# FACULTY OF ENGINEERING AND TECHNOLOGY

## Syllabus

## For

## BACHELOR OF VOCATION (B.VOC.)
## (AUTOMOBILE TECHNOLOGY)
## (Semester: I – VI)

**Session: 2019–20**

# GURU NANAK DEV UNIVERSITY
# AMRITSAR

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester System*

**Eligibility:**
+2 pass in any stream.

**Scheme of Syllabus**

**Semester – I:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – I | 100 (75 Theory +25 Practical) |
| Paper – II | Basics of Automobile Technology – I | 100 (60 Theory +40 Practical) |
| Paper – III | Basics of Automobile Technology – II | 100 (60 Theory +40 Practical) |
| Paper – IV | Communicative Skills in English – I | 50 |
| Paper – V | Punjabi (Compulsory) / ** ਮੁੱਢਲੀ ਪੰਜਾਬੀ / ** Punjab History & Culture (From Earliest Times to C 320) | 50 |
| Paper – VI | * Drug Abuse: Problem, Management and Prevention (Compulsory Paper) | 50 |
| | **Total :** | **400** |

**Semester – II:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – II | 100 (75 theory +25 Practical) |
| Paper – II | Basics of Automobile Technology – III | 100 (60 theory +40 Practical) |
| Paper – III | Basic Sciences | 100 |
| Paper – IV | Communicative Skills in English – II | 50 (35 theory +15 Practical) |
| Paper – V | Punjabi (Compulsory) / ** ਮੁੱਢਲੀ ਪੰਜਾਬੀ / ** Punjab History & Culture (C 320 TO 1000 B.C.) | 50 |
| Paper – VI | * Drug Abuse: Problem, Management and Prevention (Compulsory Paper) | 50 |
| | **Total :** | **400** |

**Note: * Marks of this Paper will not be included in the Total Marks.**
**** (Special Paper in lieu of Punjabi Compulsory)**
**(For those students who are not domicile of Punjab)**

**Semester – III:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – III | 100 (50 theory+50 Practical) |
| Paper – II | Automobile Technology – IV | 100 (50 theory+50 Practical) |
| Paper – III | Automobile Technology – V | 100 (50 theory +50 Practical) |
| Paper – IV | Workshop Practice | 100 |
| | **Total :** | **400** |

**Semester – IV:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – IV | 100 (50 theory +50 Practical) |
| Paper – II | Automobile Technology – VI | 100 (50 theory +50 Practical) |
| Paper – III | Automobile Technology – VII | 100 (50 theory +50 Practical) |
| Paper – IV | Basic Automobile Lab | 100 |
| Paper – V (ESL-221) | *Environmental Studies | 100 |
| | **Total :** | **400** |

*** Marks of Paper EVS will not be included in Grand Total.**

**Semester – V:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – V | 100 (75 theory +25 Practical) |
| Paper – II | Automobile Technology – VIII | 100 |
| Paper – III | Project Lab–I | (120 Project–Work+80 Viva–voce=200) |
| | **Total :** | **400** |

**Semester – VI:**

| **Paper No.** | **Paper** | **M. Marks** |
|---|---|---|
| Paper – I | Fundamentals of Computer – VI | 100 (75 theory +25 Practical) |
| Paper – II | Automobile Technology – IX | 100 |
| Paper – III | Project Lab – II | (120 Project–Work+80 Viva–voce=200) |
| | **Total :** | **400** |

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

**Paper–I: Fundamentals of Computer – I**
**(Theory)**

**Max. Marks: 100**
**Theory Marks: 75**
**Time 3 Hours** **Practical Marks: 25**
**Periods per week: Theory: 6**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION – A**

- What is Computer, Block Diagram (Components), Application of Computer, Booting of Computer System
- Elements of Computer System (Input devices (Keyboard, Scanner, Mouse), Output devices– (Printer, Monitor), Storage Devices– (Magnetic Disk, Optical Disks)

**SECTION – B**

- What is Operating System, Types of Operating System (Multitasking, Multiprogramming, Multiprocessing)

**SECTION – C**

- Introduction to Windows Vista
- Parts of Windows Screen (Desktop icons, Windows (Application Window, Document window)

**SECTION – D**

- Introduction to MS Office

❖ Introduction to MS Word (Word 2003)
❖ Parts of Word Window (Title Bar, Menu Bar)
❖ Opening, Closing and saving a word Document
❖ Font Dialog Box
❖ Page Setup
❖ Editing a word document (Cut, Copy, Paste, Bold, Italic, Underline)
❖ Print Dialog Box
❖ Creating a Table, Operations on Table in MS Word

**PRACTICAL**

**Max. Marks: 25**

Practical based on Fundamentals of Computer

- MS Word and
- Window Vista

**References:**

1. Introduction to Computer by P.K. Sinha
2. Fundamental of Information Technology by Lakhanpal Publishers
3. Windows Based Computer Courses by Gurvinder Singh & Rachpal Singh, Kalyani Publishers.
4. Fundamentals of Computer by Unimax Pub.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

## Paper II: Basics of Automobile Technology–I

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week: Theory: 6** **Theory Marks: 60**
**Practical Marks: 40**

**Instructions for the Paper Setters:**
Question paper should be set strictly according to the syllabus and preferably in Punjabi.
The language of the paper should be straight and simple Punjabi.

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

### SECTION-A

**Introduction to Automotive Technology:** Introduction, Light commercial vehicle, Medium & Heavy Commercial vehicle, Major parts of Automobiles.

### SECTION-B

**Body:** Body Types, Chassis, classification of Chassis with respect to fitting of Engines, chassis repair.

### SECTION-C

**Engine:** basic engine parts, Wheel Base, Front overhang, Gear overhang, Wheel Track, Long Wheel–base.

### SECTION-D

**Types of frame:** types of sections used in frame, frameless or integral frame.

**References:**

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Automotive Mechanics William H. Crouse. (English Edition) Donald L. Angkin Published by Tata McGraw–Hill Publishing Company Ltd., New Delhi.

