

# **2<sup>nd</sup> Dipolma Entrance Test**

## **DET - 2012**

### INFORMATION BROCHURE FOR ADMISSION

INTO VACANT SEATS OF  
FIRST SEMESTER/FIRST YEAR DIPLOMA IN  
ENGINEERING/TECHNOLOGY/ARCHITECTURE/  
NON-ENGINEERING  
IN

**GOVERNMENT & PRIVATE ENGINEERING  
SCHOOLS/ POLYTECHNICS OF ODISHA**



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**PROGRAMME**  
FOR  
2<sup>nd</sup> DIPLOMA ENTRANCE TEST-2012, ODISHA

Date of Examination-30.09.2012 (Sunday)

SL. No.	Examination	Sitting	Time
01	1 <sup>st</sup> Semester Diploma in Engineering / Technology / Architecture	1 <sup>st</sup> Sitting	10.00 AM to 12.30 PM
02	1 <sup>st</sup> Semester / 1 <sup>st</sup> year Diploma in Non Engineering i.e. (BC, GD&FT, Pharmacy, HM&CT, MOM)	2 <sup>nd</sup> Sitting	2.00 PM to 4.30 PM

NB: The candidates are to report at the Examination Centre 30 minutes before the start of Examination.

## ELIGIBILITY

### A. ELIGIBILITY CRITERIA FOR ADMISSION TO 1<sup>ST</sup> SEMESTER DIPLOMA IN ENGINEERING/ TECHNOLOGY

SL. NO.	COURSE	DURATION	ENTRY QUALIFICATION	AGE AS ON 1.7.2012.
1	First semester diploma courses (All Engineering except Mining & Drilling)	3 years	Passed 10 <sup>th</sup> standard / HSC or its equivalent examination recognized by BSE, Odisha and obtained at least 35% marks at the qualifying examination with pass in both Math & Science subject.	Lower age 14 years and Upper age – No bar
2	First semester diploma courses (Mining & Drilling Engineering)	3 years	Passed 10 <sup>th</sup> standard / HSC or its equivalent examination recognized by BSE, Odisha and obtained at least 35% marks at the qualifying examination with pass in both Math & Science subject.	Lower age 16 years and Upper age – No bar

### B. ELIGIBILITY CRITERIA FOR ADMISSION TO 1<sup>ST</sup> SEMESTER / 1<sup>ST</sup> Year DIPLOMA NON-ENGINEERING

SL. No.	COURSE	DURATION	ENTRY QUALIFICATION	AGE AS ON 1.7.2012.
1	Modern Office Management (MOM).	3 years	Pass in 10+2 Examination from the council of Higher Secondary Education of Odisha or its equivalent examination in Science/ Arts/ Commerce recognized by CHSE.	Lower age 16 years and Upper age – No bar
2	Hotel Management & Catering Technology (HM&CT)	3 years	Pass in +2 Examination from the Council of Higher Secondary Education of Odisha or its Equivalent with Science/ Arts/ Commerce with at least 35% Mark	Lower age 16 years and Upper age – No bar
3	Pharmacy *	2 years	Pass in +2 Science Examination from the Council of Higher Secondary Education, Odisha or its equivalent with Physics, Chemistry, Biology or Mathematics with at least 35% Mark and as approved by PCI.	-do-
4	Garment Design & Fashion Tech. (GD&FT)	3 years	Passed 10 <sup>th</sup> standard / HSC or its equivalent examination recognized by BSE, Odisha and obtained at least 35% marks at the qualifying examination with pass in both Math & Science subject.	Lower age 14 years and Upper age – No bar
5	Beauty Culture	2 years	Passed 10 <sup>th</sup> standard / HSC or its equivalent examination recognized by BSE, Odisha and obtained at least 35% marks at the qualifying examination with pass in both Math & Science subject.	-do-

