debentures of a company.
   c) Main document or constitution of company
   d) Partner who does not participate in the management affairs of the business of the firm actively.
INFORMATION INDIAN SCHOOL, DAMMAM
BOYS SENIOR SECONDARY SECTION
HOLIDAY ASSIGNMENT JUNE 2016
CLASS: XI ECONOMICS

INDIAN ECONOMIC DEVELOPMENT

Answer the following questions:
1. Write a note on the land tenure system prevailed in India during the time of independence?
2. What are the land reforms measures adopted by the government of India?
3. Prepare a note on Industrial Policy Resolution (IPR) of 1956?
4. What do you mean by outsourcing? How it is helpful for a country like India?
5. “Govt. of India recently declared 100% foreign investment in defence sectors and 74 % in pharmaceutical sectors”
   Analyse this matter and prepare a note on the impact of it on the economic development of the country.

STATISTICS FOR ECONOMICS

1. Represent the following data by means of ogives and obtain median from it?

<table>
<thead>
<tr>
<th>Marks</th>
<th>0-5</th>
<th>5-10</th>
<th>10-15</th>
<th>15-20</th>
<th>20-25</th>
<th>25-30</th>
<th>30-35</th>
<th>35-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>3</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>20</td>
<td>9</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

2. Find out the missing frequency of the series when median is 28.

<table>
<thead>
<tr>
<th>Marks</th>
<th>No. of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>7</td>
</tr>
<tr>
<td>10-20</td>
<td>6</td>
</tr>
<tr>
<td>20-30</td>
<td>--</td>
</tr>
<tr>
<td>30-40</td>
<td>16</td>
</tr>
<tr>
<td>40-50</td>
<td>6</td>
</tr>
</tbody>
</table>

3. Calculate Mean & median from the following data:

<table>
<thead>
<tr>
<th>Marks</th>
<th>11-15</th>
<th>16-20</th>
<th>21-25</th>
<th>26-30</th>
<th>31-35</th>
<th>36-40</th>
<th>41-45</th>
<th>46-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>7</td>
<td>10</td>
<td>13</td>
<td>26</td>
<td>35</td>
<td>22</td>
<td>11</td>
<td>5</td>
</tr>
</tbody>
</table>

4. Obtain modal class using grouping method and calculate mode from it:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of students</td>
<td>3</td>
<td>7</td>
<td>16</td>
<td>12</td>
<td>9</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Represent the following values in a Pie-diagram:

<table>
<thead>
<tr>
<th>Sl.no</th>
<th>Items of expenditure</th>
<th>Amount spent (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Food</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Clothing</td>
<td>30</td>
</tr>
<tr>
<td>3.</td>
<td>Fuel and lighting</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>House Rent</td>
<td>60</td>
</tr>
<tr>
<td>5.</td>
<td>Other expenses</td>
<td>40</td>
</tr>
</tbody>
</table>

All the best.............
SUBJECT: MARKETING

1. Define marketing.

2. Define the term Marketing Management.

3. Write a short note on publicity.

4. What are the limitations of sales promotion?

5. Distinguish between Shopping Product and Speciality Product. Give one example for each.

6. List any three characteristics of good brand name.

7. Describe Societal Marketing concept.

8. Explain any 3 factors influencing Price determination.

9. Differentiate between Marketing and Selling on the basis of
   a) Objectives    b) Beginning and end    c) Emphasis

10. Explain the Indirect Channels of physical distribution.

PREPARE A BOOKLET FOR ALL QUESTIONS AND SUBMIT BEFORE 30 / 09/2016
WRITE THE FOLLOWING JAVA PROGRAMS IN THE LAB RECORD
1. To display “Good Morning” and “Good Evening “in a text field.
2. To display name and title based greetings based on a radio button.
3. To display Multi Line Text in a text area.
4. To enter the price and quantity of an item and calculate the total amount.
5. To calculate the total number of fruits.
6. To design a four function calculator.
7. To calculate the simple interest.
8. To enter the side of a square and calculate the area and perimeter.
9. To accept the marks in 5 subjects and calculate the total and average marks.
10. To enter the length in kilometers and display the length in meters
1. Prepare a project report on any one of the following topics.
   - Tehri Dam/ Sardar Sarovar Project
   - Bhuj./ Latur Earthquake
   - Sunderban Delta/ Nilgiri Biosphere Reserve Islands (materials, pictures and other facts from Inter-net)

2. Study the Appendix III given in textbook and answer the following questions.
   a) Which river has the largest proportion of catchment area in the country?
   b) Make a comparative bar diagram on a graph paper to show the length of the courses of the rivers.

3. Draw and label any one of the following topics on a chart and also write about each in brief. (use colour/shading for drawing different features)
   - Desert features made by wind action like different type of Sand Dunes, Mushroom Rocks, Oasis etc.
   - Coastal features made by sea wave action like Beaches, Cliffs, platform, natural cave. Pillars, etc.
   - River valley features like gorges, v-shaped valley, waterfall, Meander, Ox-bow lake, Delta etc.
   - Karst Topography (in limestone region) like stalactite, stalagmites, pillars, etc.

- SOURCES:
  - Inter-net
  - Text Book: India physical Environment
  - Fundamentals of Physical Geography
SUMMER HOLIDAY ASSIGNMENT FOR CLASS XI

PHYSICAL EDUCATION STUDENTS.

Make a book let of the following Assignment

1. Table of side effects of prohibited substances
2. Year and Venue of Olympic competition, Asian Games, commonwealth games and World championship.
3. A comparison achievement (timing and distance) table of world records and Indian records in Track and field Athletes (men and women) events.
4. Survey of 50 Indian adult ages between 20 year to 60 year of different variants.
   - Name
   - Age
   - Region belong in India (Example Kerala)
   - Height in centimeter
   - Weight in kg
   - Sex (male or female)
   - Occupation
   - Bad habit (Smoking) (Yes / no)
   - Physical Activity (Any sports, Recreational activity)
   - Any diseases (Example High Blood Pleasure)
   - Eating Habits (Likes and Dislikes-one example each)