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

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

Eligibility:  
+2 pass in any stream.

Scheme of Syllabus

Semester – I:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – I</td>
<td>100 (75 Theory + 25 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Basics of Automobile Technology – I</td>
<td>100 (60 Theory + 40 Practical)</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Basics of Automobile Technology – II</td>
<td>100 (60 Theory + 40 Practical)</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>Communicative Skills in English – I</td>
<td>50</td>
</tr>
<tr>
<td>Paper – V</td>
<td>Punjabi (Compulsory) / ** ਪੰਜਾਬੀ ਪ੍ਰੋਸਾਦੀ / ** Punjab History &amp; Culture (From Earliest Times to C 320)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – VI</td>
<td>* Drug Abuse: Problem, Management and Prevention (Compulsory Paper)</td>
<td>50</td>
</tr>
</tbody>
</table>

Total : 400

Semester – II:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – II</td>
<td>100 (75 theory + 25 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Basics of Automobile Technology – III</td>
<td>100 (60 theory + 40 Practical)</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Basic Sciences</td>
<td>100</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>Communicative Skills in English – II</td>
<td>50 (35 theory + 15 Practical)</td>
</tr>
<tr>
<td>Paper – V</td>
<td>Punjabi (Compulsory) / ** ਪੰਜਾਬੀ ਪ੍ਰੋਸਾਦੀ / ** Punjab History &amp; Culture (C 320 TO 1000 B.C.)</td>
<td>50</td>
</tr>
<tr>
<td>Paper – VI</td>
<td>* Drug Abuse: Problem, Management and Prevention (Compulsory Paper)</td>
<td>50</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – III</td>
<td>100 (50 theory+50 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Automobile Technology – IV</td>
<td>100 (50 theory+50 Practical)</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Automobile Technology – V</td>
<td>100 (50 theory +50 Practical)</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>Workshop Practice</td>
<td>100</td>
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<tr>
<td></td>
<td><strong>Total :</strong></td>
<td><strong>400</strong></td>
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### Semester – IV:

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<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – IV</td>
<td>100 (50 theory +50 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Automobile Technology – VI</td>
<td>100 (50 theory +50 Practical)</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Automobile Technology – VII</td>
<td>100 (50 theory +50 Practical)</td>
</tr>
<tr>
<td>Paper – IV</td>
<td>Basic Automobile Lab</td>
<td>100</td>
</tr>
<tr>
<td>Paper – V</td>
<td>*Environmental Studies (ESL-221)</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td><strong>Total :</strong></td>
<td><strong>400</strong></td>
</tr>
</tbody>
</table>

* Marks of Paper EVS will not be included in Grand Total.
Bachelor of Vocation (B.Voc.)  
(Automobile Technology) Semester System

Semester – V:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – V</td>
<td>100 (75 theory +25 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Automobile Technology – VIII</td>
<td>100</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Project Lab–I</td>
<td>(120 Project–Work+80 Viva–voce=200)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total : 400</strong></td>
</tr>
</tbody>
</table>

Semester – VI:

<table>
<thead>
<tr>
<th>Paper No.</th>
<th>Paper</th>
<th>M. Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper – I</td>
<td>Fundamentals of Computer – VI</td>
<td>100 (75 theory +25 Practical)</td>
</tr>
<tr>
<td>Paper – II</td>
<td>Automobile Technology – IX</td>
<td>100</td>
</tr>
<tr>
<td>Paper – III</td>
<td>Project Lab – II</td>
<td>(120 Project–Work+80 Viva–voce=200)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Total : 400</strong></td>
</tr>
</tbody>
</table>
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – I

(Theory)

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25
Periods per week: Theory: 6

Time 3 Hours

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
Paper II: Basics of Automobile Technology–I

Time: 3 Hours
Periods per week: Theory: 6

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.
PRACTICAL: Basics of Automobile Technology–I

Time: 3 Hours
Period Per week Practical: 6

Marks: 40

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.
Paper III: Basics of Automobile Technology–II

Time: 3 Hours
Periods per week: Theory: 6

Max. Marks: 100
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: Shop hand tools, special tools used for denting.

