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**IMPORTANT / MODEL PAPER 2017**

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| --- | --- |
| **Class: XI** | **Max. Marks: 45** |
| **Subject: Botany** | **Duration: 2 Hours** |

**CHAPTER 04 - THE CELL**

**Short questions:**

1.Define cell and postulates of cell theory 2. Cell fractionation by centrifugation.

3. Diff b/w Prokaryotes and Eukaryotes. 4. Define Phagocytosis, Pinocytosis, Active Transport and Passive transport. 5. Note on Mitochondria, E.R, Chloroplast and Plastids.

6. Diff b/w Microfilament and Microtubule. 7. Structure and Functions of Cell-wall.

**CHAPTER 05 - VARIETY OF LIFE**

**Short questions:**

1.Diagram of Bacteriophage 2. Diff b/w Vioids and prions. 3. Definitions of Species, Homology and Genetics. 4. Note on Binomial Nomenclature. 5. Changes proposed by Margulies and Schwartz. 6. Diagrams and Description of Lytic and Lysogenic cycles of Bacteriophage.

7. Viral diseases with their causative agents. 8. AIDS and Hepatitis (Control-treatment and preventions)

**CHAPTER 06 - KINGDOM PROKARYOTAE**

1.Diagram of Rod-shaped Bacterium. 2. Economic importance of Bacteria (04 points).

3. Reproduction in Bacteria by Fission and Spore formation. 4. Shapes of Bacteria.

5. Growth Phasesand Control measures of Bacteria. 6. Salient features of Cyanobacteria (Blue-green algae). 7. Flagellar types of Bacteria.

**CHAPTER 07 - KINGDOM PROTOCTISTA**

**Short questions:**

1. Structure and economic importance of Phytophthora infestans.

2. Describe Chlorella Or Slimemold

3. Structure of Ulva. 4. Animal and plant like characters of Euglena.

4. Diagrammatic life cycle of Ulva to show the isomorphic alternation of generation.

**Chapter 08 - KINGDOM FUNGI**

1. Note on Lichens, Micorrhiza and Yeast. 2. Asexual reproduction in fungi.

3. Economic importance of fungi. Main features of Basidiomycota, Dueteromycota and Ascomycota.

4. Names of groups in which fungi are classified also Basis on which the groups are named.

5. Asexual and sexual reproduction in Zygomycota.

6. Diff b/w Algae and fungi. 7. Note on mycelium.

**CHAPTER 09 - KINGDOM PLANTAE**

**Short questions:**

1. Draw an outline of kingdom Plantae.

2. Write a note on Rhynia. 3. Explain the evolution of leaves with respect of Megaphyllous or Microphyllous hypothesis. OR Explain three steps in the evolution of seed.

4. Define Heterospory, Homospory, Prothallus.

5. Labeled diagram of L.S of Ovule, T.S of Marchantia Thallus, L.S of Male OR Female Cone of Pinus.

6. How the Vascular bundles are successful group of land plants.

7. Economic importance of Family Poaceae. 8. Four Botanical names of each Family Solanaceae, Rosaceae, Mimosaceae and Poaceae. 9.What changes occur in the Ovule after fertilization?

**CHAPTER 11 - BIOENERGETICS**

**Short questions:**

1. Significance of energy flow in an ecosystem. 2. Unidirectional flow of energy.

3. Diff b/w Aerobic and Anaerobic respiration.

4. Formation of Acetyl Co-A. 6. Anaerobic Break down of Pyruvic Acid (Alcoholic and Lactic acid fermentation). 5. Economic importance of fermentation.

8. Note on CAM Plants. 9. Difference C3 and C4 Plants. 10. Main events take place during Photosynthesis. 11. Role of light, chlorophyll and water during photosynthesis.

12. Diff b/w photosynthesis and respiration. 13. Advantages of Short food chain.

**CHAPTER 12 - NUTRITION**

**Short questions:**

1. Write down the role and deficiency symptoms of Phosphorus, Potassium & Magnesium.

2. Explain chemotrophic nutrition in organisms with its chemical equation.

3. Explain Phototrophic nutrition with its chemical equation.

4. Write a note on Carnivorous plants with two examples.

**CHAPTER 13 - GASEOUS EXCHANGE**

**Short questions:**

1. Write a note on Photorespiration.
2. How does gaseous exchange takes place in plants?

**CHAPTER 14 - TRANSPORTATION**

**Short questions:**

1. Define osmosis, diffusion, imbibitions, facilitated diffusion and active transport.
2. Define vessel and tracheids. OR Plasmolysis and deplasmolysis.
3. Define transpiration and its types. OR Advantages and dis-advantages of transpiration.
4. Guttation and Hydathode.
5. .Define source to sink Movement.

**DETAILED QUESTIONS**

i. Floral characteristics, floral formula, floral diagram & economic importance of family Fabaceae, Rosaceae, Solanaceae and Mimosaceae.

ii. Expain the Kreb Cycle/ Aerobic degradation of Pyruvic acid.

iii. Describe Glycolysis

iv. Describe Calvin Benson Cycle (Dark reaction)

v. What are fungi? Describe it’s any one class in detail.

vi. What is ascent of sap? Describe the mechanism of minerals and salts uptake in plants.

vii. Define transpiration and its types. Explain the structure and mechanism of opening and closing of stomata.

viii. What is triploid fusion? Describe the process of fertilization in an Angiospermic plant.

**ONE MARK QUESTIONS**

1. Name the Lysosomal Storage Diseases and their consequences.
2. Give the name of the organelle in the given diagram and label the mark parts.
3. Chloroplast in an Energy converting organelle Justify.
4. Why Ribosomes are regarded as Protein Factories?
5. Why viruses are appeared to be on the borderline between living and non-living world.
6. Write down the two strong differences between Lytic and Lysogenic Cycle.
7. Mention the name and site of Bacterial chlorophyll.
8. Among five kingdoms, which one is known as polyphyletic group of organisms and why?
9. Why are fungi neither Plants nor Animals?
10. Give botanical names any two of the following:

a) Bajra b) Redwood Tree c) Brinjal d) Barley e) Sugarcane

f) Red pepper g) Tomato h) Tamarind i) Touch-me-not j) Kachnar

1. What is the name of Energy trapping and energy converting process? Mention the chemical equation also.
2. Why do Insectivorous plants use insects as food?
3. Define Photorespiration.
4. Why do transpiration also called a necessary Evil?
5. Write two strong differences between Plasmolysis and Deplasmolysis.
6. Define any two of the following.

a) Osmotic Pressure b) Osmotic Potential c) Water Potential

1. Why is Mitochondria also called Power House of a cell.
2. Give the name of the organelle in the given diagram and label the mark parts.
3. Name the viral diseases with their causative agents.
4. Write down the two major differences between Viroids and Prions.
5. What are Photosyntehtic bacteria?
6. Define Isomorphic Alternation of Generation.
7. Define Perasexuality.
8. Name four groups of fungi with their reproductive organ. Also mention that which group of fungi is called Fungi Imperfecti?
9. Write down the two useful and two harmful effects of fungi.
10. Define Hetrospory.
11. Name the three distinct phases of Carbon Cycle with their chemical equations.
12. State the function of RUBISCO during photorespiration.
13. Classify the Insectivorous plant and explain any one.
14. Describe the role of Potassium (K) ion in opening and closing of stomata.
15. Write down two differences between Photosystem I and Photosystem II.
16. Name the Layers of Cell wall and their functions.
17. Give the name of the organelle in the given diagram and label the mark parts
18. Write down two strong differences between Temperate and Virulent viruses.
19. When and who discovered the Tobacco Mosaic Disease?
20. Give the name of Pigments and Food reserves found in Cyanobacteria.
21. Define Apalnospores.
22. Name the different types of Ascocarps and also mention their differences.
23. State two reasons that Spermopsida is a successful group of Land plant.
24. Draw efficiency of Food chain.
25. Name the two processes in which Gaseous exchange occur in plants.
26. Name the three pathways available for water to enter in the xylem.
27. Write two strong differences between Aerobic and Anaerobic Respiration.
28. Define Imbibation.
29. What are the major sites of Transpiration?
30. Differentiate between Diffusion and Facilitate Diffusion.

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**IMPORTANT / MODEL PAPER 2017**

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| **Paper: Chemistry** | **Time: 20 Minutes** |
| **Class: XI** | **Max. Marks: 17** |

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|  | **SECTION “A” (Multiple Choice Questions)** |  |

**Note:**

1. This section consists of 17 part questions and all are to be answered. Each question carries one mark.
2. Don’t copy down the part question in your answer in your script. Write only full against the proper number of the question and its part.
3. The code number of your question paper I to be written in bold letters in the begging of the answer script.

**Q1. Choose the correct answer for each from the given option.**

1. Which number has five significant figures?

\*302.10 \*3.00002 \*30000 \*30200

ii. What is the pOH of a solution, whose pH is 8.

\*2 \*4 \*6 \*10

iii. Which of the compounds has Sp2 hybridization.

\*NH3 \*C2H2 \*C2H4 \*H2O

iv. Which of the following is the example of oxidation?