## SCHEDULE FOR 2<sup>nd</sup> DET- 2012

<b>1</b>	<b>RECEIPT</b> of application form <b>ONLINE</b> mode only	<b>FROM 18-09-2012 to 24-09-2012 (5.00 PM)</b>
<b>2</b>	Availability of <b>Admit Card</b> and <b>Centre list</b> at Website: <a href="http://www.detodisha.nic.in">www.detodisha.nic.in</a>	<b>25-9-2012 after 5.00 PM</b>
<b>3</b>	2 <sup>nd</sup> Diploma Entrance Test (DET-2012) for admission to <b>1<sup>st</sup> Semester Diploma in Engineering</b>	<b>30-09-2012 (Sunday) :</b> <b>1<sup>st</sup> Sitting : 10:00 AM to 12:30 PM</b> <b>(Candidate shall report by 9.30 AM)</b>
	<b>1<sup>st</sup> Semester / 1<sup>st</sup> year Diploma in Non-Engineering</b> <b>(BC, GD&amp;FT, HM&amp;CT, MOM, Pharmacy)</b>	<b>2<sup>nd</sup> Sitting : 2.00 PM to 4.30 PM</b> <b>(Candidates shall report by 1.30 PM)</b>
<b>5</b>	<b>Declaration of Result</b> on Website: <a href="http://www.detodisha.nic.in">www.detodisha.nic.in</a>	<b>On 03-10-2012 after 5.00 PM</b>

# HOW TO APPLY 2<sup>nd</sup> DET- 2012

## INSTRUCTIONS & PROCEDURE FOR SUBMISSION OF ONLINE APPLICATION FORM

1. The candidate should download the Information Brochure available under the link "Download Information Brochure" and read all the instructions carefully before filling online application form.
2. Online application will be available from **10 A.M. on 18.09.2012 to 5 P.M. on 24.09.2012** Candidates can fill and submit application form within this time period only
3. The Examination fee for entrance test is **₹.300/-** (Rupees Three hundred only). Candidate can make payment only through **NEFT or Challan**. The payment of fees have to be paid on or before 24.09.2012 at 5:00PM. Payments received after this date and time will not be considered.
4. The candidate has to fill application form by providing correct and accurate data
  - Enter Name of the applicant
  - Select Nationality (Indian / NRI)
  - Select Domicile ( S / OS / OL)
  - Select Category (Gen / SC / ST) applicable only for S category applicants
  - Select Sub Category (ES / GC / PH / SP / NC) applicable only for S category applicants
  - Select Gender (Male / Female)
  - Select Course
  - Select Board / Council of Qualifying Examination
  - Enter Date of Birth of applicant
  - Select 3 choices of Examination Centres in the order of preference
  - Enter Parent/Guardian Name
  - Enter Correspondence Address, and telephone number
  - Enter Permanent Address
  - Enter Mode of payment of application Fee (NEFT / Challan)
5. Submit application form after entering the above details by clicking "**Submit Form**"
6. Applicant details are displayed in the next page. The applicant can review data entered and upload **scanned image of photograph and signature in jpg format**. Size of the photograph and signature should be less than 50kb and 20 kb respectively. Without a valid photograph and signature, the application form is incomplete and shall not be considered.
7. The applicant can modify data by clicking "Back" button or else can submit application by clicking "**Final Submit**" button
8. After submitting application form, application number will be displayed. There are two options to deposit application fees
  - Applicant can print **NEFT deposit form** and deposit application fees at any Bank (with CBS facility) where the applicant has Bank Account (transfer application fee from applicant's account to DET account mentioned in NEFT form)
  - Applicant can print **Challan deposit form** and deposit fees at any Axis Bank Branch of odisha by cash/cheque (DET account mentioned in Challan form)
9. Only the applications against which application fees is received will be considered and other applications against which application fees not received will be rejected. **Application Fees will be received till 24.09.2012 at 5:00PM**
10. Applicant can download Admit Card by clicking "Admit Card" option in the home page on 25/09/2012 after 5:00PM. Admit Card shall not be sent by post.
11. For any type of query contact DET call centre Nos 0671-2411600/2411601/2411602/ 2411603/2411604