SECTION-D

References:
1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.
PRACTICAL: Basics of Automobile Technology–II
PRACTICAL: LAB–II

Time: 3 Hours
Period Per week Practical: 6

Marks: 40

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.
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: भैंसण्डी (समान्त्री)

भाग : 3 पृष्ठ

संख्या - 50

प्रथम लेख अंदे प्रथम मुद्रां

मैथिली

आवल अर्थम् (विद्युत तेला).
(मध्य. मूर्तिश वीर अंदे विद्युत विभाग निदेश मंत्री)
लाभ तालाब देव प्रतीक्षिती. बिभिन्न मान
(पृष्ठा मात्र) नस्करणश, मान)

मैथिली-पी

हिन्दीगाथा जारी (हिन्दीगाथा हेम-मानीती)
मध्य. म.म.मंत्री.
पैकागी मातिरित पृथ्वीरत, तिनिपान। (खंड 1 ने 6)
(सत्रपा रा मान, सिंह-मैली)

मैथिली-पी

(१) पेड़ा उत्तरा
(२) पेड़ा उत्तरा थे पृष्ठा ने प्रेक्षण ने प्रेक्षण।

मैथिली-पी

(१) भैंसण्डी धुली हिन्दी : हिंदीगा भोज, हिंदीगा महात्मा ने हिंदीगार, महात्म, हिंदीगार, महा-पृष्ठा।
(२) अग्नि देहतीर्थ : अग्नि रा टवाली तुष्था, अग्नि अंदे दुःख-दुःख ना भोज, पैकागी दुःखगामा ने प्रेक्षण-हिन्दी।

मैथिली-पी

1. पृथ्वी पृथ्वी ने चत्र चत्र ठेकेटो। रत चत्र दिखें ने पृथ्वी पृथ्वी सभूरी।
2. हिंदीगा हिंदी हे जुंज़ पृथ्वी पृथ्वी बदल रही। रत चत्र दिखें चित्र पृथ्वी सभूरी है।
3. रतेवर पृथ्वी देव घरान घर।
4. वेपाल मेंट बदल रहा मैथिली चार ने पृथ्वीका री टेंड अंदे टेंड ने टेंड चत्र दुःख-पृथ्वी दिशा भर भर भर ता।
पाठ-पृष्ठ

मैत्रम-दे

पैडी बैच्ली, अधिक बूंध, पैड बिड़ी रहने रहने रहने अंदे पैड हिच पैड रहने रहने आई भालूं (प्रेमली सत्य-पहल)।

अधापत (बिड़ी, टिप्पी, अंर) : पृष्ठ अंदे रहने

मैत्रम-वी

पृष्ठी मध्य-पन्नी : प्रेमली सत्य-पहल (साधन मध्य, संयुक्त मध्य, भिन्न मध्य, भूष मध्य, अलौकिक अंदे दिखावत).

मैत्रम-मी

हिंदी ऋचने दी पृष्ठी मध्यप्रेमणी : चापाँ, चंपाँ, किये-रुमे, पैडी अंदे रेख पन्नीं अलि तरह मिलिया।

मैत्रम-जी

उद्देने दे मेंद ऐतिहां दे तां, चादूं भीलियां दे तां, चाँदे दे तां, हिंदे दे में उद विवर्ती मध्य छिट

भैल-चौं अंदे भद्दिकाव लडी उतारियां

1. धूम हंदु दे रात्र जगा शेतड़ो। उद जगा दिंदे दे धूम हंदु दे नापटो।
2. निजिभाषी दे बुंढ़ पैड धूम बचने उठ। उद जगा दिंदे दिंदे धूम कान्ही दे।
   धूम कान्ही धूम रात्र जगा दिंदे बीड़ ना मगरां दे।
3. उदेन धूम दे रात्र भगव उठ।
4. पैड पैड बचत रात्र नात रखने उं धूम ली बीड़ भगव दे शेप दे शेप रात्र शिख-धूम दिंदे वां वर्त मगरां दे।
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.

Section–C
5. Social, Religious and Economic life during *Rig* Vedic Age.