\*M3+ --- > M2+  \* M2+---- > M3+ \* Be24+ He24 --- > C612 + O­­n1  \*None of these

v. The volume of a gas would theoretically be zero at

\* O 0C \*K \*273 \*2730c

vi. The maximum number of unpaired electrons in 3d energy level is

\*5 \*6 \*7 \*8

vii. Hess’s Law may be used to calculated

\*K \*E \*S \*H

viii. In electrolytic cell, cathode is

\*Negative \*Positive \*Neutral \*None of these

ix. 3.01 X 1023 molecules of oxygen gas at S.T.P occupy a volume of

\*22.4dm3 \*224dm3 \*11.2dm3+ \*2.24dm3

x. No two electrons in an atom can have same all the four Quantum Numbers identical is the statement of

\*Hund’s rule \*Aufbaur principle \*(n+1)rule \* Paul’s Exclusion Principal

xi. Two sides having the same crystal structure, are called

\*Isomorphous \*Polymorphous \*Isotopes \*Allotropes

xii. For the reaction 2NH3 N­2+3H2 is relationship between Kc and Kp is

\*KP = KC \* KP > KC \* KP < KC \* Kc < Kp

xiii. The process in which solid directly changes into vapours without passing through liquid phase is called:

\*Evaporation \*Condensation \*Sublimation \*Neutralization

xiv. The vapour pressure of water at 1000C is:

\*760 torr \*760 atm \*76 torr \*76 atm

xv. The addition of a catalyst to a reaction changes.

\*Internal energy \*Activation energy \*Gibb’s free energy \*Threshold energy

xvi. An electrochemical cell is based upon:

\*Acid-base reaction \*Redox reaction \*Oxidation reaction \*Reduction reaction

xvii. The empirical formula of a compound is CH2O and its molecular mass is 60, its molecular formula is:

\* CH2O \*C2H4O2 \*C3H6O3 \*C4H3O4

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**IMPORTANT / MODEL PAPER 2017**

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| **Paper: Chemistry** | **Time: 2 Hours 40 Minutes** |
| **Class: XI** | **Max. Marks: 68** |

**SECTION “B” (Short - Answer Questions) Max: marks:40**

**Note: Attempt any Ten parts questions. All questions carry equal marks.**

Q2. i) Define the following:

i. Significant figures ii. Exponential notation

iii. Empirical formula iv. Molar concentration

ii) Differentiate between any two of the following:

a) Hydration and hydrolysis b) Isomorphism and polymorphism

b) Intensive properties and extensive properties

iii a) Give the electronic configuration of the following:

Ni(Z=28) K(Z=19)

Iii b) Calculate the pH of HCl solution when its concentration is 0.004 moles/dm3 (Fully dissociated at 250c)

iv) Find the oxidation number of the following:

i. S in Na2S2O3 ii. Mn in MnO2

iii. P in H3PO4 iv. Cr in K2Cr2O7

v) An organic compound contains 66.7% C, 7.41% H and 24.96% N. The molecular mass of the compound is 108. Determine the empirical formula and molecular formula of the compound.

vi) Calculate the mass in gram of 3.01x 1020 molecules of glucose and also calculate its number of moles.

vii) Define covalent bond and its types with examples.

viii) Give reasons for the following:

1. The rate of diffusion of CO2 and C3H8 gases are same.
2. The second ionization potential of sodium is very high.
3. CCI4 is a non-polar compound.
4. Water has higher B.P. than Hydrogen fluoride although fluorine is more electro negative the oxygen.

ix) Balance the following chemical equation by ion electron method.

1. MnO4‑ + SO3-2 Mn2+ + SO42- (Basic)
2. Cr2O72- +I- Cr+3 + I2 (Acidic)

x) a) Determine the value of Gas constant (R) in two different units.

b) Give significant figures in the following.

i. 0.0821 ii. 384.21

xi) Draw the shapes of following molecules On the basis of (E.P.R.T) and hybrid orbital model

1. BeCl2 ii) CH4 iii. C2H2 iv) NH3

xii) a. A solution is prepared by dissolving 4.9g of H2O. Calculate the molality (m) of the solution.

b. The given mass of a gas occupies 76cm3 at 16 0C and 760 torr pressure calculate its volume at S.T.P.

xiii) Describe the experiment, explaining the passage of electricity through gases at low pressure.

xiv) Give derivation for 1st Law of thermodynamics. Also prove qp = H

xv) Write down the factors which effecting rate of reaction.

**Section “C”**

**(Detailed – Answer Questions) Max.Marks:28**

Note: Attempt any two questions from this section. All question carry equal marks.

Q3a) Give postulates of kinetic Molecular Theory of gases.

b) Explain Boyle’s Law and Charle’s Law on the basics of Kinetic molecular theory of gases.

c) Derive the expression for Kinetic molecular theory of gases.

Q4a) State and explain Hess’s Law of constant heat of summation with example and give its applications.

b) Calculate the heat of formation from the following data

3Mg + 2NH3 Mg3N2 Hf = ?

1. 3Mg+2NH­­3 Mg3N2 + 3H2 = -371 KJ
2. N2 + H2 ­­ NH3 = 46 KJ

c) Drive an expression for radius of an atom given by the Bohar.

Q5a) State the Law of Mass Action. Apply the law on contact process to derive its equilibrium expression.

2SO2 + O2 2SO3

b) State Le-Chatelier’s Principle. Apply the principle on Haber’s process in terms of pressure and

temperature for maximum yield of NH3

N2 + 3H2 2NH3 +Heat

c) Define the solubility product (Ksp). Find of CaCO3.The solubility of CaCO3 is 0.001g/dm3

CaCO3 Ca+2 + CO32-

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**IMPORTANT / MODEL PAPER 2017**

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| **Paper: Computer** | **Max. Marks: 75** |
| **Class: XI** | **Time: 3 Hours** |

**Note:** Attempt any **TWO** questions from section **“C”** and **Twelve** questions from section **“B”**, Section **“A”** is compulsory.

**Time: 30 Minutes Max. Marks: 15**

**Section “A”(COMPULSORY)**

**Q.1 Choose the correct answer for each from the given options.**

1. Hard copy of a document is

\*Printed on printer \* Stored in floppy \* Store in CD \* store in Hard Disk

1. Arrange in ascending order the units of memory TB, KB, GB, MB:

\*TB,MB,GB,KB \* MB, GB,TB,KB \* TBGB,MB,KB \* KB,MB,GB,TB

1. This one of the following is single-user operating system.

\*MS-DOS \* UNIX \* OS/2 \* XENIX

1. This bus is bi-directional

\*Data bus \* Control bus \* Address bus \* Multiplexed bus

1. Each computer on a network is called:

\*Bus \* Terminator \* Node \* connection

1. Both stations can transmit and receive data simultaneously in

\* Simplex mode \* Half duplex mode \* full duplex mode \* Synchronous

1. In e-mail, ‘e’ means

\*Electrical \* electronic \* Easy \* Echo

1. The virus that spreads in application software is called

\*Boot virus \* Macro virus \* File virus \* Antivirus

1. A printer that prints by type striking is called:

\*Impact printer \* non-impact printer \* Thermal printer \* Inkject Printer

1. NIC stands for:

\*Network Interface Card \* Network Interchange Card

\* National Identity Card \* Noise Interface Card

1. A computer virus is a

\* Program \* Hardware \* Firmware \* Bacteria

1. This technology is used in Computer Disc

\*Mechanical \* Electrical \* electromagnetic \* Laser

1. PC (Program counter) is also called  
   \*Instruction pointer \* Data counter \* File pointer \* Memory pointer
2. This network topology places a hub in the centre of the network.  
   \*Bus \* Ring \* Star \* Mesh
3. Main memory is also called

\*Primary, internal \* Primary, external \* Internal, external \* Auxiliary, main memory

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| **Paper: Computer** | **Max. Marks: 60** |
| **Class: XI** | **Time: 2½ Hours** |

**Section “B”(SHORT QUESTION ANSWERS) Marks 36**

**Q.2 Attempt TWELVE questions. All questions carry equal marks.**

2.i) What is the function of Cache?

ii) For what purpose is Barcode Render designed?

iii) Why is ROM called non-volatile memory?

iv) Why are secondary storage required? How can you increase storage capacity?

v) How does network topology affect your decision to design a LAN?

vi) Why is Star topology more efficient than other topologies? Give any thr5ee reasons?

vii) What protocol can be applied when you want to transfer a file from source to destination?

viii) In which scenario is satellite used? Defend your answer by giving any three reasons?

ix) How can you manage a network using a Router?

x) Why is MoDem necessary in dialup network?

xi) What are the impacts of computer in our life?

xii) How is e-commerce beneficial in business?

xiii) Draw and label block diagram of digital computer?

xiv) What is the function of Accumulator register?

xv) Distinguish between serial port and parallel port.

xvi) What are PUSH and POP functions in stucks?

xvii) Write full form of:

i) IEEE ii) TCP/IP iii) LED iv) BIOS v) HTML vi) ATM

xviii) How can a system be protected from viruses?

**Section “C”(DETAILED-QUESTION ANSWERS) Marks 24**

**Note: Answer any TWO questions from this section. All questions carry equal marks.**

Q3a) What are the functions of scanner?

b) Describe the important features of an operation system.

c) What is the impact of using computer in college education? Give three reason.