## RULES FOR ENTRANCE EXAMINATION

- i. The 2<sup>nd</sup> Diploma Entrance Test, 2012 will be held as per the scheduled date and time mentioned.
- ii. The medium of examination for candidates to be admitted in 1<sup>st</sup> Semester is English and Odia. The medium of Examination for candidates to be admitted in Non-Engineering course is English only.
- iii. The examination hall shall be opened to the candidates half an hour before the examination commences. No candidate will be allowed to enter in the examination hall without a valid original/ duplicate admit card.
- iv. Candidates are required to take their respective seats at least 20 minutes before the commencement of the examination, strictly according to the sitting chart notified earlier by the Centre Superintendent.
- v. Distribution of Question Book-lets to the candidates should be made 15 minutes before the commencement of the Examination for filling up of required information in the Question Book-let/ Answer sheet.
- vi. The candidates shall be asked to break open the seal of the question book-lets 5 minutes before the commencement of the Examination for checking the order of the question book-lets. If any discrepancy in question book-let is noticed by the candidates, the same may be immediately informed to the invigilator for replacement.
- vii. In no case a candidate is allowed to enter the examination hall after the examination starts.
- viii. Attendance will be taken by the invigilators on the Attendance Roll sheets provided with full signature of candidates against their Roll Numbers, fifteen minutes before the commencement of examination. During examination, the candidates have to enter against their roll number, the application number, SET Code and the answer sheet serial number on the attendance roll sheets which shall be verified by the invigilators.
- ix. No candidate will be allowed to leave the hall without surrendering his/ her answer sheet until the examination is over. Ordinarily no candidate shall be allowed to leave the hall temporarily during the examination.
- x. Candidates suffering from any disease which renders their presence in the examination hall undesirable in the interest of other candidates will not ordinarily be allowed to enter the examination hall. Candidates are not allowed to have substitute writer.
- xi. Candidates should bring their own black/ blue ball pens, HB pencils for writing and blackening the circle. Books, printed papers (other than their Admit Cards) manuscripts, or electronic gadgets such as mobile phones, cell phones and electronic diary calculators etc should not be taken into the examination hall.
- xii. The candidates are advised to inspect the question booklet and answer sheet about its completeness before attempting to answer. In case page/ pages are found missing, torn or not in order, the candidates should immediately report to the invigilator and get a fresh question answer book issued after surrendering the defective one.
- xiii. Candidates are not permitted to talk to each other in the examination hall. No one should receive any help from or assist another in any manner. Malpractice of any form detected during or after the examination would entail not only cancellation of candidature but also more severe punishment as deemed fit by the DET Committee, 2012.
- xiv. A candidate should write his / her roll number as assigned in his/her admit card and sign in the space provided in the question booklet and answer sheet. He/ She should on no account write anywhere in the answer sheet his/her own name, roll number or anything else that is not strictly connected with the answers to the question given. Writing of any such thing or a false roll number is a serious offence. The answer sheet without the candidate's roll number clearly written in the space provided will not be examined.
- xv. A candidate wishing to say anything should stand up in his/her seat and remain standing until the invigilator attends to him/her. He/ She should on no account leave the seat or make any noise to draw the invigilator's attention.
- xvi. In any other matter not provided in these rules, the Centre Superintendent is empowered to take necessary decisions.
- xvii. The valuation of answer sheet will be done by machine/computer. Hence, revaluation/ rechecking of answer sheet is not permissible.