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

Suggested Readings:

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:

Section – B

Consequences of Drug Abuse for:

<table>
<thead>
<tr>
<th>Category</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>Education, Employment, Income</td>
</tr>
<tr>
<td>Family</td>
<td>Violence</td>
</tr>
<tr>
<td>Society</td>
<td>Crime</td>
</tr>
<tr>
<td>Nation</td>
<td>Law and Order problem</td>
</tr>
</tbody>
</table>

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:

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

(Theory)

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Time: 3 Hours
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:
2. Introduction to Computer by P.K. Sinha.
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – II

Paper-II: Basics of Automobile Technology – III

Time: 3 Hours
Periods/week: 6
Max. Marks: 100
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

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.

References:

1. Basic Automobile Engineering Written by CP Nakra (Punjabi Edition) Published by Dhanpat Rai and Sons, Jalandhar, Delhi.


Paper–III: Basic Science

Time: 3 Hours
Periods per week: 6

Max. Marks: 100

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

PAPER-V: ਪੀਨਾਕੀ (ਲਗਭਗੀ)

ਸਮਾਂ : 3 ਪੇਟੀ

ਪ੍ਰਸ਼ਨ-ਵਿੱਭਾਗ ਅਤੇ ਪ੍ਰਸ਼ਨ-ਪ੍ਰਦਾਤਾ

ਮੈਵਸ਼ਤ-ਦੇ

ਆਜਾਤਨ ਹਿਰੇ ਕਟਤੀ ਟਾਪੂ (ਐਚ.ਐਨਵੀ)
(ਐਕਾਲਾ ਮੁਦਰਾਵਾਂ ਵਿੱਚ ਕੇਂਦਰੀ ਨਿਘੰਤ ਅਧਿਕਾਰ)
ਵਾਲੀ ਰਾਸ਼ਿਦ ਪ੍ਰੌਦਕ ਕੁਹਤਵਾਨੀ, ਅਕਸ਼ਾਮਤ
(ਹੀਮ-ਖ਼ਤਰਆ, ਪਾਣੀ ਖ਼ੁਝੜਾਂ)

ਮੈਵਸ਼ਤ-ਦੀ

ਫਿਲਿਫਸ਼ਹ ਫਲਾਂ (ਫਿਲਿਫਸ਼ਹ ਫਲਾਂਧਨਤੀ)
ਸਿਖਵਾਦ ਸੂਰੀਮੀਕਾਨ, ਪੀਨਾਕੀ ਮਿਲਹਕ ਪ੍ਰਸ਼ਨਕਰ, ਦਿੱਲੀਨਾਂ। (ਸੌਜਨ 7 ਤੋਂ 12)
(ਕਾਵ ਲਿਬਰ ਸਟੈਲ)