Q4a) Draw the diagram of OSI model layer. Which layer of OSI model selects path to send data from one computer to another?

b) Explain any two communication media in data communication.

c) Why are digital devices more efficient than analog devices?

Q5a) Explain different types of buses in computer.

b) What is fetch cycle? Explain with diagram.

c) What is computer crime? How can we protect our system from it?

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**IMPORTANT / MODEL PAPER 2017**

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| **Paper: English** | **Time: 20 Minutes** |
| **Class: XI** | **Max. Marks: 20** |

**(MULTIPLE CHOICE QUESTIONS) – (M.C.Qs.)**

**1. Choose the correct answer for each from the given option: (20)**

i) ‘You are free to go to your place of worship’, The Quaid’s statement denounces.

(a) Patriotism (b) Fanaticism (c) Chauvinism (d) Nepotism

ii) The UN today, is the spear head of the march of civilization against evils of all kinds means:

(a) Patriotism (b) Fanaticism (c) Chauvinism (d) Nepotism

iii) The Song "Under the Greenwood Tree" was sung by :

(a) Jacques (b) Frederick (c) Amiens (d) Shakespeare

iv) Fraulin Schimidt was the other name of:

(a) Amalie (b) Gruebel (c) Conrad (d) Baroness

v) Sweet Auburn was the native village of:

(a) Wordsworth (b) Wotton (c) Patmore (d) Goldsmith

vi) The Count of Morcerf’s former name was:

(a) Edmond (b) Fernand (c) Morrel (d) Bertuccio

vii) The most important objective of scientists is to find the:

(a) progress (b) effort (c) truth (d) design

viii) The theme of 'The character of a happy life' is:

(a) piety (b) love (c) wisdom (d) loyalty

ix) Ratisbon was the name of old city in:

(a) France (b) Belgium (c) Germany (d) Greece

x) Yaws is a disease of:

(a) hot wet climate (b) cold dry climate

(c) hot dry climate (d) cold wet climate

xi) The Count of Monte Cristo spent fourteen years of his life in underground:

(a) prison (b) dungeon (c) custody (d) liberty

xii) The world's children go to school about:

(a) less than half (b) fewer than half (c) more than half (d) other than half

xiii) The name of the manager of the White Hard Hotel was:

(a) Mr. Manning (b) Mr. Charlton (c) Mr. Abbot (d) Mr. Stevens

xiv) Find out the meaning of “twixt” in the line – Out twixt the batter-smoke there flew!

(a) between (b) twist (c) climax (d) midst

xv) The poem 'The Abbot of Canterbury' is a typical:

(a) archaic ballad (b) long ballad (c) antique ballad (d) old ballad

xvi) Mrs. Meldon was the symbol of:

(a)love and sympathy (b)honour and zeal (c)honesty and pity (d) pride and beauty

xvii) The word ‘Minstrel means:

(a) lawyer (b) doctor (c) singer (d) charmer

xviii) The word 'Minstrel' means:

(a) lawyer (b) doctor (c) singer (d) entertainer

xix) please come here i need your help (can be punctuated as):

(a) Please come here, I said, 'I need your help.'

(b) 'Please come here,' I said, 'I need your help.'

(c) 'Please come here, I said, 'I need your help.

(d) Please come here, I said, 'I need your help.'

xx) The opposite of hostile is:

(a) witness (b) inimical (c) friendly (d) sympathy

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**IMPORTANT / MODEL PAPER 2017**

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| **Subject: English** | **Time: 2 Hours 40 Minutes** |
| **Class: XI** | **Max. Marks: 80** |

**(SHORT- ANSWER QUESTIONS)**

**Sub-Section I (Prose)**

**i) Why did Kashmir not join Pakistan?**

**ii) Why was the formation of Pakistan a great victory for Jinnah?**

**iii) “Describe one heroic action that took place after the ship’s accident?**

**iv) Write a note on the working of UNICEF / W.H.O. / UNESCO**

**v) What is the difference between ‘Objective thinking and Prejudiced thinking’?**

**vi) What was the legend attached to the Castle of Cernogratz and how was it proved?**

**vii) Why did Sergeant Manning never believe that King was a murderer?**

**Sub-Section II (Poetry)**

**i) What are the answers to King’s questions? Who gave them?**

**ii) How does Wotton’s happy man spend his days and nights?**

**iii) What religious lesson does Coventry Patmore convey in ‘The Toys’?**

**iv) What tragedy did occur on Lucy Gray?**

**v) What does Oliver Goldsmith recall from past?**

**vi) What penalities does the Minstrel foresee for an unpatriotic person?**

**vii) What is the message conveyed in the poem, Abou Ben Adhem?**

**Sub-Section III (Plays)**

**i) Why did the Count of Monte Cristo bring disgrace upon Morcerf?**

**ii) Why did Albert decide to fight a duel?**

**iii) How was the Count of Monte Cristo avenged?**

**iv) Do you think that Mrs. Meldon was justified in killing her own brother?**

**v) Draw a contrast between Corrie and Mrs. Meldon’s character.**

**vi) Who was Eddie and what happened to him?**

**vii) What are the views of Prof. Corrie and Mrs.Meldon about war?**

**viii) What was the invention of Prof. Corrie? What does he want to achieve through it?**

**ix) Briefly describe Mrs. Meldon’s characteristics.**

**x) Briefly describe the Countess of Morcerf’s characteristics.**

**Sub-Section IV (Linguistics)**

1. **Correct the errors / Omissions of verbs, prepositions and articles.**
2. **The Japan is the Land of rising sun.**
3. **Look! The house is in the fine.**
4. **I had met a European yesterday.**
5. **If I was a bird, I will fly in the sky.**
6. **The tigers is the man-eating animals.**
7. **Use any three of the following pair of words in your own sentences.**

**stationary, stationery; ring, wring; excess, access; pray, prey; blew, blue; marry, merry; ingenious, ingenuous; effect, affect; wine, vine; break, brake; farmer, former.**

1. **Write the meaning of any five of the following words / phrases?**

**pugnacious; mutiliated; cynical; broken bread; tranced breath; glideth; legend; bumped off; chorus; impertinence ; negligible; random; victim; shun; true-gotton gear;**

**SECTION ‘C’**

**(DETAILED-ANSWER QUESTIONS)**

1. **Write a letter to the editor of a newspaper demanding for a Public Library OR**

**Showing your concern over: i) Street Crimes / Water Shortage / Law and Order Situation / Frequent Power Breakdown / Traffic Hazards in your area / city**

**OR**

**Write a story on any one of the following:**

**A stitch in time saves nine; Greed is a curse, Honesty is the best policy, Pride hath a fall;**

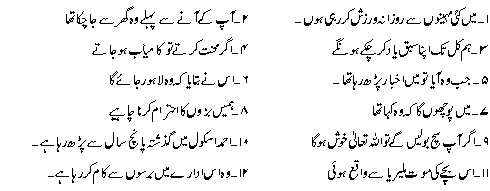
**God helps those who help themselves**

1. **Write an paragraph of about 120 – 150 words:**

**i) Internet ii) Street Crimes iii) Patriotism**

**iii) Ambition in life v) Problems of Karachi vi) Importance of Discipline**

**vii) CPEC – A Highway to Prosperity viii) Cyber Crime ix) P.S.L.**

**6. Translate the following sentences in English.**

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**IMPORTANT / MODEL PAPER 2017**

|  |  |
| --- | --- |
| **Subject: Physics** | **Time: 3 Hours** |
| **Class: XI** | **Max. Marks: 85** |

**Chapter # 02**

1. Describe the addition of vectors by rectangular component method.
2. Prove that ( x)= -( x ) and ( ⃘)2 + x= A2 B2.
3. If and are two adjacent side of a parallelogram then show that x represents the area of parallelogram.

**Chapter # 03**

1. Two masses m­1 and m2 are attached to the ends of a string passes over a frictionless pulley such that they hang vertically downward. Suppose m1 > m2 then find out the
2. acceleration and tension in the string.
3. Define linear momentum with SI base unit and explain the law of conservation of linear momentum.
4. What is an inclined plane? Compute the acceleration of an object moving down along the inclined plane.

**Chapter # 04**

1. Define projectile motion with its limitations. A shell is fired with initial velocity at an angle θ with ground, then find the expression for; Time to reach the maximum height and Maximum height.
2. Define angular displacement, angular velocity and angular acceleration also show that =× and .

**Chapter # 05**

1. What is the couple of forces? Calculate moment of couple.
2. Define angular momentum also state and explain the law of conservation of angular momentum.

**Chapter # 06**

1. Compute the expression for variation in value of acceleration due to gravity “g” along depth.
2. What is the weightlessness? And discuss the weightlessness in an elevator.
3. What do you mean by artificial gravity? How it can be produced in a spacecraft?
4. How is weightlessness experienced in a satellite overcome? Explain.

**Chapter # 07**

1. Derive an expression of work-energy equation.
2. Derive the expression for the absolute gravitational potential energy.
3. State and explain the law of conservation of energy.