**PRACTICAL: Basics of Automobile Technology–I**
**PRACTICAL: LAB–I**

**Time: 3 Hours** **Marks: 40**
**Period Per week Practical: 6**

**Practical:**

1. Engine dismantling and assembling.
2. Valve Timings.

**References:**

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Automotive Mechanics William H. Crouse. (English Edition) Donald L. Angkin Published by Tata McGraw–Hill Publishing Company Ltd., New Delhi.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

**Paper III: Basics of Automobile Technology–II**

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week: Theory: 6** **Theory Marks: 60**
**Practical Marks: 40**

**Instructions for the Paper Setters:**
Question paper should be set strictly according to the syllabus and preferably in Punjabi.
The language of the paper should be straight and simple Punjabi.

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

SECTION-A

**Battery:** Introduction to battery, construction to battery, connecting batteries in series, connecting batteries in parallel.

SECTION-B

**Maintenance of battery.**

SECTION-C

**Tools: S**hop hand tools, special tools used for denting.

SECTION-D

**Safety standards for vehicles:** accidental repair.

**References:**

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Automotive Mechanics William H. Crouse. (English Edition) Donald L. Angkin Published by Tata McGraw–Hill Publishing Company Ltd., New Delhi.

**PRACTICAL: Basics of Automobile Technology–II**
**PRACTICAL: LAB–II**

**Time: 3 Hours** **Marks: 40**
**Period Per week Practical: 6**

**Practical:**

1. Ignition Timings.
2. Injection Timings.

**References:**

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Automotive Mechanics William H. Crouse. (English Edition) Donald L. Angkin Published by Tata McGraw–Hill Publishing Company Ltd., New Delhi.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

## PAPER–IV: COMMUNICATION SKILLS IN ENGLISH – I

**Time: 3 Hours** **Max. Marks: 50**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**The syllabus is divided in four sections as mentioned below:**

### Section–A

**Reading Skills**: Reading Tactics and strategies; Reading purposes–kinds of purposes and associated comprehension; Reading for direct meanings.

### Section–B

Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/ expressions.

**Activities:**

- Comprehension questions in multiple choice format
- Short comprehension questions based on content and development of ideas

### Section–C

**Writing Skills**: Guidelines for effective writing; writing styles for application, personal letter, official/ business letter.

**Activities:**

- Formatting personal and business letters.
- Organising the details in a sequential order

### Section–D

Resume, memo, notices etc.; outline and revision.

**Activities:**

- Converting a biographical note into a sequenced resume or vice-versa
- Ordering and sub-dividing the contents while making notes.
- Writing notices for circulation/ boards

**Recommended Books:**

- *Oxford Guide to Effective Writing and Speaking* by John Seely.
- *English Grammar in Use* (Fourth Edition) by Raymond Murphy, CUP

## PAPER–V: ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

**ਸਮਾਂ : 3 ਘੰਟੇ** **ਕੁਲ ਅੰਕ : 50**

### ਪਾਠ–ਕ੍ਰਮ ਅਤੇ ਪਾਠ–ਪੁਸਤਕਾਂ

**ਸੈਕਸ਼ਨ-ਏ**

**ਆਤਮ ਅਨਾਤਮ** (ਕਵਿਤਾ ਭਾਗ),
(ਸੰਪ. ਸੁਹਿੰਦਰ ਬੀਰ ਅਤੇ ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ)
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।

**(ਪ੍ਰਸਗ ਸਹਿਤ ਵਿਆਖਿਆ, ਸਾਰ )**

**ਸੈਕਸ਼ਨ-ਬੀ**

**ਇਤਿਹਾਸਕ ਯਾਦਾਂ** (ਇਤਿਹਾਸਕ ਲੇਖ–ਸੰਗ੍ਰਹਿ)
ਸੰਪਾ. ਸ.ਸ.ਅਮੋਲ,
ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ। (ਲੇਖ 1 ਤੋਂ 6)

**(ਨਿਬੰਧ ਦਾ ਸਾਰ, ਲਿਖਣ-ਸ਼ੈਲੀ)**

**ਸੈਕਸ਼ਨ-ਸੀ**

**(ੳ)** ਪੈਰ੍ਹਾ ਰਚਨਾ

**(ਅ)** ਪੈਰ੍ਹਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ।

**ਸੈਕਸ਼ਨ-ਡੀ**

**(ੳ) ਪੰਜਾਬੀ ਧੁਨੀ ਵਿਉਂਤ** : ਉਚਾਰਨ ਅੰਗ, ਉਚਾਰਨ ਸਥਾਨ ਤੇ ਵਿਧੀਆਂ, ਸਵਰ, ਵਿਅੰਜਨ, ਸੁਰ-ਪ੍ਰਥਮ।

**(ਅ) ਭਾਸ਼ਾ ਵੰਨਗੀਆਂ** : ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ, ਭਾਸ਼ਾ ਅਤੇ ਉਪ–ਭਾਸ਼ਾ ਦਾ ਅੰਤਰ, ਪੰਜਾਬੀ ਉਪਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ–ਚਿੰਨ੍ਹ।

### ਅੰਕ–ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

## PAPER–V: ਮੁੱਢਲੀ ਪੰਜਾਬੀ

(In lieu of Compulsory Punjabi)

**ਸਮਾਂ : 3 ਘੰਟੇ** **ਕੁਲ ਅੰਕ: 50**

### ਪਾਠ-ਕ੍ਰਮ

#### ਸੈਕਸ਼ਨ-ਏ

ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤ੍ਰਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ)
ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ

#### ਸੈਕਸ਼ਨ-ਬੀ

ਪੰਜਾਬੀ ਸ਼ਬਦ-ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ
(ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ)

#### ਸੈਕਸ਼ਨ-ਸੀ

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇ-ਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ।

#### ਸੈਕਸ਼ਨ-ਡੀ

ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ

### ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

**PAPER–V: Punjab History & Culture (From Earliest Times to C 320)**

**(Special Paper in lieu of Punjabi Compulsory)**
**(For those students who are not domicile of Punjab)**

**Time: 3 Hours** **Max. Marks: 50**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

1. Physical features of the Punjab and its impact on history.
2. Sources of the ancient history of Punjab

**Section–B**

3. Harappan Civilization: Town planning; social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home and settlements in Punjab.

**Section–C**

5. Social, Religious and Economic life during *Rig* Vedic Age.
6. Social, Religious and Economic life during Later Vedic Age.