ਮੈਵਸ਼ਤ-ਦੀ

(ਇ) ਸਪਸਤ-ਖੜਤਾਮ ਅਤੇ ਸਪਸਤ ਉਤਪਤਾ : ਪੁਸੇਕਾਹਾ, ਪ੍ਰਸਤ ਮੈਵਸ਼ਤ
(ਅ) ਤ੍ਰਹਾਤ ਪ੍ਰਦਾਤਾ

ਮੈਵਸ਼ਤ-ਦੀ

(ਇ) ਮੈਵਸ਼ਤ ਉਤਪਤਾ
(ਅ) ਪ੍ਰਸਤ ਅਤੇ ਪ੍ਰਸਤ

ਅੰਦਰ-ਚੈਂਡ ਅਤੇ ਪ੍ਰਵੀਣਾਤਮ ਰੌਗੀ ਪੁਰਾਣੀਆਂ

1. ਪੂਰੁਸਤ ਪ੍ਰੋੜਾ ਦੇ ਚਵਾ ਚਾਰ ਘੱਟੀ ਹੋਈ। ਉਤ ਚਾਰ ਪੁਸੀ ਨਾਲ ਪੁਰਾਣੀ ਹੋਈ।
2. ਹਿਰੇ ਟੁਪੀ ਦੇ ਬੀਚ ਪ੍ਰੋੜਾ ਚਵਾ ਹੋਈ। ਉਤ ਚਾਰ ਪੁਸੀ ਹੋਈ।
3. ਉਤਵਾਂ ਪੂਰੁਸਤ ਦੇ ਬਦਲਾਂ ਬਾਹਰ ਹੋਈ।
4. ਪ੍ਰੋੜਾ ਦੇ ਬਦਲਾਂ ਬਾਹਰ ਹੋਈ। ਉਤ ਪ੍ਰੋੜਾ ਪੁਰਾਣੀ ਹੋਈ। ਦੁਪਾ ਦੁਪਾ ਚਵਾ ਪੁਰਾਣੀ ਦੀ ਚੰਦੀ।
PAPER-V: सूचकी प्रश्नावली
(In lieu of Compulsory Punjabi)

समय: 3 पंडे
तकया अंक: 50

पाठ-चौथा

मैवमल-दे

प्रश्न शैली: प्रश्न अंके लगउँ
(उन्न, प्रश्नांक, विविधता, विविधता विविधता, मांगम, मांगम अंके विविधता)

मैवमल-मी

क्षमा है दोस्तो, यदि प्रश्न नसीहत की जाती है।

मैवमल-डी

सिंही पंजी (सस्त्र मुद्रा सदा लड़ती)
अथवा अंके भुवेन्दर

ओलरूंड अंके भ्रमीकारण लड़ी उसारी:

1. प्रश्न पंजे दे चल जाना देखी। उत्तर जाना दिखे दे प्रश्न पंजे लगउँ।
2. विविधता से देख देख प्रश्न देख देख देख। उत्तर जाना दिखे दिख प्रश्न समाप्ती है।
3. प्रश्न पंजे दे शास्त्र अंके उठ।
4. ध्यतन मैं वर्तमान नेता जोड़े दे प्रश्न से हंड आती दंड दे दंड चल फिन-फूंछ में दिख चल मारा है।
Bachelor of Vocation (B.Voc.)  
(Automobile Technology) Semester – II

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 7th 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 (3rd Edition)
PAPER – VI: DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION
(COMPELLARY 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:

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

SECTION–C

Presentation Software using Microsoft Office
Introduction to MS Powerpoint, 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 ElectronicSpread
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.
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.
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:

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

Paper – II: Automobile Technology – IV

Time: 3 Hours
Periods per week Theory: 6

Max. Marks: 100
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.
PRACTICAL:
Automobile Technology – IV

PRACTICAL: LAB – IV

Time: 3 Hours
Periods per week: Practical: 4 Hrs.

Marks: 50

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

Paper-III: Automobile Technology – V

Time: 3 Hours
Periods per week Theory: 6

Max. Marks: 100
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
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – III

PRACTICAL: Automobile Technology – V

PRACTICAL: LAB – V

Time: 3 Hours
Periods per week: Practical: 4 Hrs.

Marks: 50

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).
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.
5. Machine Shop
   Introduction and Practice on Lathe machine, Grinder, Drilling machines.

**Recommended Books:**
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – 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

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: HTML and World wide 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
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – IV

PRACTICAL

On the basis of Internet & Data Communication

Books Recommended:


Marks: 50
Max. Marks: 100
Marks: 50

Time: 3 Hours
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
Bachelor of Vocation (B.Voc.)
(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).
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – IV

Paper – III: Automobile Technology – VII

Max. Marks: 100
Marks: 50

Time: 3 Hours
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.
Bachelor of Vocation (B.Voc.)
(Automobile Technology) Semester – IV

PRACTICAL: Automobile Technology-VII

PRACTICAL: LAB–VII

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

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

- 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:

2. Down to Earth, Centre for Science and Environment, New Delhi.
9. State of India’s Environment 2018 by Centre for Sciences and Environment, New Delhi
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

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  

Books Recommended:


2. E–Commerce  
   –The Cutting Edge of Business  
   –Kamlesh K. Bajaj  
   –Debjani Nag

Bachelor of Vocation (B.Voc.)
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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).
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.
(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 to 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

SQL. *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
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: – Definition 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).
Students are required to submit their synopsis related to automobile technology of any project module.