**Chapter # 08**

1. Prove energy of spring block system remains constant throughout its motion.
2. Show that spring block system execute simple harmonic motion.
3. Define simple pendulum and prove that it executes simple harmonic motion.
4. Compute the time period of simple pendulum.
5. Define wave motion and differentiate the longitudinal waves and transverse waves also progressive waves and standing waves.
6. Define standing or stationary waves with their characteristics also calculate fundamental frequency and overtones.
7. Derive the Newton’s formula for speed of sound also discuss the Laplace correction.
8. State and explain the Doppler’s effect of sound.
9. What are the beats? Compute an expression for beats.

**Chapter # 09**

1. How Young’s double slits experiment demonstrates the interference of light?
2. What is the diffraction of light? Differentiate between Fraunhoffer and Fresnel diffraction.
3. Define diffraction grating and describe its principle, working and experimental arrangement.
4. Explain the diffraction of x-rays by crystal and derive the Bragg’s law.
5. What do you understand by polarization of light? How it proves the transverse nature of light?

**Chapter # 10**

1. Describe the construction and working of astronomical telescope. What is its magnifying
2. power?
3. Derive thin lens formula for the convex lens.
4. Explain the principle of magnifying glass (simple microscope) and calculate its magnifying power.
5. Derive the formula for resultant focal length for the lens combination of two lenses.

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**IMPORTANT / MODEL PAPER 2017**

|  |  |
| --- | --- |
| **Subject: Zoology** | **Duration: 2 Hours** |
| **Class: XI** | **Max. Marks: 45** |

**Chapter#01**

Q.1: Described in detail the biological method?

Q.2: Described in detail the level of biological organization?

Q.3: Described the importance of biology for the welfare of mankind.

**Chapter#02**

Q.1: Write the detail notes on any two of following.

(i) Carbohydrate & properties of any one group

(ii) Lipids (iii) Nucleic acid

**Chapter#03**

Q.1: What is enzyme? Give its types and also explain the mode Action of Enzyme & factor affecting their activity.

Q.2: What is the energy of Activation? Described in detail the factors affecting on Enzyme activity.

**Chapter#07**

Q.1: Give an account detail of animal like protoctista?

Q.2: With the help of labeled diagram described in detail the life cycle of malarial parasite?

**Chapter#10**

Q.1: Give salient features, classify the phylum and also write the character of each class with example, of following phylum?

i) Echinoderm ate ii) Cnidaria

Q.2: Described the salient feature of sub phylum vertebrate? Name its classes and explain in detail any two class.

Q.3: What are Amphibia? Give the characteristic of amphibian also write its classes.

Q.4: What are mammals? Name its sub classes and give the characteristic and example of each sub class.

**Chapter#12**

Q.1: Described in detail the mode of nutrition in Invertebrate animals?

**Chapter#13**

Q.1: Described in detail the respiratory organs in Invertebrate animals?

Q.2: Write the detail note on any two of following?

(i) Respiratory System of Fish

(ii) Respiratory System of Frog

(iii) Respiratory System of Birds.

Q.3: Described in detail the respiratory track disorder in human?

Q.4: Respiratory organ & mechanism with diagram.

**Chapter#14**

Q.2: Define lymph? Explain in detail the human lymphatic system also write its function.

* Labelled the following diagram?

1. Trypanosoma (ii) Paremecium
2. Sponge canal system (iv) Vrochordate (Arcidie)
3. Hydre, Planaria Cockroch Degstive system
4. Human stomach (vii) Pancreas
5. Fish respiratory system (ix) Human respiratory system & heart

**Short Question & Answer**

**XI – Zoology**

**Chapter#01**

Q.1: Define five kingdom with example.

(i) Social biology (ii) Environmental Biology

Q.2: Write a short note on any one of following:

(i) Significance of closing (ii) Biology for welfare of mankind

(iii) Concept of Biological Control Disease management.

Q.3: Define Antibiotics?

Q.4: What is menant by cloning.

Q.5: Name five kingdoms with example.

**Chapter#02**

Q.1: Write a brief note on nucleic acid?

Q.2: Explain DNA is a hereditary material.

Q.3: Difference between the following

(i) DNA & RNA (ii) Nucleoside & Nucleotide

Q.4: Write a note on any one of following:

(i) Mono & Di nucleotide (ii) RNA as carrier of information

Q.5: Differentiate between saturated or unsaturated acylglycerol.

**Chapter#03**

Q.1: Difference between the following:

(i) Holoenzyme and Apo enzyme

(ii) Enzyme Activator and Enzyme Inhibitor

(iii) Endo enzyme and Eno enzyme

Q.2: Write about the characteristics of Enzyme.

Q.3: Write the name of factors affects of Enzyme .

**Chapter#07**

Q.1: Give the symptoms of Malaria in Human being.

Q.2 Describe the characters of phylum Protozoa. Classify the phylum and give characteristics of any three classes with examples.

Q.3: Write the characters of Sarcodina with examples:

**Chapter#10**

Q.1: Define the following with example.

(i) Hibernation (ii) Coelom (iii) Haemocoel

(iv) Pscudocoelom

Q.2: Write a note on Caral & Reefs.

Q.3: Write a note on parasitic adaptatiojn of platyhelminthes?

Q.4:- Write a note on (nematodal) endoparasite of human?

Q.5:- Write a note on any one of following:

(i) importance of annilida (ii) Advantages of segmentation & coelomin annilida

Q.6: Explain briefly any one of following:

(i) Economic important of mollusca (ii) Pearl formation in mollusca

Q.7:- Explain briefly about water vascular system in echinoderms.

Q.8: Difference between the chondricthyes & osteichthyes

Q.9:- Write a short note on lung fishes (dophoi)

Q.10: Why the Amphibians unsuccessful land vertebrate briefly described

Q.11: Write down the distinguish characters of Aves.

Q.12: Difference between the acraniata and craniata.

Q.13: Note of Symmetry

Q.14: Write a note on Archaeopteryx.

Q.15:- Write a note of marsupain (pouched mammals)

Q.16: Name & function of cells present in spong body.

Q.17: Difference between (i) Hibernation/Aestivation

Q.18: Define Alternation of generation in animals.

Q.19: Define complete and incomplete metamorphosis.

Q.20: Mention the fundamental characteristics of class amphibian.

Q.21: Give the economic importance of Insects.

Q.22: Describe the salient features of phylum Annelida. Classify them and

write the characteristics of each class with examples.

Q.23: Define Polymorphism?

Q.24: Write any four salient features of phylum porifera?

Q.25: Difference between Ratitae and Carinitae .

Q.26: Write four basic characters of phylum chordate?

Q.27: What is canal system? Name its different types?

Q.28: Name mouth parts of insects?

Q.29: Name the edible fishes of Pakistan?

Q.30: Economic importance of class mammalian ?

Q,31: What is meant by polymorphic colony? Gave names of different zooids and mention their function.

Q.32: Difference between running and flying Birds.

**Chapter#12**

Q.1: Name the protein digesting enzyme and their site of secretaion in human alimentary canal.

Q.2: What do you know about holozoic nutrition?

Q.3: Describe plaque and dental diseases in human.

Q.4: Differentiate between tube-like digestion and sac like digestion.

Q.5: Define Anouxia nervosa and bulimia nervosa.

Q.6:

Q.7: Draw a labeled diagram of L.S. of Hydra.

**Chapter#13**

Q.1: How is CO2 transported from tissue to the lungs

Q.2: Write a note on the respiratory system of fish.

Q.3: Define the following terms:

(i) Expiration (ii) Inspiration (iii) Tidal volume (iv) Vital capacity

(v) Residual volume (vi) Lung capacity

Q.4: Write a brief note on respiratory pigment (Haemoglobin & myo globin)

Q.5: Describe the roll of Haemoglobin in the transport of CO2

Q.6: Define complete ventilation and incomplete ventilation.

**Chapter#14**

Q.1: Write two function of each (i) RBC (ii) Neutrophils (ii) Platelets (iv) lymphocytes

Q.2: difference between the artery & vein.

Q.3: Write a note on single circuit & double circuit circulation of blood.

Q.4: State about S.A. Node and A.V. node

Q.5:- Difference between open & close type blood vascular system.

Q.6: Briefly discuss on Hypertention.

Q.7: Write about (i) Edema & its caused

Q.8: Define cyanosis and emphysema.

Q.9: Differentiate between active and passive immunity?

Q10. Note on Thalassaemia.

Q.11: Explain the structures of Human heart. Draw neat and labeled diagram of the internal structure cardiac cycle.

Q.12: List Cardiovascular Disorders. Write the causes, symptoms and precaution any measures of any five disorders mentioned in the list.

Q.14: What do you understand by cell Madiated immunity.

Q.15: What is parasitism? Define Monogenic and digenic parasites .

Q.16: Note on Lub and Dub.

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**IMPORTANT - MODEL PAPER 2017**

**According to new pattern**

**Paper: Maths XI**

**CH#01**

**MCQS I)** If A and B are any two sets then  is

\*  \*  \*  \* 

II) If A and B are any two sets then  is

\*  \*  \*  \* 

III) If A = {2, 3}, B = {1, 2} then A – B = \_\_\_\_\_\_\_\_.