**Section–D**

7. Teachings and impact of Buddhism
8. Jainism in the Punjab

**Suggested Readings:**


1. L. M Joshi (Ed.), *History and Culture of the Punjab*, Art-I, Patiala, 1989 (3rd Edition)
2. L.M. Joshi and Fauja Singh (Ed.), *History of Punjab*, Vol.I, Patiala 1977.
3. Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma, *Life in Northern India*, Delhi. 1966.
5. Chopra, P.N., Puri, B.N., & Das, M.N. (1974). *A Social, Cultural & Economic History of India,* Vol. I, New Delhi: Macmillan India.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – I*

## PAPER – VI: DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION (COMPULSORY PAPER)

### PROBLEM OF DRUG ABUSE

Time: 3 Hours Max. Marks: 50

Instructions for the Paper Setters:-
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

#### Section – A

Meaning of Drug Abuse:
Meaning, Nature and Extent of Drug Abuse in India and Punjab.

#### Section – B

Consequences of Drug Abuse for:

| | | |
|---|---|---|
| Individual | : | Education, Employment, Income. |
| Family | : | Violence. |
| Society | : | Crime. |
| Nation | : | Law and Order problem. |

#### Section – C

Management of Drug Abuse:
Medical Management: Medication for treatment and to reduce withdrawal effects.

#### Section – D

Psychiatric Management: Counselling, Behavioural and Cognitive therapy.
Social Management: Family, Group therapy and Environmental Intervention.

References:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.* Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal Pub.
5. Kessel, Neil and Henry Walton. 1982, *Alcohalism. Harmond Worth:* Penguin Books.
6. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.
7. National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
8. Ross Coomber and Others. 2013, *Key Concept in Drugs and Society.* New Delhi: Sage Publications.
9. Sain, Bhim 1991, *Drug Addiction Alcoholism*, Smoking obscenity New Delhi: Mittal Publications.
10. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study. Amritsar: Guru Nanak Dev University.
11. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
12. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation,* Cambridge University Press.
13. Verma, P.S. 2017, *"Punjab's Drug Problem: Contours and Characterstics",* Economic and Political Weekly, Vol. LII, No. 3, P.P. 40-43.
14. World Drug Report 2016, United Nations office of Drug and Crime.
15. World Drug Report 2017, United Nations office of Drug and Crime.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – II*

**Paper–I: Fundamentals of Computer – II**
**(Theory)**

**Max. Marks: 100**
**Theory Marks: 75**
**Time: 3 Hours** **Practical Marks: 25**
**Periods per week: Theory: 6**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION – A**

- Internet ( Understanding its Basics, Evolution)
- World Wide Web (WWW)

**SECTION – B**

- Email( Structure and Working)
- LAN, WAN, MAN

**SECTION – C**

- Client Server System
- Types of software, Translators (compiler, interpreter, assembler)

**SECTION – D**

- Introduction to MS Power Point
- ❖ Elements of Power Point
- ❖ Staring, Saving, Printing of Slides
- ❖ Diff Views in Power Point
- ❖ Formatting of Slides
- ❖ Creation of graphs
- ❖ Printing Presentations

**PRACTICAL**

Max.Marks: 25

Practical based on fundamentals of Computer – II

- MS Power Point
- Internet

**References:**

1. Norton's P. (2001). Introduction to Computing Fundamental, McGraw Hill Education, New Delhi.
2. Introduction to Computer by P.K. Sinha.
3. Windows Based Computer Courses by Gurvinder Singh & Rachpal Singh, Kalyani Publishers.

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**Paper–II: Basics of Automobile Technology – III**

**Time: 3 Hours** **Max. Marks: 100**
**Periods/week: 6** **Theory Marks: 60**
**Practical Marks: 40**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

**Orientation of the Course:**

SECTION-A

**Introduction to Auto Mechanics and Safety Precautions:** Define auto mechanics, duties of mechanics, future of mechanics, functions of mechanics, causes of accidents.

SECTION-B

**Safety precautions:** while working on engine/vehicles, safety precautions while working with tools, preventing fire of auto engine.

SECTION-C

**Carburettor:** Introduction to carburettor, functions of carburettor,

SECTION-D

**basic types of carburettor:** operations of carburettor.

**PRACTICAL: Basics of Automobile Technology–III**
**PRACTICAL: LAB–III**

**Time: 3 Hours**
**Period/week: 6** **Marks: 40**

**Practical:**

1. Carburetor dismantling, cleaning and fault diagnosing.
2. Fuel Injection Pump timing with engine.
3. Injector O/H and Testing.
4. Water Pump cooling system and fault diagnosing.

**References:**

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Automotive Mechanics William H. Crouse. (English Edition) Donald L. Angkin Published by Tata McGraw–Hill Publishing Company Ltd., New Delhi.

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**Paper–III: Basic Science**

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week: 6**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

## SECTION A

Definition of force, types of forces, units of force, pressure and its units & everyday examples of force/pressure. Friction, factors affecting friction, static friction, sliding friction, rolling friction in daily life, advantage of friction, disadvantage of friction, Ways to increase or decrease friction.

## SECTION B

Concept of motion, uniform & non-uniform motion, speed, velocity, acceleration, graphical representation of motion, distance-time graph, velocity-time graph. Laws of motion, formulation of second law of motion, momentum & its conservation. Definition of work done, scientific conception of work, work done by a constant force. Types of work done (+ve, -ve, zero). Definition of energy, forms of energy (Kinetic energy & potential energy), Power & its units.

## SECTION C

Concept of metals & non-metals, physical and chemical properties of metals, physical and chemical properties of non-metals, uses of metals. Definition of acids & bases, indicators to check the acidity and basicity. Definition of combustion, necessary condition for combustion, types of combustion, fuel, characteristics of good fuel, harmful products formed by combustion of fuels.

## SECTION D

Definition of temperature, different scales for measurement of temperature, transfer of heat (conduction, convection & radiation processes). Concept of electric charge, types of charges, conductors & insulators, electric current, Ohm's law, concept of resistance & its units, resistance in series and parallel.