# EXAMINATION PROCEDURE / VALUATION METHODOLOGY

- A. There will be multiple choice type questions. The number of questions will be 100 & duration two and half hours. Each question shall have four answers (including one or more correct answer(s) and the examinee shall have to blacken only the appropriate circle (which he/she considers most correct) in HB pencil or black / blue ball point. Each correct answer shall fetch four marks whereas each incorrect answer will lead to deduction of one mark. Each un-attempted question will fetch zero. If more than one circle is darkened for one question, it will be treated as an incorrect answer and one mark will be deducted.
- B. **Selection for admission to Diploma Engineering Courses will be on the basis of 2<sup>nd</sup> DET-2012 merit rank.** For candidates obtaining equal marks in 2<sup>nd</sup> DET-2012 merit, the candidates with higher marks in mathematics will be placed at higher rank. If the candidates have same marks in mathematics, the candidate having higher marks in Physics will be placed at a higher rank. If the candidates have same marks in Physics, then the candidate having higher marks in chemistry will be placed at higher rank. For the candidates having same marks in chemistry, the senior in Age will be placed at higher rank.
- C. **Selection for Admission to Diploma Non-Engineering courses will be on the basis of 2<sup>nd</sup> DET-2012 merit Rank.** - For candidates obtaining equal marks in 2<sup>nd</sup> DET-2012 merits, the candidate with higher marks in Math will be placed at higher Rank. If the candidate has same marks in Math, the candidate having higher marks in science will be placed at higher Rank. For the candidate having same marks in science, the candidate having higher marks in English will be placed at higher rank. For candidates having same marks in English, the candidates having higher marks in General Knowledge will be placed at higher rank. For candidates having same marks in General Knowledge, the senior in age will be placed at higher rank.

## WRONG / CORRECT WAYS OF MARKING:

Each question is followed by answers which have numbers A B C and D. Select the most appropriate answer. Then by using HB pencil or black / blue ball pen darken the circle bearing the correct answer in the answer sheet against the corresponding number of the question. The wrong & correct method of answering is illustrated below:

### Wrong & Correct Methods of showing your answer

WRONG METHOD	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	CORRECT METHOD	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
WRONG METHOD	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	CORRECT METHOD	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
WRONG METHOD	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	CORRECT METHOD	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
WRONG METHOD	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	CORRECT METHOD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

# FEE STRUCTURE

## GOVERNMENT AND PRIVATE INSTITUTIONS:

- i. During the year 2011-12 the admission fee for Government Institutions was **₹.6590/-** and for private Institutions was **₹.26500/-**. Any changes/ modification of Fees for the year 2012-13 if made to the existing Fee Structure, then it will be informed to all concerned in time.
- ii. Besides this, the migration fee @ **₹.25/-** shall be charged for the new entrant, if he/she is from other Boards/ Council and **₹.50/-** shall be charged from each candidate towards verification of their 10<sup>th</sup> pass/ SSC pass certificate. Besides, for examinations etc. fees as charged by the State Council for Technical Education & Vocational Training, BBSR shall have to be paid by the candidates at the Institution.
- iii. All seats of ITT, Choudwar except seats of **Textile Technology**, are **paid seats for which admission Fees is ₹.26,500/- per year** (likely to be revised).

**HOSTEL FACILITIES (Government Institutions) :** Limited hostel facilities are provided subject to vacancy to the Boys in Co-educational Govt. Engineering Schools/ Polytechnics and Women students in UGIE, Rourkela, BOSE, Cuttack. Besides, limited seats in Women's hostels are also available in all Govt. Polytechnics. Last year the **Hostel Fees @ ₹.2500/- (Rupees Two thousand five hundred) per annum was charged which may be changed as per the Orders of the Government from time to time.**

## Change of Branch and Transfer

- A student admitted into a particular institution/ course cannot be allowed to change his/her branch in the 1<sup>st</sup> year. However, such change of branches may be allowed by the Principal of a particular institution in the 3<sup>rd</sup> semester after duly notifying the vacancies. Change may be allowed as per the mark in the 1<sup>st</sup> semester examination conducted by the SCTE&VT, Odisha in order of merit.
- Change of institution, may be considered by the DTE&T, Odisha in the 3<sup>rd</sup> / 5<sup>th</sup> semester only from one Government institution to another Government institution or from one Private Institution to another Private institution subject to availability of vacancy and as per rule prescribed by SCTE&VT, Bhubaneswar.
- Transfer from one institution to another at higher semester in same branch may be allowed which is at the discretion of DTE&T/ Government and subject to availability of vacancy.
- A candidate so admitted shall have to maintain discipline in the institute/hostel premises and will abide by all the prescribed rules / procedure/ orders for which he/she shall have to furnish an under taking at the time of admission. In case he/she is found to be involved in ragging / misbehaving fellow junior students then he/she will be suitably punished including fine / suspension from one or more semester / issue of Compulsory T.C.



