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TGPSC | APPSC

Assistant Motor Vehicle Inspector (AMVI)

Mechanical Engineering
&
Automobile Engineering

Previous years Objective Questions with Solutions, Subjectwise & Chapterwise
(Exams held between 2009 - 2026)

(Useful for Other States AMVI, MVI, PSC & PSUs Examinations)

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Foreword

Dear Students,

Many competitive exam aspirants experience tremendous preparation pressure a few weeks before the real examination as they are not sure about the type of questions expected in the exam. It is very difficult to guess the possible questions in the competitive exam but there are ways to overcome this difficult situation. One such excellent option is solving the previous years' question papers as a part of the preparation strategy. Solving previous years' questions always gives a positive mindset before going to the real examination. This option may look simple and easy yet many aspirants do not include the practice of previous years' questions in their preparation.

The primary benefits of preparing with previous years' questions are the ability to understand the level of questions and prepare, gauge the importance of each individual subject by the number of questions appeared in previous years examination papers and further to identify key sub-areas within a subject by evaluating the number of questions appeared. These benefits are well known to the aspirants but the primary reason for not including previous years' question papers in the preparation strategy is non-availability of quality and trustable resource which can provide not only the exact questions but also quality solutions to these questions.

We at ACE Engineering Academy identified this gap in the competitive exam preparation strategy of the aspirants and came up with a series of books on previous questions and solutions for various competitive exams such as GATE, ESE, PSUs, and other government recruitment examinations. The latest offering is in this series is ***TGPSC/APPSC Assistant Motor Vehicle Inspector (AMVI)*** Examination questions and solutions book. This book is prepared by exclusive TGPSC/APPSC subject matter experts so that the solutions are optimized to the TGPSC & APPSC level. The unique feature in this book is that the previous years' examination questions are categorized as subject wise, chapter wise so that the aspirant can integrate these questions along in their regular preparation.

We at ACE are sure that this book will be of tremendous help to the aspirants of TGPSC/APPSC examination. Any suggestions or inputs which will add value are welcomed.

Thanks to all Professors who extended their services in the preparation of this booklet. It is believed that this volume is also a valuable aid to the students appearing for competitive exams like Other States AMVI, MVI, MVSI, other PSC and PSUs Examinations.

With best wishes to all the Students

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ACE Engineering Academy,
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Frost Interactive Service Pvt. Ltd. (ACE ONLINE).

TGPSC AMVI SYLLABUS

AUTOMOBILE ENGINEERING (DIPLOMA STANDARD)

1. **Thermal Engineering & Automobile Power Plants:** Thermodynamic Laws, Thermodynamic Processes, Air Standard Cycles, Fuels & combustion, Performance of IC Engines, Engine Construction, IC Engines - classification, Combustion Chambers; Various IC Engine systems - Lubrication, cooling, fuel (petrol & diesel engines), Inlet & Exhaust Systems.
2. **Automobile Chassis, Body & Transmission System:** Chassis frame - Steering, Brakes, Suspension systems - Body Design & construction - Clutch - Gearbox - Propeller Shaft & Universal Joints - Final drive - Differential - Front Axle - Rear Axle - Wheels &Tyres.
3. **Automobile Servicing and Maintenance, Automobile Electrical Systems:** Garage & Service station tools and equipment - Servicing & maintenance procedures - Servicing and Maintenance of 2 & 4 wheelers - Automobile Reconditioning Equipment - Reconditioning of Diesel FIP & Injectors - Vehicle Testing & Diagnosis - Automotive Emission and Control - Fundamentals of Electrical Technology - Basic Electronic Devices - Batteries - Ignition System - Generating System - Starting Motor - Wiring Systems, Lighting and Accessories.
4. **Motor Transport Organisation& Industrial Management & Entrepreneurship:** Management Principles - Organisational Structure - Operations - Fleet Planning - Bus & Crew Scheduling - Transport Economics - Traffic and Fares - Legal Aspects of Motor Transport - Production Management - Material Management - Industrial Legislation & Safety - ISO 9000 & TQM - Entrepreneur Development.
5. **Special Purpose Vehicles & basic hydraulics:** Purpose and Types of SPVs - Farm Tractors - Earth Moving Vehicles - Fluid properties - Flow of Fluids - Oil power hydraulics & pneumatics - Hydraulic machinery.
6. **Engineering Mechanics & Strength of Materials:** Application of Statics - Friction - Simple Machines - Basic Link Mechanism - Transmission of Power - Simple Stresses & Strains - Geometrical properties of Sections - S.F. & B.M. Diagrams.
7. **Machine Design:** Bolts & Nuts, Torsion in shafts & springs - Keys and couplings - Gears - Cams - Governors and Fly wheels - Design of Automobile Components.
8. **Engineering Materials & Production Technology:** Mechanical properties & testing of materials - Iron-Carbon Equilibrium Diagram - Manufacture of Iron & Steel - Heat Treatment - Ferrous & non-Ferrous Metals & Alloys - Welding - Lathe and Lathe work - Drilling - Milling - Gear Making - Grinding - Jigs & Fixtures - Modern Machining Processes - Foundry - Casting - Forging - Mechanical Working of Metals.