**References:**
1. NCERT/CBSE Lakhmir Singh & Manjit Kaur.
2. NCERT/CBSE Lakhmir Singh & Manjit Kaur.

## PAPER–IV: COMMUNICATION SKILLS IN ENGLISH – II

**Time: 3 Hours**

**Max. Marks: 50**
**Theory Marks: 35**
**Practical Marks: 15**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Course Contents:**

### SECTION–A

**Listening Skills:** Barriers to listening; effective listening skills; feedback skills.
**Activities:** Listening exercises – Listening to conversation, News and TV reports

### SECTION–B

Attending telephone calls; note taking and note making.
**Activities:** Taking notes on a speech/lecture

### SECTION–C

**Speaking and Conversational Skills:** Components of a meaningful and easy conversation; understanding the cue and making appropriate responses; forms of polite speech; asking and providing information on general topics.
**Activities:** **1)** Making conversation and taking turns
**2)** Oral description or explanation of a common object, situation or concept

### SECTION–D

The study of sounds of English,
Stress and Intonation,
Situation based Conversation in English,
Essentials of Spoken English.
**Activities:** Giving Interviews

## PRACTICAL / ORAL TESTING

**Marks: 15**

**Course Contents:-**
1. Oral Presentation with/without audio visual aids.
2. Group Discussion.
3. Listening to any recorded or live material and asking oral questions for listening comprehension.

**Questions:-**
1. Oral Presentation will be of 5 to 10 minutes duration (Topic can be given in advance or it can be student's own choice). Use of audio visual aids is desirable.
2. Group discussion comprising 8 to 10 students on a familiar topic. Time for each group will be 15 to 20 minutes.

**Note:** Oral test will be conducted by external examiner with the help of internal examiner.

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## PAPER–V: ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

**ਸਮਾਂ : 3 ਘੰਟੇ** **ਕੁਲ ਅੰਕ : 50**

### ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

**ਸੈਕਸ਼ਨ-ਏ**

**ਆਤਮ ਅਨਾਤਮ** (ਕਹਾਣੀ ਭਾਗ),
(ਸੰਪ. ਸੁਹਿੰਦਰ ਬੀਰ ਅਤੇ ਵਰਿਆਮ ਸਿੰਘ ਸੰਧੂ)
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
**(ਵਿਸ਼ਾ-ਵਸਤੂ, ਪਾਤਰ ਚਿਤਰਨ)**

**ਸੈਕਸ਼ਨ-ਬੀ**

**ਇਤਿਹਾਸਕ ਯਾਦਾਂ** (ਇਤਿਹਾਸਕ ਲੇਖ-ਸੰਗ੍ਰਹਿ)
ਸੰਪਾ. ਸ.ਸ.ਅਮੋਲ,
ਪੰਜਾਬੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਲੁਧਿਆਣਾ। (ਲੇਖ 7 ਤੋਂ 12)
**(ਸਾਰ, ਲਿਖਣ ਸ਼ੈਲੀ)**

**ਸੈਕਸ਼ਨ-ਸੀ**

**(ੳ) ਸ਼ਬਦ-ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ** : ਪਰਿਭਾਸ਼ਾ, ਮੁੱਢਲੇ ਸੰਕਲਪ

**(ਅ)** ਸ਼ਬਦ ਸ਼ੁਟਾਗ

**ਸੈਕਸ਼ਨ-ਡੀ**

**(ੳ)** ਸੰਖੇਪ ਰਚਨਾ

**(ਅ)** ਮੁਹਾਵਰੇ ਅਤੇ ਅਖਾਣ

### ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

# PAPER–V: ਮੁੱਢਲੀ ਪੰਜਾਬੀ
**(In lieu of Compulsory Punjabi)**

**ਸਮਾਂ: 3 ਘੰਟੇ** **ਕੁਲ ਅੰਕ: 50**

## ਪਾਠ-ਕ੍ਰਮ

### ਸੈਕਸ਼ਨ-ਏ

**ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ** : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ
(ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਬੰਧਕ, ਯੋਜਕ ਅਤੇ ਵਿਸਮਿਕ)

### ਸੈਕਸ਼ਨ-ਬੀ

**ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ** : ਮੁੱਢਲੀ ਜਾਣ-ਪਛਾਣ
(ੳ) ਸਾਧਾਰਨ ਵਾਕ, ਸੰਯੁਕਤ ਵਾਕ ਅਤੇ ਮਿਸ਼ਰਤ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)
(ਅ) ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

### ਸੈਕਸ਼ਨ-ਸੀ

ਪੈਰ੍ਹਾ ਰਚਨਾ
ਸੰਖੇਪ ਰਚਨਾ

### ਸੈਕਸ਼ਨ-ਡੀ

ਚਿੱਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)
ਅਖਾਣ ਅਤੇ ਮੁਹਾਵਰੇ

## ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਭਾਗ ਹੋਣਗੇ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਭਾਗ ਵਿਚੋਂ ਇਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ ਬਰਾਬਰ ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ-ਪ੍ਰਸ਼ਨਾਂ ਵਿਚ ਕਰ ਸਕਦਾ ਹੈ।

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**PAPER–V: Punjab History & Culture (C 320 to 1000 B.C.)**
**(Special Paper in lieu of Punjabi compulsory)**
**(For those students who are not domicile of Punjab)**

**Time: 3 Hours** **Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Section–A**

1. Alexander's Invasion and its Impact
2. Punjab under Chandragupta Maurya and Ashoka.

**Section–B**

3. The Kushans and their Contribution to the Punjab.
4. The Panjab under the Gupta Empire.

**Section–C**

5. The Punjab under the Vardhana Emperors
6. Socio-cultural History of Punjab from $7^{th}$ to 1000 A.D.

**Section–D**

7. Development of languages and Education with Special reference to Taxila
8. Development of Art & Architecture

**Suggested Readings:**

1. L. M Joshi (Ed), *History and Culture of the Punjab*, Art-I, Punjabi University, Patiala, 1989 ($3^{rd}$ Edition)
2. L.M. Joshi and Fauja Singh (Ed.), *History of Punjab*, Vol. I, Punjabi University, Patiala, 1977.
3. Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
4. B.N. Sharma: *Life in Northern India*, Delhi. 1966.

## PAPER – VI: DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION (COMPULSORY PAPER)

### DRUG ABUSE: MANAGEMENT AND PREVENTION

**Time: 3 Hours** **Max. Marks: 50**

**Instructions for the Paper Setters:-**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

### Section – A

**Prevention of Drug abuse:**

Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.

### Section – B

School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students.

### Section – C

**Controlling Drug Abuse:**

Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program

### Section – D

Legislation: NDPs act, Statutory warnings, Policing of Borders, Checking Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials.

References:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
2. Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection.* Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug Epidemic Among Indian Youth*, New Delhi: Mittal Pub.
5. Kessel, Neil and Henry Walton. 1982, *Alcohalism. Harmond Worth:* Penguin Books.
6. Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.
7. National Household Survey of Alcohol and Drug Abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.
8. Ross Coomber and Others. 2013, *Key Concept in Drugs and Society.* New Delhi: Sage Publications.
9. Sain, Bhim 1991, *Drug Addiction Alcoholism,* Smoking Obscenity, New Delhi: Mittal Publications.
10. Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab*: A Sociological Study. Amritsar: Guru Nanak Dev University.
11. Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.
12. Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation,* Cambridge University Press.
13. Verma, P.S. 2017, *"Punjab's Drug Problem: Contours and Characterstics",* Economic and Political Weekly, Vol. LII, No. 3, P.P. 40-43.
14. World Drug Report 2016, United Nations office of Drug and Crime.
15. World Drug Report 2017, United Nations office of Drug and Crime.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – III*

**Paper–I: Fundamentals of Computer - III**

**Time: 3 Hrs.** **Max. Marks: 100 (Th: 50, Practical: 50)**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION–A**

Interacting with the computer: Computer Components/ Input/ Output Devices: Input devices; keyboard, mouse, scanner, output devices; VDU and printer (impact and non-impact printers), plotter etc. Primary and secondary storage (auxiliary storage), secondary storage; magnetic disks – tracks and sectors, optical disk (CD, CD-RW and DVD memory). Computer Software concept: System software, application software, operating systems, and advantages of software and application packages. Introduction to operating systems such as msdos and windows, difference between dos and windows Operating system-MS-Windows Operating system-Definition & functions, basics of Windows, Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders, Control panel – display properties, adding and removing software and hardware, setting date and time, screensaver and appearance, Using windows accessories.

**SECTION–B**

Word Processor using Microsoft Office Introduction to Word, Introduction to Parts of Word Window (Title Bar, Menu Bar, Tool Bar, The Ruler, Status Area), Page Setup, Creating New Documents, Saving Documents, Opening an Existing documents, insert a second document into an open document, Editing and formatting in document, Headers and Footers, Spell Checking, Printing document, Creating a Table Using the Table Menu and table formatting, Borders and Shading, Templates and Wizards, Mail Merge, importing, exporting and inserting files, formatting pages, paragraphs and sections, indents and outdents, creating lists and numbering, Headings, styles, fonts and font size Editing, positioning and viewing texts, Finding and replacing text, inserting page breaks, page numbers , book marks, symbols and dates.

**SECTION–C**

Presentation Software using Microsoft Office
Introduction to MS Power point, Power point elements, Templates, Wizards, Views, Exploring Power Point Menu, Working with Dialog Boxes, Adding Text, Adding Title, Moving Text Area, Resizing Text Boxes, Adding Art, Starting a New Slide, Starting Slide Show, Saving presentation; Printing Slides, Views (View slide sorter view, notes view, outlines view)
Formatting and enhancing text formatting, Creating Graphs (Displaying slide show and adding multi – media)

**SECTION–D**

Spreadsheet using Microsoft Office
Elements of Electronics Spread Sheet and Ms-Excel: Application/usage of Electronic Spread Sheet, Opening of Spread Sheet, and menu bar, Creation of cells and addressing of cells, Cell inputting.
Manipulation of cells: Enter texts numbers and dates, Creation of tables, Cell Height and Widths, Copying of cells.
Functions: Using functions: mathematical, statistical and financial function.
Spread sheets for Small accountings: Maintaining invoices/budgets, Totaling of various transactions, maintaining daily and monthly sales reports.
Charts: drawing different types of charts.

Reference Books:
1. Andrew S. Tanenbaum, David J. Wetherall Computer Networks (5th Edition), PHI.
2. P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers.
3. A. Goel, Computer Fundamentals, Pearson Education. 4. Will Train, Gini Corter, Annette Marquis "Microsoft Office" BPB

## PRACTICAL

**1. On the basis of Computer Fundamental & Office Automation: Marks: 50**

**Books Recommended:**

1. M.S. Office, The Complete Reference by Keitel, McGraw Hill.
2. Office XP the Complete Reference by Kelly, Edition 2001, McGraw Hill.
3. B.RAM, "Computer Fundamental" First Edition, Dhanpat Rai & Sons Pub.
4. Peter Norton, "Introduction to Computers" 6th Edition 2004, McGraw Hill, HTML, DHTML Java Script, "Gyan Bayrose" 3rd Edition BPB.

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**Paper – II: Automobile Technology – IV**

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week Theory: 6** **Theory Marks: 50**
**Practical Marks: 50**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

**Orientation of the Course:**

**SECTION-A**

**Automatic Electrical Systems:** Basic Automotive Circuits, Starting motor, Starting Devices,Bendix starting Drive.

**SECTION-B**

**Overrunning clutch drive:** Solinoid shift systems, Starting motor troubleshooting.

**SECTION-C**

**Generator:** Generator principles, Generation of Alternating currents, Generation of direct current, Generator construction, generator output control,

**SECTION-D**

**Cut out relay:** Regulator, Alternator type generator, Generating Systems troubleshooting.

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**PRACTICAL:**
**Automobile Technology – IV**

**PRACTICAL: LAB – IV**

**Time: 3 Hours** **Marks: 50**
**Periods per week: Practical: 4 Hrs.**

**Distribution of Marks**

| | |
|---|---|
| Three visits to Motor Workshop – | **10 Marks** |
| Oral Examination – | **10 Marks** |
| Written Test – | **10 Marks** |
| Test of Workshop Jobs – | **10 Marks** |
| Identification of Workshop Tool – | **05 Marks** |
| Scale Instrument Readings – | **05 Marks** |

1. Self Stater opening from the Voh and Refitting

2. Dynmo /Alternator Dismentling and Assembling.

**References:**

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

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**Paper-III: Automobile Technology – V**

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week Theory: 6** **Theory Marks: 50**
**Practical Marks: 50**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

**Orientation of the Course:**

**SECTION-A**

**Ignition Systems:** Introduction, Qualities of a good ignition system, Battery ignition system, Components of battery ignition system, Ignition coil, Condenser, Contact breaker, Distributer, Ignition Advance, Methods of ignition advance,

**SECTION-B**

**Spark plug:** Classification Sparking Plugs, Spark Plug Gap, Magneto Ignition System, Rotating Armature Type, Rotating magnet type, Low and high tension types, Special type of magneto, Ignition System troubleshooting.