## ORIGINAL DOCUMENTS TO BE BROUGHT ON THE DAY OF DOCUMENT VERIFICATION AT THE NCC

Applicants shall have to report **personally** with the '**RANK CARD**' exactly at the time, date and venue as per the counseling programme to be notified. He/she is also required to produce the following original documents as applicable at the time of reporting at the NCC.

- i. 10<sup>th</sup> standard / HSC or its equivalent examination mark sheet recognized by BSE, Odisha.
- ii. 10<sup>th</sup> standard / HSC or its equivalent examination provisional certificate recognized by BSE, Odisha.
- iii. Permanent Residence Certificate.
- iv. Employer's Certificate.
- v. +2 Arts / Commerce / Science (PCB/M) pass certificate & mark sheet.
- vi. **Conduct Certificate and SLC / CLC from the institution last studied. However, Seven days time only will be allowed in exceptional cases to submit the same, from the date of provisional admission at the Reporting Centre, failing which the provisional admission will automatically stand cancelled.**

## APPENDIX – I

### **SYLLABI FOR DET- 2012 FOR ADMISSION INTO 1<sup>ST</sup> SEMESTER OF THE DIPLOMA COURSE**

The syllabi given hereunder for DET-2012 are only illustrative and not exhaustive. The syllabi are in line with courses of studies in Mathematics & Science (Physics & Chemistry) for 10<sup>th</sup> Std. Examination, 2012 of Board of Secondary Education, Odisha.

#### **MATHEMATICS (50 Nos.)**

**Ratio, Proportion & Variation:** Definition, continued proportions, direct variation, inverse variation & joint variation.

**Indices:** Laws of indices, problems, solution of exponential equations.

**Polynomials:** Factorisation of polynomials, Remainder. Theorem, Factor Theorem, Synthetic division and their applications.

**Equations:** Different methods of solving simultaneous linear equations in two unknowns, problems, Quadratic equations, its solutions by completing the square, Discriminant, nature of roots, Relation between roots & co-efficient, simple problems.

**Logarithms:** Definition, laws of logarithm, common logarithm, characteristics, Mantissa, Antilogarithm, Tables of logarithm and antilogarithm, applications.

**Number System:** Natural numbers, Integers, Rational numbers, Real numbers as union of rational and irrationals, Axioms on operations on real numbers.

**Computers:** Different parts of computer (Main parts only). Applications of computers, Binary number system, Conversion of binary to decimal and vice-versa.

**Functions and Graphs:** Domain and Range of Real valued function.

**Mensuration:** Circumference, Arc Length, Area of Sector of a circle, triangle, Rectangle, Square, Parallelogram, Trapezium, Rhombus. Surface area and volume of cylinder, Cone, Sphere.

**Geometry:** Straight lines and angle between two straight lines, Parallel lines, Theorems on congruency and similar triangles. Radius, Chord, Arc of a circle, cyclic quadrilaterals, Theorems and related problems.

**Statistics:** Data, Frequency distribution, Grouped frequency distribution, Graphical representation of data, Histograms, Pie diagrams & Frequency polygon, Measures of Central tendency (Mean, median & mode)

#### **CHEMISTRY (25 NOS.)**

##### **Matter-**

**Nature & Behavior:** Element, compound, Mixture, Type of mixture, Structure of matter, states of matter, atom, molecule, symbol & valency, Chemical formula, Chemical equation.

**Atomic Structure:** Electron, Proton, Neutron – their charge, mass & properties, atomic number, mass number, electronic configuration, mole concept.