\* {1, 1} \* {0, 3} \* {3} \* {2}

IV) If(x+3,3)=(-5,3) ,then value of x is :

\*-7 \*-2 \* -8 \* -5

**V**) If A = {0,1}, B ={1,2} and C = {2,3} then =:

\*  \*  \*  \* 

vi) If A is any set then  = ?

\*  \*  \* A \*

vii) If A is any set then  = ?

\*  \*  \* A \*

**CH#02**

Q1. Solve the complex equation

1. . ii) . III) 

Q2. Separate into real and imaginary parts.

i)  ii)  iii)

Q3. Find additive & multiplicative inverse of the complex number

i)(3, 4) ii)  iii) 

Q4. If  and .Evaluate i)  ii) , iii)

Q5. If , then show that 

Q6. If , then show that 

**MCQS**

i) The real part of (2i-3)i is :

\* 2 \* -2 \* -3 \* 3

ii) The multiplicative inverse of (-3,8) is:

\* (3,-8) \* (- ,) \* ( -,) \* ( , --,)

iii) The multiplicative inverse of (1,0) is

\*(0,1) \* (-1,0) \* (1,0) \* (0,0)

iv) If a complex number z= x+iy is added to its conjugate ,the result is

\* purely real \* purely imaginary \* real or imaginary \* none of these

v) The multiplicative inverse of (a, b) is:

\* a- \* - a+ \* - a- \*  vi) z= -3i+4 then =

* \*-3i-4 \* -3i +4 \* 3i+4 \*

vii) Magnitude of 3-4i is :

\* 25 \*1 \* 9 \* 5

viii) The real and imaginary parts of the complex number 1+i are respectively

\*0 \*1,1 \* 0 and 1 \* 0 and i

ix**) =**

\*- \* 1 \* -1 \*

x) (a,b). (c,d) =?

\* (ac-bd, ad+bc) \* (ac,bd) \* (ac+bd, ad – bc) \* (ad, bc)

xi) The real and imaginary parts respectively of i ((2-3i) are:

\* -3 & 2 \* 3 & 2 \* 2 & 3 \* -2 & -3

xii) If z = a + ib then =?

**\* \* \* \***

xiii) If z=a+ is a complex number then *=*

\* a- \* - a+ \* - a- \* 

Xiv) The conjugate of complex number a+=

**\***- a- \* a+ \* a- \*

xv) The real and imaginary parts of i (3 – 2i) are respectively:

\* -2 & 3 \* 2 & -3 \* 2 & 3 \* -3 & -2

xvi) The conjugate of complex number a+=

**\***- a- \* a+ \* a- \*

xvii) If z= ,then its real part is :

**\* \* \* \*5**

xviii) The multiplicative inverse of (c, d) is:

\*  \*  \*  \* 

xix) The conjugate of a complex number (a, b) is:

\* (-a, -b) \*(a, -b) \* (-a, b) \***CH#03**

**Q1.**  For what value of *k* will  be a factor of ?

**Q2.** Find all the cube roots of- 27. Also show that their sum is zero .

Q3. If  are the cube roots of unity, prove that 

Q4. Show that  where  is the cube root of unity and

Q5. Show that:  (b) =32

Q6. Solve the equation

2. \*\*
3. \*\*
4. 
5. \*\*
6. + -22=0

1. + =1\*\*
2. 4.-\*\*

x) =10\*\*

xi) 25\*\*

xii)

Q7Determine the value of *k* for which the roots of the equation of the following equation are equal:

i) 

ii) 

**Q8** If  and  are the roots of the equation pprove that

Q9 If  and  are the roots of , Find the equation

whose roots are

**i)** , . **ii)** ,  **iii**)-,-  **iii)**  ,

i**v)**  **viii)**  **ix)** 

Q.10 If  are the roots of the equation  from an equation whose roots are  and 

Q11 Find the equation whose roots are (i)the reciprocal (ii) double of the roots of



Q12 If  are the roots of , find the value of:

(i)  (ii) 

Q13 Find ‘*k*’ if root of  is zero.

Q14 Find the condition that one root of ,  may bedouble the other.

Q15 Solve the system of equations

i) ,  \*\*

ii)  \*\*



iii) 

(

iv) \*\*



**v)** \*\*



**vi**) \*\*



vii) \*\*



viii) \*\*



**MCQS**

i) If roots of a quadratic equation are 2 and -2,then the equation is:

**\*-4=0 \*** **+4=0 \* +2=0 \* +2=0**

ii) =

\*2 \*1+ω \*1+ \* None of these

iii) The roots of quadratic equation are equal if:

\* \*  \* \*  is a perfect square

**iv)**  If ώ is complex cube root of unity then is equal to

\* 0 \* 1 \* 4 \*

**v**) In ,if  then roots of the equation are

\*Imaginary \* Real \* Equal \* Rational

vi) If ώ is complex cube root of unity then is equal to \* -1 \* -ώ \*- \* 0

vii) The quadratic equation whose roots are -2 and -3,is

\* \* \*

viii) If the roots of the equation  are equal then is:

\* less than zero \* equal to zero \* greater than zero \* equal to one

ix) If -4 and 8 are the roots of quadratic equation then the equation is

\* \*

x) The sum of the roots of the equation

\*  \*  \*  \* -

xi) If 3 is one real root of then the other two complex roots are

\*-3 **\*** 3 **\* -**3 **\***

XII) If then x=

\*2 \*3 \* 4 \* -2

xiii)

**\*ώ \*1 \*-1 \*0**

**xi**v) The roots of the equation  are real and distinct, if is:

\* 0 \* +ve \* -ve \* non zero

xv) The product of the roots of the equation  is:

\*  \*  \*  \* 

xvi) If is a complex cube root of unity then =:

\* 0 \*  \*  \* 1

xVII) If then x =:

\* 0 \*  \*  \* 1

xviii) If is a complex cube root of unity then =:

\* 0 \*  \*  \* 1

xix) If 3 and 4 are the roots of quadratic equation then the equation **is**

\* \*

\* \*

xx) If roots of the equation are complex then 

\* –ve \* +ve \* 0 \* 1

xXI) If ω is the cube root of unity, then

\* ω \* 0 \* ω2 \* 1

XXII) For the equation the sum of the root is:

\*  \*  \*  \*

XXIii) If ω is a cube root of unity, then =

\* 0 \* ω2 \* ω \* 1

XXiV) The product of the roots of the equation  is**:**

\*  \*  8 \* -2 \* 

xXV) If ω is a cube root of unity, then ω32 =

\* 0 \* ω2 \* ω \* 1

XXVI) If the roots of the equation are reeal and unequal then b2 – 4ac is:

\* less than zero \* equal to zero \* greater than zero \* equal to *i*

**CH#04**

Q2 Find x,y,z and v so that =3 +

Q3 Verify that:



Q4 If A= ,show that

Q5 Prove that:

Where  is a complex cube root of unity.

Q6 If possible, find the matrix *X* such that .

Q7 Perform the matrix multiplication:

.

Q8 Verify that  where  and .

. **DETERMINANTS & INVERSE MATRICES**

Q1 Using the properties of determinants, prove that

= -2

Q2 =0

Q3 By using the properties of determinants, prove that

=

Q4 Prove the following by using the properties of determinants:



Q5 Using the properties of determinants, show that:



Q6 Using the properties of the determinants, evaluate the following:



Q7 Evaluate:

Q8 Solve the following equation:



Q9 Find  by adjoint method if .

Q10 Find the adjoint of matrix A=

Q11 Define a singular matrix. Find the value of  for which the following matrix become singular:

Q12 Solve the following system of equations by using Crammer rule.







Q13 Apply Cramer’s Rule to solve the following system of equations:

2x-y+2z=4

x-y-z =6

x+10y-3z=10

Q14 Solve the following system of equations by using the matrix method:







Q15 Use the adjoint method to solve the given equations:







**MCQS**

i) If order of matrices A and B respectively are 2x3 and 3x4 then order of AB:

**\***2x2 \*3x3 \* 2x4 \*4x2

ii) If is a singular matrix then = :

\*6 \* \* \*

iii) =

**\*** \* \*None of these

iv) The matrix is :

\*Diagonal \* Scalar \* Unit \* Null

v) If is a singular matrix ,then the value of k is \*10 \* 5 \* 2 \*1

vi) A matrix in which the number of rows is equal to the number of columns, is called:

\*Identity matrix \* Diagonal matrix \* square matrix \* Scalar matrix

vii) If A= then

\* 1 \* \* \* -1

viii) If matrix is singular then is equal to :

\*14 \* 13 \* 12 \* 11

ix) For a non-singular matrix A, we have =:

\*  \*  \* \* 

x) The matrix is a

**\*** Diogonal matrix **\*** Scalar matrix \* Unit matrix **\*** Null matrix

xi) If  is a singular matrix then value of  is:

\* \* \* \*

**xi**i) **A** square matrix A is said to be singular if:

\* A = 0 \*  \*  \*None of these

**xiii**) The value of determinant is :

\* \* 2a \* 3a \* 0

xiv) If  is a singular matrix then value of  is:

\*3 \* 2 \*  \* 4

xv) If order of matrix A is 4x3 and order of matrix B is 3x2 then order matrix AB is

**\***3x4 \*2x3 \* 2x4 \*4x2

xvi) If A is a non-singular matrix then =:

\*  \*  \*  \* 

**xvii**) If matrix  is singular, the value of  is;

\* \* 6 \* -6 \* 5

**xviii**) If A=, then = (F)

\* \* \* \*

**XIX**) If A= ,then =

\* \* 1 \* \* 0

xx) what is the order of matrix A=

\*3x1 \* 3 \* 1x3 \*9

**xxi)** If the order of two matrices A and B are m x n and n x I respectively, then the

order of AB is:

\*m x p \* p x n \* n x p \* p x m

**xxii)** A square matrix A is said to be singular if

\* A = 0 \*  \*  \*A = 1

**CH#05**

Q1 Using the multiplication table show that multiplication is a binary operation on *S* = {1, −1, *i*, −*i*}. Also show that () is commutative.