**SECTION-C**

**Petrol engine principles and fundamentals**
Introduction, Basic engine nomenclature, Classification of petrol engines, Merits and Demerits of petrol engines

**SECTION-D**

**Thermodynamic cycle of petrol engine:** Four stroke petrol engine, Two stroke petrol engine – Construction, working, Valve & port arrangements, scavenging systems, comparison with 4 stroke engines, Advantages, Disadvantages of two and four stroke petrol engines

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*(Automobile Technology) Semester – III*

**PRACTICAL: Automobile Technology – V**

**PRACTICAL: LAB – V**

**Time: 3 Hours** **Marks: 50**
**Periods per week: Practical: 4 Hrs.**

**Distribution of Marks**

| | |
|---|---|
| Three visits to Motor Workshop – | **10 Marks** |
| Oral Examination – | **10 Marks** |
| Written Test – | **10 Marks** |
| Test of Workshop Jobs – | **10 Marks** |
| Identification of Workshop Tool – | **05 Marks** |
| Scale Instrument Readings – | **05 Marks** |

1. Ignition Timing with the Engine.

2. Engine fault Diagonising.

**References:**

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – III*

**Paper–IV: Workshop Practice**

**Max. Marks: 100**

Introduction to workshop. Maintenance of workshop tools and machinery. Safety precautions.

Usage of various gauges to measure length, mass, volume, speed, temperature and pressure, like: diameter of wire by wire gauge, external and internal diameter by vernier caliper, micrometer, screw gauge, pressure by pressure gauge, etc.

1. Carpentry Shop Introduction to various types of woods and carpentry tools.
2. Sheet Metal Shop - Practice of measuring, marking, cutting, bending, folding, riveting, soldering, etc.
3. Electrical Shop Practice of wire joints, soldering and de–soldering, brazing, familiarization of voltmeter, ammeter, multi meter, etc.
4. Welding Shop Practice of various joints by Arc Welding, Gas Welding, TIG, MIG and Gas cutting. Types of flames, fluxes, filler rods. Soldering.
5. Machine Shop
   Inroduction and Practice on Lathe machine, Grinder, Drilling machines.

**Recommended Books:**

1. Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi
2. Workshop Technology by Manchanda Vol. I,II,III India Publishing House, Jalandhar.
3. Workshop Technology I,II,III, by S K Hajra, Choudhary and A K Chaoudhary. Media Promoters and Publishers Pvt. Ltd., Bombay
4. Manual on Workshop Practice by K Venkata Reddy, KL Narayana et al; MacMillan India Ltd. New Delhi
4. Workshop Technology by HS Bawa, Tata McGraw Hill Publishers, New Delhi
5. Workshop Technoogy by B.S. Raghuwanshi, Dhanpat Rai and Co., New Delhi

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – IV*

**Paper–I: Fundamentals of Computer - IV**

**Time: 3 Hrs.** **Max. Marks: 100 (Th: 50, Practical: 50)**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION–A**

Introduction to networks: Network Definition, Basic Components of a Network, Network types and topologies, Uses of Computer Networks, Network Architecture. Transmission Media: Coaxial cable, twisted pair cable, fiber optics & satellites. OSI reference model, TCP/IP reference model, comparison of OSI and TCP reference model. Computer Communication Basic of Computer networks: LAN, WAN, MAN. Internet: Introduction to internet and its application/services. Service on Internet: WWW and web-sites, Electronic mails, Communication on Internet.

**SECTION–B**

Web Browsers: Internet Explorer, Chrome and Firefox Surfing the Internet: Giving the URL address, Search, Moving Around in a web-site, Printing or saving portion of web pages, down loading/uploading Chatting on Internet Email: Basic of electronic mail, Creating Email id, Mailbox: Inbox and outbox. Using Emails: Viewing an email, sending an Email, Saving mails, sending same mail to various users, Document handling: Sending soft copy as attachment, Enclosures to email, sending a Portion of document as email

**SECTION–C**

Introduction to HTML: HTMLand Wordwide web, HTML elements, Basic structure of elements, creating HTML pages, viewing pages, Nesting of HTML tags, Colours and fonts.

**SECTION–D**

Introduction to Tally: Accounting concept, Basics of T== Accounting, Accounts number, creation of voucher, types and class, accounts voucher, balance sheet etc.

Suggested Readings/ Books

1. Tanenbaum A. S., “Computer Networks”, PHI.
2. TALLY ERP 9 TRAINING GUIDE - 4TH REVISED & UPDATED EDITION – 2018

**PRACTICAL**

**On the basis of Internet & Data Communication** **Marks: 50**

**Books Recommended:**

1. D.H. Sanders, "Computers Today", McGraw Hill, 1998.

2. Complete Network by Andrew Tanenbaum, 4th Edition, Prentice Hall India.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – IV*

**Paper-II: Automobile Technology – VI**

**Max. Marks: 100**
**Time: 3 Hours** **Marks: 50**

**Periods per week: 6 Hrs.**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

**Orientation of the Course:**

**SECTION-A**

**Engines:** Introduction, Classification of automobile engines, Engine cycle, Number of strokes, With respect to fuels use, Number and arrangement of cylinders,

**SECTION-B**

**Classification based on valve arrangements:** Classification based on type of cooling, Classification based on type of valve, Special type engines, Square engines, Fuel cell, Electric vehicles, Engine position.

**SECTION-C**

**Ignition Systems:** No spark, Spark at some wires, Intermittent spark, Weak spark, servicing ignition system. Piston Assembly, Piston rings, Analysis of piston rings, piston pins, Materials.

**SECTION-D**

**Engine Service Crank Shift and Cylinder Blocks:** Review of design, Analysis of Crank shift for strength, Surface hardening of crank shaft and their materials.