**Periodic classification:** Periods & groups, periodic law properties of elements along a period and in groups.

**Chemical Bond:** Formation of ionic & covalent bonds, important properties of electrovalent and covalent compounds.

**Physical and chemical changes:** Difference between physical and chemical changes, combination reactions, displacement reactions, decomposition reaction, slow and fast reaction, catalyst, exothermic and endothermic reactions, Oxidation & reduction, Acids & Bases, PH Scale. Importance and general properties, preparation and uses of hydrogen.

**Extraction of metal:** Ore, mineral, general methods of extraction of metal, Ore dressing, Concentration, reduction, Purification, distillation, electrolytic refining.

**Alloys:** Definition, Ferrous and non-ferrous - Brass, Stainless Steel,

**Sources of Energy:** Types of fuel, Good fuel, Calorific value of fuel, Fossil fuels, Coal, Fractional distillation of petroleum products, Petroleum gas, petrochemicals, Natural Gas.

**Water:** Sources of water, soft and hard water, types of hardness, removal of hardness of water by cold and hot soda lime process.

**Environmental Chemistry:** Pollution of air and water (causes, health hazards & control)

#### **PHYSICS (25 NOS.)**

**Motion:** Uniform and non uniform motion, distance and displacement, velocity and acceleration, graphs for uniform and uniformly accelerated motion, Equation of motion.

**Force:** Force and motion, Newton's laws of motion, Momentum, Gravitational force, acceleration due to gravity mass and weight.

**Thrust and pressure:** Archimedes's Principle and its applications, relative density.

**Work, Energy and Power:** Work done by a force, relation between work and energy, Potential Energy, Kinetic energy, power, units of work, energy and power.

**Heat:** Heat and temperature, measurement of temperature, effects of heat, thermal expansion, change of State (Latent heat, cooling due to evaporation). Joule's law of mechanical equivalent of heat.

**Electricity :** conductors and resistors, measurement of current, potential difference and resistance, ammeter, voltmeter, Ohm's law, Combination of resistances in series and parallel connection, heating effect of electric current, Joule's law, electric appliances based on heating effect of current, measurement of electric energy units, power.

**Magnetic effect of electric current :** Magnetic field due to current carrying conductor, straight & circular wire, Fleming's Left Hand Rule, D.C. motor and its application, Generation of electricity, electromagnetic induction, Fleming's Right Hand Rule, Electric Generator, dynamo. Domestic electric circuits, elementary idea about wiring, fuse, possible hazards and safety measures

### **SYLLABI FOR DET- 2012 FOR ADMISSION INTO NON-ENGINEERING DIPLOMA COURSE**

The syllabi given hereunder for DET-2012 are only illustrative and not exhaustive. The syllabi are in line with courses of studies in English, Current Affairs/ General Knowledge, General Science/Everyday Science/Basic Mathematics of 10<sup>th</sup> Std. Examination.

#### **ENGLISH (25 Nos.)**

1. **Grammar-Students should be able to answer grammatical questions like fill in the blanks, correcting the errors and finding out the correct answer in relation to following areas of grammar.**

1.1. Determiners, 1.2. Verbs, 1.3. Tense, 1.4. Prepositions, 1.5. Synonyms, 1.6. Antonyms, 1.7. Modal verbs, 1.8. Subject-Verb Agreement,

2. **Reading comprehension:**

A passage of 100 to 150 words would be given. Multiple choice questions would be set on the passage.

#### **GENERAL KNOWLEDGE (25 nos.)**

1. National & International affairs, 2. Sports, 3. Invention and Discoveries, 4. Art & Culture.

#### **GENERAL SCIENCE**

##### **A. PHYSICS (25 NOS.) :**

1. **Motion:** Uniform and non uniform motion, distance and displacement, velocity and acceleration
2. **Force:** Force and motion, Newton's laws of motion, Gravitational force, acceleration due to gravity mass and weight.
3. **Heat:** Heat and temperature, measurement of temperature, thermal expansion, change of State.
4. **Light:** Reflection, laws of reflection, types of mirror, reflection from plain mirror, refraction, laws of refraction, power of lens.
5. **Electricity:** conductors and resistors, measurement of current, potential difference and resistance, ammeter, voltmeter, Ohm's law
6. **Sound: Production and propagation of sound and its velocity in medium.**