Q2 Define the binary operation  in *Q* by , represents ordinarymultiplication. Also show that

(a)  is commutative (b)  is associative (c)  is the identity element under  (d)  is the inverse

element of  under

Q3 Let , where ,A= , B=and , construct composition tables to

show that  and  are binary operation on “*S*”.

Q4 Let ,  being a complex cube root of unity. Construct a composition table with respect to multiplication and show that:

a) Associate law holds in ‘*S*’

b) 1 is identity element in ‘*S*’

c) Each element of ‘*S*’ has its inverse in ‘*S*’

Q5 Let *S* = {} where  is a complex cube root of unity, check whether the given set “*S*” is closed,

commutative and associative with respect to the operation of multiplication.

**MCQS**

i) A grouped  is called a semi group if \* is:

\* Associative \* Commutative \* Closure \* None of these

ii) A group  is said to be an abelian group if \* is commutative on ‘G’ i.e. if:

\*  \*  \*  \* 

iii) Let , then identity in R. w.r.t. \* is:

\* 1 \* 2 \* 0 \* -1

iv)  is a binary operation w.r.t. \_\_\_\_\_\_\_

\* Addition \* Subtraction \* Multiplication \* None of these

v) Let S be a set with a binary operation \* having an identity element e. An eleme is said to be an inverse of  w.r.t. \* if:

\*  \*  \*  \* None of these

vi) Let ‘S’ be a set with a binary operation \* An element  is said to be an identity element of S w.r.t. \* if:

\*  \*  \*  \*None of these

vii) On the set of all integers if  is defined by  than identity element is:

\* -2 \* 0 \* 1 \* ½

viii) On the set of all rationals if \* is defined by  then identity element is:

\* 0 \* 1 \* 1/4 \* ½

**CH#06**

**A.P**

Q1 If find ‘n’.

Q2 If sum of four terms of an A.P is 64 and sum of 19 terms is 361,find the 9th term of A.P

Q3 The sum of four terms of an A.P is 4. The sum of the products of the first and the

last terms and of the two middle terms is −38. Find the numbers

Q4 Find the sum of 20 terms of an A.P whose 4th term is 7 and 7th term is 13.

Q5 Show that the sum of the th term and th term of an A.P is equal to twice the *p*th term

Q6 Find the sum of all natural numbers between 1 and 100 which are not exactly divisible by 2 or 3.

**Q7** Find the sum of an A.P of 17 terms whose middle term is 5.

Q8 Find the value of *n* such that  may become the A.M between *a* and *b*

Q9 Find the sum of all natural numbers between  and 1000, which are exactly divisible

by 7

Q10 The sum of first *n* term of two A.P’s are as , find the ratio of their

second term.

Q11 How many terms of the sequence −9, −6, −3, …… must be taken for the sum of the terms

to be 66?

Q12 Find the first six terms of the series in A.P of which the sum to ‘*n*’ terms is 

Q13 Find the three numbers in A.P whose sum is 12 and product is 28.

**G.P**

**Q1**  Which term of the sequence 18, 12, 8,…… is 

Q2 If the nth term of G,P 1,2,4,8,…….is same as that of 256,128,64,…….,find n

Q3 The product of three numbers in G.P is 216 and the sum of their products in pairs is 156. Find the numbers.

Q4 Find the G.P whose third term is  and whose sixth term is .

Q5 The ratio of the sum of the first four term of a G.P to the sum of first eight terms of the

same G.P is 81:97; find the common ratio of the G.P

Q6 Find three numbers in G.P whose sum is 19 and whose product is 216.

Q7 Express the value of the recurring decimal 0.423 as a common fraction.

Q8 Find the sum of an infinite series in G.P if the sum of the first and the fourth terms is

equal to 54 and the sum of the second and the third term is 36; find the series also.

Q9 The third term of a G.P is 27 and the sixth term is 8; find the sum to infinite terms

Q10 If a rubber ball is dropped on the floor from a height of 27 meters, it always rebounds to two third of the distance of the previous fall; find the distance it will have travelled before hitting the ground for the seventh time

Q11 Sum the series: 0.6 + 0.66 + 0.666 + …… to *n* terms.

**H.P**

Q1 Insert four Harmonic Means between 12 and .

Q2 If the *p*th term of an H.P is *q* the *q*th term is *p*, prove that the (*p+q*)th term is .

**Q3** 12th term of an H.P is  and 19th term is  find the 4th term.

Q4 The *p*th term of an H.P is *q* and the *q*th term is *p*, find  the term and th term.

Q5 If the 3rd, 6th and the last terms of an H.P are respectively ,  and , Find the number of terms of H.P

Q6 Simplify  when  are in:

(i) A.P (ii) G.P (iii) H.P

Q7 Simplify , if  are in H.P

Q8 Find the 12th term of an H.P if it is given that its second term is 3 and the 4th term is 2.

Q9 If , then prove that  are in H.P

Q10 Prove that *a*, *b*, *c* are in the either A.P or G.P or H.P according as  or *b* or*c*.

Q11 Find the 17th term of an H.P,whose first two terms are 6 and 8

Q12 If a,b.c are in H.P ,prove that + =2

**MCQS**

i) If H is the Harmonic mean between a & b then H =:

\*  \*  \*  \* 

ii) If 4, a, 16 are in G.P. the value of ‘a’ is:

\* 64 \*±8 \* \*

iii) The H.M. between p & q is:

\* \* \* \*

iv) If A, G, H are respectively the A.M., G.M. and H.M. between a and b then:

\* \* \* \*

v) The H.M b/w 2 & 5

\* \* \* 0 \*

vi) The Arithmetic mean b/W 5 and 10 is

\*5.5 \* 6.5 \* 7.5 \* 8.5

**vii)** The nth term of the sequence 2,4,6,8,……,n is

\*n \* \*2n+1 \* 2n

viii) If H is the Harmonic mean between a & b then H =:

\* \* \* \* 

ix) A single harmonic mean b/w a & b is :

\* \*  \* \*

x) In a geometric progression

**\* \* a(-1) \* \***

**xi) n 1+2+3+………+n=**

**\* \* \* \***

xii) If H is the Harmonic mean between a & b then H =:

\*  \*  \*  \* 

xiii) nth term of G.P is :(F)

\* \*ar \* \*

xiv) If 4, a, 16 are in G.P. the value of ‘a’ is:

\* 64 \* ±8 \*  \* 

xv) The H.M. between p & q is:

\*  \*  \*  \* 

xvi) If A, G, H are respectively the A.M., G.M. and H.M. between a and b then:

\*  \*  \* \*

**CH#07**

**Permutation**

Q1 If , find .

Q2 In how many distinct ways can the letters of the word INTELLIGENCE be arranged?

Q.3 In how many ways can 3 English, 3 Sindhi and 2 Urdu books be arranged on a

shelf so as to have all the books in the same language together?

Q4 How many different natural numbers of 3 different digits can be formed from the

digits 1, 2, 3, 4, 5, 7, if each number is to be (i) odd and (ii) even?

Q5 How many natural numbers of four digits can be formed with four digits 2, 3, 5, 7

when no digit is being used more than once in each number? What will be their

numbers if the given digits are 2, 3, 5, 0?

Q6 How many natural numbers may be formed by using 4 out of 1,2,3,4,5.

1. if the digits are not repeated. ii) if the digits may be repeated.

iii) how many of them are even if the digits are not repeated?

Q7 Find ‘*n*’ if ‘*r*’ if *nPr* = 240 and *nCr* = 120

Q8 How many different natural numbers of 3 different digits can be formed from the

digits 1, 2, 3, 4, 5, 7, 9 if each number is to be (i) odd or (ii) even?

Q9 How many different natural number can be formed by using the digits 0, 1, 2, 3, 4,

5 lying between 100 and 1000?

**Combination**

Q1 A father has 8 children. He taken them, three at a time, to a zoo without taking

the same 3 children more than once, how often will he go and how often does

each child get the chance to go?

Q2 A team of 14 player is to be formed out of 20 player. In how many ways can the

selection be made if a particular player is to be (i) included (ii) excluded

Q3 A department in a college consists of 6 professors and 8 students. A study tour is

to be arranged. In how many ways can a party of seven members be chosen so as

to include: (i) exactly 4 professors (ii) at least 4 professors

Q5 In how many ways can a hockey eleven be chosen out of 15 players?