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*(Automobile Technology) Semester – IV*

**PRACTICAL: Automobile Technology-VI**

**PRACTICAL: LAB–VI**

**Time: 3 Hours** **Marks: 50**
**Periods per week: Practical: 4 Hrs.**

**Distribution of Marks**

| | |
|---|---|
| Three visits to Motor Workshop – | **10 Marks** |
| Oral Examination – | **10 Marks** |
| Written Test – | **10 Marks** |
| Test of Workshop Jobs – | **10 Marks** |
| Identification of Workshop Tool – | **05 Marks** |
| Scale Instrument Readings – | **05 Marks** |

1. Engine Piston and Rings Fitting
2. Clutch Dismantling and Assembling

**References:**

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – IV*

**Paper – III: Automobile Technology – VII**

**Max. Marks: 100**
**Time: 3 Hours** **Marks: 50**
**Periods per week: 6 Hrs.**

**Instructions for the Paper Setters:-**
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Note: Attempt of question paper may be made either in English or Punjabi.**

**Orientation of the Course:**

**SECTION-A**

**Clutch Operation:** Clutch, Requirement of clutch, Types of Clutch, Friction clutches, Clutch components, Friction materials, Clutch lining materials, Bonding materials, Fluid coupling,

**SECTION-B**

**Torque transmission:** Characteristics of the fluid flywheel, Advantages of fluid flywheel, Clutch troubleshooting, Fluid flywheel troubleshooting.

**SECTION-C**

**Diesel Engine Service:** Fuel pump tests, Fuel Delivery, Pressure, Stroke,

**SECTION-D**

**Carborator test and adjustments:** Fuel level, Float level, Adjustment.

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*(Automobile Technology) Semester – IV*

**PRACTICAL: Automobile Technology-VII**

**PRACTICAL: LAB–VII**

**Time: 3 Hours** **Marks: 50**
**Periods per week: Practical: 4 Hrs.**

**Distribution of Marks**

| | |
|---|---|
| Three visits to Motor Workshop – | **10 Marks** |
| Oral Examination – | **10 Marks** |
| Written Test – | **10 Marks** |
| Test of Workshop Jobs – | **10 Marks** |
| Identification of Workshop Tool – | **05 Marks** |
| Scale Instrument Readings – | **05 Marks** |

1. Clutch Fitting with Engine.
2. Cut out opening and fitting with Engine.

**References:**

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

**PAPER–IV: Basic Automobile Lab**

**Max.Marks: 100**

**Introduction of Vehicle parts:**
Demonstration of different types of vehicles (2 wheelers, 3 wheelers and 4 wheelers) through models, sectioned actual vehicles and charts.

Familiarization with the parts of vehicles, demonstration of methods of washing, cleaning, oiling, greasing and lubricating of various parts, nuts, bolts, etc. Dismantling, cleaning and inspecting of various vehicle parts of SI and CI engines like piston rings, connecting rod, crankshaft, valves, piston head, bearings, etc.

**Measuring Instruments:** Practice of measurement by calipers and other gauges on automobile parts like cylinder bore, connecting rod, crankshaft, camshaft, cam height, valve stem diameter, piston diameter, piston pin diameter. Practice for measuring tire air pressure and the recommended setting for different tires and vehicles. To check vacuum of engine manifold using vacuum gauge. Practice of measuring wear on valve guide, crankshaft run out, crankshaft end play using dial indicator. Practice of using feeler gauge to find wall clearance between piston and cylinder, end gap of piston ring. To check the flatness of cylinder head.

**Heat Treatment:**
Practice on heat treatment processes.

**Fuel Supply System:** Demonstration of various parts of carburetor, removal and re–assembling of carburetor parts, like float, float valve, jet, adjustment of float level. Checking of throttle cable and its adjustment. Removing and cleaning of air cleaner, oil filter screen. Practice of inspection of fuel lines, engine oil level and sprak plug. Practice on removing and installing the fuel tank. Fault finding and rectification of engine not starting, high fuel consumption and practice for engine tuning.

**Recommended Books:**
1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – IV*

# PAPER–V (ESL-221): ENVIRONMENTAL STUDIES

**Time: 3 Hrs.** **Max. Marks: 100**

**Teaching Methodologies**
The Core Module Syllabus for Environmental Studies includes class room teaching and field work. The syllabus is divided into 8 Units [Unit-1 to Unit-VII] covering 45 lectures + 5 hours for field work [Unit-VIII]. The first 7 Units will cover 45 lectures which are class room based to enhance knowledge skills and attitude to environment. Unit-VIII comprises of 5 hours field work to be submitted by each candidate to the Teacher in-charge for evaluation latest by 15 December, 2019.

**Exam Pattern:** **End Semester Examination- 75 marks**
**Project Report/Field Study- 25 marks [based on submitted report]**
**Total Marks- 100**

The structure of the question paper being:

**Part-A,** Short answer pattern with inbuilt choice – **25 marks**
Attempt any five questions out of seven distributed equally from Unit-1 to Unit-VII.
Each question carries 5 marks. Answer to each question should not exceed 2 pages.

**Part-B**, Essay type with inbuilt choice – **50 marks**
Attempt any five questions out of eight distributed equally from Unit-1 to Unit-VII. Each question carries 10 marks. Answer to each question should not exceed 5 pages.

**Project Report / Internal Assessment:**

**Part-C**, Field work – **25 marks [Field work equal to 5 lecture hours]**
The candidate will submit a hand written field work report showing photographs, sketches, observations, perspective of any topic related to Environment or Ecosystem. The exhaustive list for project report/area of study are given just for reference:

1. Visit to a local area to document environmental assets: River / Forest/ Grassland / Hill / Mountain / Water body / Pond / Lake / Solid Waste Disposal / Water Treatment Plant / Wastewater Treatment Facility etc.
2. Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
3. Study of common plants, insects, birds
4. Study of tree in your areas with their botanical names and soil types
5. Study of birds and their nesting habits
6. Study of local pond in terms of wastewater inflow and water quality
7. Study of industrial units in your area. Name of industry, type of industry, Size (Large, Medium or small scale)
8. Study of common disease in the village and basic data from community health centre
9. Adopt any five young plants and photograph its growth
10. Analyze the Total dissolved solids of ground water samples in your area.
11. Study of Particulate Matter ($PM_{2.5}$ or $PM_{10}$) data from Sameer website. Download from Play store.
12. Perspective on any field on Environmental Studies with secondary data taken from Central Pollution Control Board, State Pollution Control Board, State Science & Technology Council etc.

**Unit-I**

**The multidisciplinary nature of environmental studies**

Definition, scope and importance, Need for public awareness

**(2 lectures)**

**Unit-II**

**Natural Resources: Renewable and non-renewable resources:**

Natural resources and associated problems.