##### **B. CHEMISTRY:**

1. **Matter-** Element, compound, Mixture, Type of mixture, , states of matter, atom, molecule, symbol & valency, Chemical formula, Chemical equation.
2. **Atomic Structure:** Electron, Proton, Neutron & their charge, mass, atomic number, mass number, electronic configuration.
3. **Bonding:** Formation of ionic & covalent bond, important properties of electrovalent and covalent bond.
4. **Water:** Sources of water, soft and hard water, types of hardness, removal of hardness of water by cold and hot soda lime process.

##### **C. BIOLOGY:**

1. **Cell and Cell Structure:-** Cell structure difference between prokaryotic and eukaryotic cells. Function of cell organ less (brief account).
2. **Diversity in the Living World:-** General idea of classification of living organizations and their importance, nomenclature classification(two kingdoms) with characteristics and examples up to phylum in plants and invertebrate animals.

3. **Nutrition:-** Mode of nutrition, autotrophic, heterotrophic, photosynthesis(main steps) factors affecting photosynthesis.
4. **Respiration:-** Respiration and breathing, respiration in plants and animals, types of respiration-aerobic and anaerobic respiration through skin, gills, air tube, lungs(Earth worm, fish, grasshopper & frog)
5. **Heredity:** Mendel's laws, structure of chromosomes and DNA, the gene. Environment and environmental problems, causes prevention and control (soil erosion), pollution of water and accumulation of waste and environmental problems, biodegradable and non-biodegradable materials.

### **BASIC MATHEMATICS (25 nos.)**

1. **Number System:** Natural numbers, Integers, Rational numbers, Real numbers as union of rational and irrationals, Axioms on operations on real numbers
2. **Logarithms:** Definition, laws of logarithm, common logarithm, characteristics, Mantissa, Antilogarithm, Tables of logarithm and antilogarithm.
3. **Ratio, Proportion & Variation:** Definition, continued proportions, direct variation, inverse variation & joint variation.
4. **Equations:** Different methods of solving simultaneous linear equations in two unknowns, problems, Quadratic equations, its solutions by completing the square, Discriminant, nature of roots, Relation between roots & co-efficient, simple problems
5. **Functions and Graphs:** Domain and Range of Real valued function.
6. **Mensuration:** Circumference, Arc Length, Area of Sector of a circle, triangle, Rectangle, Square, Parallelogram, Trapezium, Rhombus. Surface area and volume of cylinder, Cone, Sphere.
7. **Statistics:** Data, Frequency distribution, Erupted frequency distribution measures of Central tendency (Mean, median & mode)

### **APPENDIX – II**

#### **MODEL QUESTIONS FOR DET – 2012 FOR ADMISSION INTO 1<sup>ST</sup> SEMESTER DIPLOMA COURSE MATHEMATICS**

1. If  $a + b + c = 0$ , the value of  $\frac{(b+c)^2}{3bc} + \frac{(c+a)^2}{3ca} + \frac{(a+b)^2}{3ab}$  will be  
(A) 0      (B) 1      (C) 2      (D) 3

### **SCIENCE (PHYSICS & CHEMISTRY)**

1. Two bullets are fired simultaneously, horizontally and with different speeds from the same place. Which bullet will hit the ground first?  
(A) The Faster  
(B) The Slower one  
(C) Both will reach simultaneously  
(D) Depends on the masses
  
2. For electroplating metal M on metal N, we have to take  
(A) 'M' as anode, 'N' as cathode and the solution of salt of 'N' as electrolyte.  
(B) 'N' as anode, 'M' as cathode and the solution of salt of 'M' as electrolyte.  
(C) 'M' as anode, 'N' as cathode and the solution of salt of 'M' as electrolyte.  
(D) 'N' as anode, 'M' as cathode and solution of 'N' as electrolyte.