(i) if include a particular player (ii) exclude a particular player

Q6 A party of 7 member is to be chosen form a group of 6 gents and 5 ladies in how

many ways can the party be formed if it is to contain:

(i) exactly 4 ladies (ii) at least 4 ladies (iii) at most 4 ladies

**PROBABILITY**

**Coin problem**

Q1 A fair coin is tossed 3 times, find the probability of getting (i) at least on3 head and (ii) at most two heads.

Q2 A coin is tossed twice, find the probability of (i) at least one head (ii) exactly one tail.

Q3 A coin was tossed three times: find the probability of getting

(i) at least one head,(ii) no tail, (iii) exactly two tails, (iv) at the most two tails.

**Dice problem**

Q4 If a dice is rolled twice, what is the probability that: (i) the sum of the points on it

is 9? (ii) there is at least one 5?

Q5 Two dice are rolled once. Find the probability of getting a multiple of 3 or a sum

of 10.

**Miscellaneous**

Q6 A word consist of 5 consonants and 4 vowels. Three letters are chosen at random.

What is the probability that more than one vowels will be selected?

Q7 A drawer contains 50 bolts and 150 nuts. Half of the bolts and half of the nuts are rusted. If one item is chosen, what is the probability that it is either rusted or is a bolt?

Q8 The probability that the principal of a college has a television is 0.6, a refrigerator 0.2 and both television and refrigerator is 0.06, find the probability that the principal has at least a television or a refrigerator.

Q9 A room has three lamps from a collection of 12 light bulbs of which 8 are no good, a person selects three at random and put them in the sockets. What is the probability that he will have light?

Q10 From a group of 6 man and 5 women, a committee of four members to be formed what is the probability that the committee will be consist of 2 men and 2 women?

Q11 A prize of any 4 books is to be given out of 7 Arabic and 5 French books. Find the probability that the prize will consists of 2 Arabic and 2 French books.

Q11 A committee of 4 members is to be chosen by lot from a group of 7 teachers and 5 students. Find the probability that the committee will consist of 2 teachers and 2 students.

Q12 In a fruit basket, there are one dozen oranges and half of a dozen apples. If a

person has to select a fruit at random, what is the chance of its being on orange?If

the first selection was an orange, what is the chance of second selection to be an

apple?

Q13 A committee of four members is to be chosen by a lot from a group of 7 men and 5 women. Find the probability that the committee will consist of 2 women.

Q14 Out of 12 eggs, 2 are bad, from these 3ggs 3 are chosen at random to make a

caked. What is the probability that the cake contains: (i) exactly one bad egg (ii) at

least one bad egg

**MCQS**

i) The value of  is:

\* 66 \* 76 \* 56 \* 86

ii) =

**\*8 \* 9 \* 10 \* 20**

iii) is equal to

\* n \* n+1 \* \*

**iv)** The value of is:

\* \* \*  \* none of these

v) The value of =

**\*60 \* 50 \* 40 \* 30**

**vi)**  is equal to

\* \* n+1 \* n(n+1) \* (n+1)

vii) The value of is:

\*110 \*55 \* 60 \*

viii) The value of  is:

\* 120 \* 60 \* 20 \* 80

**ix)**  The value of  is equal to :

\* n(n+1) \* (n+1)! \* (n-1) \* 

x) n

\*n(n-1) \* n \*n(n-1) \*(n-1)

xii) =:

**\*n \* n \* 1 \* 0**

xiii) =:

\*  \*  \*  \* 

xiv) The value of  is equal to :

\* n(n+1) \* (n+1)! \* n! \* 

xv) The value of is:

\*2 \*3 \* 1 \*0

xvi**)** The value of is:

\* n(n + 1) \* (n + 1)! \* n(n + 1)! \* 

xvii) The value of is:

\* 77 \* 11! \* 13! \*78

**xviii)** The value of  is: (F)

\* 10 \* 3 \* 20 \*

**xix)** The value of 0! is:

\* 0 \* 1 \* ∞ \* None of them

xx) The value of  is:

\* 120 \* 60 \* 20 \* 80

xxi) 

\* n(n + 1) \*n \* n(n + 1)! \* n-1

**PROBABILITY**

i) If a balanced die is rolled then the probability of getting 3 is:

\*  \*  \*  \* 

ii) The chance of drawing 5or 4 in a throw of a die whose faces are numbered from 1 to 6

\*  \*  \*  \* 

iii) If a die is rolled once , the probability of getting a number 4 is:

\*  \*  \*  \* 

iv) The probability of getting tail in a single toss of a coin is:

\* 1 \* \*  \*2

v) The probability of getting a head in a single toss of a coin is:

\* 0 \* \*1 \*2

vi) If a balanced die is rolled then the probability of getting 2 or 5 is

\*  \*  \*  \* 

**CH#08**

**MATHEMATICAL INDUCTION**

Q1 Prove the following proposition by the principle of Mathematical Induction:

 , .

Q2 Prove by mathematical induction that:



Q3 Prove by mathematical induction that

2+5+8+………..+(3n-1)=(3n+1) 

Q4 Prove by mathematical induction that**(F)**

4+8+12+……..4n=2n(n+1) 

Q5 Prove by Mathematical Induction

Q6 Prove that , for all natural ‘numbers *n*’.

Q7 Prove by Mathematical Induction 1+5+9+…….(4n-3)=n(2n-1)

Q8 Prove by Mathematical Induction:

++………+n(2n-1)(2n+1)

Q9 

Q10 Use the Mathematical Induction to prove that:



Q11 Prove by Mathematical Induction that:



Q12 Prove that:  where 

Q13 Prove by mathematical induction that  is divisible by 9 for all 

Q14 Using principle of Mathematical Induction, prove that:

 is divided by a-b for all 

Q15 Prove the following proposition by the method of Mathematical Induction:is divisible by 49, .

Q16 Show that  is divisible by 64, 

**THE BINOMIAL THEOREM**

Q1 Write the term independent of *x* in the expansion of

Q2 Find the term independent of *x* in the binomial expansion of 

Q3 Find the term independent of *x* in the binomial expansion of 

Q4 Using the general term fomula ,find the term independent of *x* in the binomial expansion

of

Q5 Using the general term of the binomial theorem, determine the term independent of *x* in

the expansion of 

Q6 Using the general term of binomial theorem determine the term independent of *x* in the expansion of .

Q7 Using the general term of the binomial theorem, find the coefficient of in the

expansion of

Q8 Write in simplified form the term involving in the expansion of

Q9 Find the 6th term in the expansion of using Binomial theorem

Q10 Find the two middle terms of , using the general term.

Q11 Write the general term of the expansion of . What are the middle terms in the expansion:

Q12 Find the middle term in the expansion of

Q13 Find the first negative term in the expansion of , using the formula for general term

Q14 Find the first negative term in the expansion of .

Q15 Evaluate by binomial theorem four decimal places

Q16 Use the binomial theorem to find the value of .

Q17 Evaluate to four decimal places the expansion of .

Q18 Prove that(1+x++……..)=(1.2+2.3x+3.4

Q19 Expand to four term ,

Q20 If , prove that  nearly.(F)

Q21 Identifythe series 1+ as a binomial expansion and find its sum.

Q22 Show that 

Q23 Identify the following series as binomial expansion and find the sum:



Q24 Show that =1++

Q25 If , prove that .

Q26 If  then show that:



**MCQS**

i) The total number of terms in the binomial expansion of is:

\*n \*n+1 \* n-1 \*2n

**ii) If ,1+is equal to**

**iii)** The middle term in expansion of is:

**\*9th \* 10th \* 11th \* 12th**

**iv)** The coefficient of 1st term in the Binomial expansion of is:

\*

v) In , the middle term is:

\* (2n+1)th term \* (n+3)th term \* (n +1)th term \* (n+2)th

**vi)** The middle term in expansion of is:

\* (2n+1)th term \* (n+2)th term \* (n +1)th term \* (2n+2)th

vii) The middle term in expansion of is:

\* nth term \* (n+1)th term \* (n -1)th term \* (2n+1)th

viii) Total number of terms in the binomial expansion of

\*n \*n+1 \*n+2 \*n+3

**ix**) If n is a natural number ,the middle term in expansion of is

\* \* (n+1)th term

**x**) The term independent of x in the expansion of is (F)

**\* 1 \* 2 \* 0 \*-1**

**xi**) The middle term in expansion of is:

\* nth term \* (n+1)th term \* (2n -1)th term \* (2n+1)th term

xii) The number of terms in expansion of is:

**\*10 \* 13 \* 16 \* 12**

xiii) 1+is equal to (F)

\*

xiv) The number of terms in the binomial expansion of is:

\* 9 \* 10 \* 11 \* 8

xv) The number of terms in expansion of is:(F)

**\*11 \*10 \* 20 \* 9**

xvi) The middle term in expansion of is:

\*3rd term \* 7th term \* 9th term \* 8th term

**xv**ii) The middle term in the expansion of is:

\* nth term \* (2n +1)th term \* (n+1)th term \* (2n -1)th term

**MATHEMATICAL INDUCTION**

i) = :

\* \* \* \* none of these

**CH# 09**

Q1 If a point on the rim of a 21 cm diameter fly wheel travels 5040 meters in a minute,

through how many radians does the fly wheel turn in one second?

