સરકારશ્રીના ગૃહવિભાગ, ગાંધીનગરના તા.૦૩.૧૦.૨૦૨૪ના ઠરાવ નં.GHG/106/2024/PWS/102024/1031/C1 ના Appendix-II મુજબ પોલીસ સબ ઇન્સ્પેકટર (વાયરલેસ) અને ટેકનીકલ ઓપરેટર સંવર્ગની સ્પર્ધાત્મક પરીક્ષાનો અભ્યાસક્રમ:

Scheme of Examination

Total Marks – (200) Duration – (3 Hours) Total MCQs-(200)

The Written Examination shall consist of Part A and Part B as follows:

PART-A:

1. 80 Marks, 80 MCQs
2. 40% minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

Sr. no.	Subject	Marks
1	Reasoning and Data Interpretation	25
2	Quantitative Aptitude	25
3	Constitution of India	15
4	Current affairs and General Knowledge	15
TOTAL		**80**

PART-B:

1. 120 Marks, 120 MCQs
2. 40% minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

Sr.no.	Subject	Marks
1	**Electronics Components, Devices and Circuits:** Conducting Materials, Magnetic Materials, Insulating Materials, Semiconductors, Electronics Components, Semiconductor physics and diodes, Diode applications and other terminal devices, Transistor, Transistor amplifier, Transistor biasing circuits and thermal stability, Frequency response of small signal transistor amplifier, Hybrid parameter, Regulated Power Supply, Feedback in transistor amplifiers and oscillators, transistor power amplifier, pulse circuits, field-effect transistor, linear integrated circuits.	**120**
2	**Digital Electronics & VLSI:** Binary number systems, logic gates and logic families, Boolean algebra, combinational circuits, flip-flops, counters & registers, memory, PLA, A to D and D to A conversion, Introduction to VLSI Design, MOS Transistor and Inverters, Combinational & Sequential MOS Circuits, FPGA, Introduction to VHDL.	

5	**THERMODYNAMICS AND THERMAL ENGINEERING:** Basic concepts of Thermodynamics –first and second law of thermodynamics – thermodynamic cycles, fluid statics, kinematics and dynamics. Flow measurements, orifice and pipes, impact of jet, working of pumps, modes of heat transfer, fundamentals of refrigeration and air conditioning.
6	**INTERNAL COMBUSTION ENGINES:** I C engines – part and their functions, I C engines – types and classification, types of fuels used in I C engines and their properties, Working of Petrol and Diesel engines, fuel injection systems – for Petrol, Diesel, LPG and CNG, MPFI, Cooling & lubricating system of IC engine, Combustion Process, performance test on IC engine, Eco friendly fuels-conventional, LPG, CNG, Bio fuel and other topics related to Internal Combustion Engines.
7	**MATERIALS AND MANUFACTURING ENGINEERING:** Engineering Materials, Heat treatment processes, Metal working, metal casting and metal joining processes, basic machine tools. Conventional manufacturing processes like Turning, Welding, Shaping, Molding, Foundry Technology, Drilling etc.
8	**AUTOMOBILE ENGINEERING:** Anatomy of vehicles, Automobile Systems - Necessity of clutch, Types of clutch, Constructional and functional details of clutch, Necessity of Transmission, Types of Transmission system, and other topics related to Automobile Transmission & Mechanism. Brake and suspension systems, control systems, conventional steering and power steering, Electrical systems- for starting, ignition and lighting, Vehicle Body Engineering, repairs and maintenance of automobiles. Automobile Component Design, Vehicle Kinematics & Dynamics, Modern Vehicle Technology, Automobile Manufacturing technology.
9	**COMPUTER AIDED DESIGN AND COMPUTER AIDED MANUFACTURING (CAD/CAM):** CAD work station, Graphic packages-types and features, Geometric modeling, Various CAD software's, Introduction to CNC machines-constructional features and working. Automatic tool changer (ATC) and Automatic pallet changer (APC). CNC Part Programming.
10	**POLLUTION AND VEHICLE INSURANCE:** Exhaust gasses emission control systems. CNG conversion, Vehicle noise and its control. National and International standard norms for exhaust gas pollution control. PUC Certification. Licensing, Regulations of motor vehicles, Motor vehicle insurance
11	**DIAGNOSIS AND TESTING OF VEHICLE:** Testing of various elements of the vehicle Systems-Battery, clutch, brakes, wheels and tyres (wheel alignment, wheel balancing), etc. Performance test.