(a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

**(8 Lectures)**

**Unit-III**

**Ecosystems**

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

**(6 Lectures)**

**Unit-IV**

**Biodiversity and its conservation**

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation

- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

**(8 Lectures)**

**Unit-V**

**Environmental Pollution :**

**Definition :**

- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

**(8 Lectures)**

**Unit-VI**

**Social Issues and the Environment**

- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

**(7 Lectures)**

**Unit-VII**

**Human Population and the Environment**

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education

- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

**(6 Lectures)**

**Unit-VIII**

**Field Work**

- Visit to a local area to document environmental assets River / forest / grassland / hill / mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

**(Field work equal to 5 lecture hours)**

**References:**

1. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
2. Down to Earth, Centre for Science and Environment, New Delhi.
3. Heywood, V.H. & Waston, R.T. 1995. Global Biodiversity Assessment, Cambridge House, Delhi.
4. Joseph, K. & Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education (Singapore) Pte. Ltd., Delhi.
5. Kaushik, A. & Kaushik, C.P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
6. Rajagopalan, R. 2011. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.
7. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.
8. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut.
9. State of India's Environment 2018 by Centre for Sciences and Environment, New Delhi
10. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – V*

**Paper–I: Fundamentals of Computer – V**
**(Theory)**

**Time: 3 Hours** **Max. Marks: 100**
**Theory Marks: 75**
**Practical Marks: 25**

**Instructions for the Paper Setters:**

a) Ten compulsory very short answer questions of 2 marks each. 10x02=20
b) Eight short answer questions of 5 marks each, students are required attempt any five questions. 05x05=25
c) Four long answer questions of 15 marks each, students are required to attempt any two. 02x15=30

**UNIT–I**

**Logic Development and Program Development Tools:** Data Representation, Flowcharts, Problem Analysis, Decision Trees/Tables, Pseudo code and algorithms.

**UNIT–II**

**UNIX:** Network Operating System: Architecture, Shell, Kernel & File System

**UNIT–III**

**E–Commerce:**
Its definition, aims, processes, tools and results, EDI, VANs and Internet as Promoters. Types of E–Commerce, Commerce–net.

**Steps to Start E–Commerce.**
H/W & S/W Requirements, Steps involved in opening your own online business.

## PRACTICAL

**1. On the basis of UNIX and E–Commerce** **Marks: 25**

**Books Recommended:**

1. M.S. Office, the Complete Reference by Keitel, McGraw Hill.
2. E–Commerce –The Cutting Edge of Business
–Kamlesh K. Bajaj
–Debjani Nag
3. Robert Reinstein, et.al: Windows NT Trouble Shooting and Configuration, Techmedia.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – V*

## Paper–II: Automobile Technology – VIII

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week Theory: 6**

**Instructions for the Paper Setters:**

a) Ten compulsory very short answer questions of two marks each 10x02=20
b) Eight short answer questions of eight marks each, students are required attempt any five questions 05x08=40
c) Six long answer questions of ten marks each, students are required to attempt any four. 04x10=40

**Note: Attempt of question paper may be made either in English or Punjabi.**

### UNIT – I

**Tyre and Rim:** Introduction to tyre, functions of tyres, constructions of tyres, tread design pattern, types of tyres, tyre changing, wheel balancing.

### UNIT – II

**Brake System:** Introduction to brake system, requirements of good braking system, types of brakes

### UNIT – III

**Gear Box:** Introduction to gear box, problems occurring during running of vehicle, advantages of gear, types of gear boxes

**References:**

3. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
4. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – V*

**Paper–III– Project Lab–I**

**Max.Marks– 200**
**Project–Work – 120**
**Viva–voce –80**

Students are required to submit their synopsis related to automobile technology of any project module.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – VI*

**Paper–I: Fundamentals of Computer – VI**
**(Theory)**

**Time: 3 Hours** **Max. Marks: 100**
**Theory Marks: 75**
**Practical Marks: 25**

**Instructions for the Paper Setters:**

a) Ten compulsory very short answer questions of 2 marks each. 10x02=20
b) Eight short answer questions of 5 marks each, students are required attempt any five questions. 05x05=25
c) Four long answer questions of 15 marks each, students are required to attempt any two. 02x15=30

**UNIT–I**

Introduction to data, field, record, file, database, database management system. Structure of database system, Advantage and disadvantage, levels of database system, Relational model, hierarchical model, network model, comparison of these models, E–R diagram

**UNIT–II**

**RDBMS**: –Different keys used in a relational system, Data Integrity

DBA, responsibilities of DBA

**UNIT–III**

**SQI. *PLUS**
Introduction to Oracle **10g**
SQL– DDL, DML, DCL

## PRACTICAL

**1. On the basis of Basic SQL** **Marks: 25**

**Reference Books:**

1. Introduction to Database System By C.J. Date.
2. Database Management System By B.C. Desai.
3. Database Concept by Korth.
4. Simplified Approach to DBMS– Kalyani Publishers
5. Oracle – Developer – 2000 by Ivan Bayross.
6. Database System Concepts & Oracle (SQL/PLSQ) – AP Publishers.

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – VI*

## Paper–II: Automobile Technology – IX

**Time: 3 Hours** **Max. Marks: 100**
**Periods per week Theory: 6**

**Instructions for the Paper Setters:**

a) Ten compulsory very short answer questions of two marks each 10x02=20
b) Eight short answer questions of eight marks each, students are required attempt any five questions 05x08=40
c) Six long answer questions of ten marks each, students are required to attempt any four. 04x10=40

**Note: Attempt of question paper may be made either in English or Punjabi.**

### UNIT–I

**Cooling system: –** Effect of overheated engine, effect of over cooled engine, effect of engine running temperature, types of cooling systems: Air cooled and water cooled systems, advantages and disadvantages of air cooled and water cooled systems.

### UNIT–II

**Lubrication system: –** Defination of lubrication, advantages of lubrication, Engine oil, Define Viscosity of engine oil, type of Lubricants, Types of Lubricant Systems.

**References:**

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, Published by Dhanpat Rai and Sons, Jalandhar, (Delhi).
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).

*Bachelor of Vocation (B.Voc.)*
*(Automobile Technology) Semester – VI*

**Paper–III– Project Lab–II**

**Max.Marks– 200**
**Project–Work – 120**
**Viva–voce –80**

Students are required to submit their synopsis related to automobile technology of any project module.