APPSC AMVI SYLLABUS

AUTOMOBILE ENGINEERING (DIPLOMA STANDARD)

1. Basic thermodynamics Systems-Closed/Open systems, Property, cycle, Thermodynamic equilibrium- Zeroth law, First law, Second Law of thermodynamics Pure substance-Mollier Diagram-Vapor Power cycles-Rankine cycle-
2. Air standard cycles-Otto, Diesel, Dual combustion cycle, derivation of expressions for mean effective pressure-diagram factor, efficiency, Sterling engine,
3. Gears-nomenclature-simple.compound, epicyclic trains-calculations of torques.
4. Shafts- solid, hollowshafts; shear stress and angular deflection due to torque applied; bending moments - combined moment andtorque.
5. Friction - inclined plane; screw and nut; screw jock; self locking.
6. Fuels - fire and flash point - calorific value - calorimeters- octane, certane numbers and its importance - stochometic ratio.
7. Single cylinder, multi cylinder engine - pre whirl chambers combustion/ignition delay - knocking, detonation.
8. Firing order; piston and piston rings; temperature profile of piston.
9. Fuel system- Carburetion, carburetors, Gasoline/petrol injection systems-diesel fuel injection systems, types-common rail injection system, Fuel tank.
10. Balancing of single cylinder engines.
11. Lubrication and cooling systems in automobile.
12. Transmission - gear box - clash type, synchromesh, automatic transmission systems.
13. propeller-shaft-universal coupling - differential -half shafts-floating,
14. clutches -single, multi-plate -bearing pressure-pressure plate - axial load - fluid clutch.
15. Brakes and brake mechanisms-mechanical, hydraulic and air brakes,
16 Steering-condition for correct steering-Ackermann steering.
17. Electrical system - delco system, circuit wiring, working of electrical equipment.
18. Exhaust gas analysis -**Pollutants** -Sources - Formation - Effects Of Pollution On Environment - Human - Transient Operational Effects On Pollution - Regulated - Unregulated Emissions - Emission Standards. **EMISSIONS IN SI ENGINE**: Chemistry Of SI Engine Combustion - HC and CO Formation In SI Engines - NO Formation In SI Engines - Smoke Emissions From SI Engines - Effect Of Operating Variables On Emission Formation. **EMISSIONS IN CI ENGINE**: Basics Of Diesel Combustion - Smoke Emission And Its Types In Diesel Engines - NOx Emission And Its Types From Diesel Engines - Particulate Emission In Diesel Engines. Odor, Sulfur And Aldehyde Emissions From Diesel Engines - Effect Of Operating Variables On Emission Formation.
19. Air conditioning of automobiles
20. Automobile wheel alignment- camber. castor-King pininclination -toe-in, toe-out.
21. Maintenance of tyres-traffic Rules.
22. Materials- structure of the metals -imperfections-ferrous and non ferrous materials-heat treatment of steels.
23. Instrumentation- transducers- Motion, level, force and temperature transducers Closed loop control and open loop control systems.

SCHEME OF EXAMINATION

TGPSC (AMVI)

Paper	Type of the Written test	Name of the Paper	No. of Questions	Total Marks	Exam Duration
1	Objective Type	General Studies and General Abilities	150	150	150 Min
2	Objective Type	Automobile Engineering (Diploma Standard)	150	300	150 Min

APPSC (AMVI)

Paper	Type of the Written test	Name of the Paper	No. of Questions	Total Marks	Exam Duration
1	Objective Type	General Studies and Mental ability (Degree Standard)	150	150	150 Min
2	Objective Type	Automobile Engineering (Diploma Standard)	150	150	150 Min

Subjectwise Weightage Analysis

TGPSC AMVI Question Paper Analysis (2015 - 2023)

S. No.	Name of the Subject	2015	2023
1	Thermal Engineering and Automobile Power Plants	25	27
2	Automobile Chassis, Body & Transmission System	25	19
3	Automobile Servicing and Maintenance, Automobile Electric Systems	24	16
4	Motor Transport Organisation & Industrial Management & Entreprenuership	25	5
5	Special Purpose Vehicles & Basic Hydraulics	11	16
6	Engineering Mechanics & Strength of Materials	15	24
7	Machine Design	10	15
8	Engineering Materials & Production Technology	15	28
	Total No. of Questions	**150**	**150**

APPSC AMVI Question Paper Analysis (2009 - 2026)

S. No.	Name of the Subject	2009	2012	2013	2019	2023	2026
1	Thermal Engineering and Automobile Power Plants	60	50	82	79	56	49
2	Automobile Chassis, Body & Transmission System	36	21	8	17	64	42
3	Automobile Servicing and Maintenance, Automobile Electric Systems	28	23	18	20	20	22
4	Motor Transport Organisation & Industrial Management & Entreprenuership		10				-
5	Special Purpose Vehicles & Basic Hydraulics	2	11	0	2		-
6	Engineering Mechanics & Strength of Materials	8	10	0	12	1	05
7	Machine Design	12	6	41	13	7	25
8	Engineering Materials & Production Technology	4	19	1	7	2	07
	Total No. of Questions	**150**	**150**	**150**	**150**	**150**	**150**

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