Q2 A belt 36 meter long passes over a 1.6 cm diameter pulley. As the belt makes two

complete revolutions in a minute, how many radians does the wheel turn in 2.5

second?

Q3 How far does a boy on a bicycle travel in 10 revolutions if the diameter of the wheels of

his bicycle is each equal to 56 cm**?**

Q4 A car is running on a circular path of radius equal to half the arc of the circle travelled by the car . Find the angle subtended by the arc at the Centre of the circular path

Q5 Find the arc-length of a circle whose diameter is 28 cm and whose central angle is of

measure 41.

Q6 If cos and  is not in the 2nd quadrant, find the remaining trigonometric

functions using the definition of radian function .

Q7 If cos and  is in 4th quadrant, find the remaining trigonometric functions using the definition of radian function 

Q8 Using definition of radian function find the remaining trigonometric functions

if.and  is not in1st quadrant

Q9 If  and sin is negative, find the remaining trigonometric function using the

definition of radian function.

Q10 If cot and  is not in 4th quadrant, use radian function to find the remaining

trigonometric functions

**MCQS**

i) The value of tan is positive in:

**\* 1**st and 4th quadrant \* **1**st and 3rd quadrant

**\***2nd and 3rd quadrant \*3rd and 4th quadrant \*

ii) The angle of radians is equal to:

\* 120o \* 150o \* 60o \* 30o

iii) If sin and sec ,then lies in the:

\* 1st quadrant \* 2nd quadrant \* 3rd quadrant \* 4th

iv) cos(- =

\*-sin \* cos \* \*

v) If sec and cosec ,then lies in the:

\* 1st quadrant \* 2nd quadrant \* 3rd quadrant \* 4th quadrant

vi) The greatest value of sin is **:**

\*-1 \* 1 \* ∞ \* 0

**vii**) If cos and sin ,then lies in the:

\* 1st quadrant \* 2nd quadrant \* 3rd quadrant \* 4th quadrant

viii) 150o in radians **is**

\* \*150π \* \*

ix ) radians =:

\* 1o \* 90o \* 2o \* 1

x) cot(- =:

\*-cot \*-tan \* \*

xi) If tanand sin is –ve ten  lies in:

\* 1st quadrant \* 2nd quadrant \* 3rd quadrant \*4th quadrant

xii) radians in degrees is equal to:

\*  \*  \*  \* 

xiii) radian=::

\*  \*  \*  \* 

xiv) If sinand cos = then  lies in**:**

\* 1st quadrant \* 2nd quadrant \* 3rd quadrant \*4th quadrant

xv) If and sinθ is negative, p(θ) lies in this quadrant:

\* 3rd quadrant \* 1st quadrant \* 4th quadrant \* 2nd quadrant

xvi) tan(-**)=**

\* \* tan \* -cot \*

xvii) If tan and cos ,then lies in the:

1st quadrant \* 2nd quadrant \* 3rd quadrant \* 4th quadrant

xviii) The angle 330o in radians is:

\*  \*  \*  \* 

xix) The angle of radians is equal to:

\* 90o \* 2o \* 1o \* 180o

xx) The area of a circle of radius r is:

\* 2πr \*  \* πr2 \*2πr2

**CH#10**

Q1 Prove the following:

i) = ,cos ii) =

iii) iv)

v) (cos

vi) - = -tan vii)

viii)

ix) x) xi) tan57 =

xii)

xiii) 

xiv) xv) 

xvi)

xvii) xviii)

xix) xx) 

xxi) xxii) 

Q2 Express all trigonometric function in terms of i) cosec ,ii) .

**MCQS**

i) tan(180-

\*tan \*-cot \* cot \* -tan

ii) cos(90-α)=:

\*sinα \* cosα \* -cosα \* -sinα

iii) =:

\*- \* \* \*

iv) 1+cos

**\* \*2 \*2 \***

v) tan

\* cos \* sin \*sec \* cosec

vi) cosu - cosv =:

\*  \* 

\*  \* 

vii)

\* 2 \* 0 \*-1 \* 1

viii) cosu + cosv =:

\*  \* 

\*  \* 

**i**x) tan (-

\*  \*  \*  \* 

x) The distance between (1, 1) and (4, 5) is:

\* 4 \* 3 \* 5 \* 2

xi) sin2

**\***2sin \*2sin \*sin \* 1+cos

xii) sin60cos30cos60sin30=

\*sin60 \* cos60 \* sin30 \* cos30

**CH#11**

Q1 Draw the graph of

i)  when .,from the graph find sin 140

ii) , when .

**MCQS**

i) The period of tan x is:

\*  \*  \* π \* none of these

ii) The period of cosθ is:

\*  \*4π \* 2π \* π

iii) The greatest value of sinθ is

\*-1 \* 1 \* ∞ \* 0

iv) The period of Sinθ is**:**

\*0 \*  \* 2π \*

v) The lowest value of sinθ is

\*-1 \* 1 \* ∞ \* 0

**CH# 12**

Q1 Derive

1. R=
2. law of cosine
3. Law of tangent
4. Law of Sines.
5. r =
6. =
7. 

Q2 Prove that in any triangle ABC

i) 

ii) ,rs2

iii) coscos

iv) ++ =

v) 

vi) 

vii) 

viii) ++=

Q3 If , prove that , where  and *r* have their usual

meanings.

Q4 The measures of the two sides of a triangle are 4 cm and 5 cm, find the third side such

that the area of the triangle is 6 square centimeters

**Q5** If three sides of a triangle are 11 cm, 13 cm, 16 cm, find the measure of the largest angle and the area of the triangle.

Q6 A piece of plastic strip 1 meter long is bent to form an isosceles triangle with 95oas its

largest angle.find the length of the sides.

Q7. If one side of a triangle is y units in length,another side is 3 times as long as the first one,

and the angle between them .

Q8. Three points A,B,C form a triangle such that ratio of the measures of their angles is 1:2:3,find the ratio of the lengths of the sides**.**

Q9. A hiker walks due east at 4.5 km per hour and a second hiker starting from the same

point walking 55o north – east at the rate of5.5 km per hour. How far apart will they be

after 4 hours

**Q10** Find the length of the third side of a triangular building that faces 13.6 m along one

street and 13.0 m along another street. The angle of intersection of the two streets is

72o.

**Q12** A man is standing on the bank of the river. He observes that the measure of the angle of

elevation subtended by the tree on the opposite bank is 65o. When he retreats 35 meters

from the bank, he finds the measure of the angle to be 35o; find the height of the tree

and the width of the river.

**Q13** An aero plane is flying at a height of 9000 meters. If the angle of depression of the field maker is 29o, find the aerial distance.

**Q14** Two hikers, start from the same point, one walk 9 km heading east, the other 10 km

heading 42o east (42o towards east from north). How far apart are they at the end of

their walks?

Q11 Find the measure of the largest angle in the triangle ABC with a=4cm,b=2cm,c=2.5cm

Q12 Solve the triangle in which

i) *a* = 5 cm, *b* = 10 cm, *c* = 13 cm. ii) α=30,β=40

**iii)** . i**v)** , *a* = 40 cm, *b* = 20 cm.

**v)** , *b* = 70 cm, *c* = 58 cm

vii) *a* = 15.2 cm, *b* = 20.9 cm and *c* = 34.7 cm and also find area of the triangle.

**Q13**  Find the area of triangle ABC

1. when ,

ii) whose all sides are equal

iii) when , ,  cm.

iv) If α =30 , β=50 10’and a=27 cm

**MCQS**

i) In a triangle ABC ,a=b=c=x, then

**\* \* \* \***

**ii**) The area of triangle ABC is:

\* \* bc cosα \* abc sinα \* abc cosα

**iii**) The Circum –radius of triangle ABC is:

\* \* \* \*

iv) If the sides of the triangle are 5, 6,7 units then2S =:

\* 9 \* 6 \* 18 \* 27

v) If a,b,c are the length of sides of a triangleABC then cos =:

\* \* \* \*

vi) If a circle is inscribed in a triangle ABC then its radius “r” is **:**

\*  \*  \*  \* 

vii) If the sides of the triangle are 3, 4, 5 units then s =:

\* 4 \* 12 \* 5 \* 6

viii) If R is the circumradius of a circumcircle then R =

\* \* \* \*

ix) = is called

\*Law of Sines \* Law of Cosines \* Law of Tangents \*None of these

x) cos =:

\* \* \* \*

xi) If a, b, c are the sides of a triangle ABC, then ‘r’ is:

\*  \*  \*  \* 

xii) The law of cosine when is in the standard position is

\*  \* 

\*  \* 

**CH#13**

Q1 without using calculator,prove that

i)  ii) .

iv)

v) . vi) 

vii) .

viii) (Taking principal values only ).

ix) . x) .

Q2 Solve the equation

1.  ii) 

iii) .sinx - cos x=1 iv) .

v)  vi) .

vii)  viii) .

ix) x) . xii).