જાહેરાત ક્રમાંકઃ GPRB/202526/4

હેડ કોન્સ્ટેબલ ડ્રાઇવર મિકેનીક (ગ્રેડ-૧) સંવર્ગની સ્પર્ધાત્મક પરીક્ષાનો વિગતવાર અભ્યાસક્રમ

Scheme of Examination

Total Marks – (210) Duration – (3 Hours) Total MCQs-(210)

The Written Examination shall consist of Part A and Part B as follows:

PART-A : (90 marks)

1. 90 Mark; 90 MCQs
2. 40 % Minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

ક્રમ	વિષય	ગુણ
૧	તાર્કિક કસોટી (Reasoning), Data Interpretation	30
૨	ગાણિતિક કસોટી (Quantitative Aptitude)	30
3	બંધારણ, વર્તમાન પ્રવાહો, અંગ્રેજી અને ગુજરાતી કોમ્પ્રિહેન્શન (Constitution of India, Current affairs, English and Gujarati Comprehension)	30
	કુલ ગુણ	**90**

PART-B : (120 Marks)

1. 120 Mark; 120 MCQs
2. 40 % Minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

Sr.No.	Subject	Marks
1	**ENGINEERING DRAWING:** Engineering Curves, orthographic and isometric projections, fasteners – Projection of points, Lines & Planes, Limits Fits and Tolerances.	**120**
2	**ENGINEERING MECHANICS:** Centroid & Centre of gravity, coplanar concurrent forces, Coplanar parallel and non- concurrent forces Friction, Rectilinear motion, curvilinear motion- centripetal force, Work-Power-Energy, Simple machines.	
3	**THEORY OF MACHINES AND MACHINE DESIGN:** General consideration in Machine Design, Fundamental units, Derived units, Stress & Strain, Bearing Stress, Torsional & Bending stress, power transmission, flywheel and Governor, Frictional clutches and Brakes, Gears and Bearings, Balancing and Vibration.	
4	**NON-CONVENTIONAL ENERGY SOURCES:** Renewable sources of Energy such as Hydro, Solar, Wind, Bio mass, Tidal and Geo Thermal Energy.	

	transmission system, brake and suspension systems, control systems, conventional steering and power steering, electrical systems- for starting, ignition and lighting, repairs and maintenance of automobiles.	
17	**Pollution and Vehicle Insurance:** Exhaust gasses emission control systems. CNG conversion, vehicle noise and its control. National and international standard norms for exhaust gas pollution control. PUC certification. Licensing, regulations of motor vehicles, motor vehicle insurance	
18	**Diagnosis and Testing of Vehicle**: Testing and diagnosis of various elements of the automobile engine, transmission, electrical and electronic system, performance test.	
19	**Electric And Hybrid Vehicle:** Electric vehicles, hybrid vehicles, electric propulsion system, energy storage devices, fuel cell and solar powered vehicles.	
20	**AI & ML in Automotive Industry**: Role, predictive vehicle technology and future of automobiles (Self Driving Technology), cruise control for the driverless cars, collision avoidance technology (CA System)	
Note: Above syllabus includes current trends and recent advancements in the relevant field		
Acts/Rules/Guidelines/Institute/Judgments		
21	The Motor Vehicle Act 1988 (with amendments)	**20**
22	The Central Motor Vehicles Rules, 1989 (CMVR) Chapter I : Preliminary, Chapter II : Licensing of Driving of Motor Vehicles, Chapter III : Registration of Motor Vehicle, Chapter IV : Control of Transport Vehicles, Chapter Chapter V : Construction Equipment & Maintenance of Motor Vehicle	
23	THE GUJARAT MOTOR VEHICLES RULES, 1989 Chapter I : Preliminary Chapter II : Licensing of Drivers of Motor Vehicles Chapter III : Licensing of Conductors of Stage Carriages Chapter IV : Registration of Motor Vehicles Chapter V : Control of Transport Vehicles Chapter VII : Construction Equipment & Maintenance of Motor Vehicle	
24	Gujarat Road Safety Policy 2016-17	
25	Motor Vehicle (Driving) Regulations, 2017	
26	Gujarat Road Safety Authority Act 2018	
27	Supreme Court Committee on Road Safety guidelines	
Note: Above syllabus includes latest amendments		
	Total Marks of Part-B (100+20)	**120**

4	**Theory of Machines**: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of linkages; cams; gears and gear trains; flywheels and governors; balancing of reciprocating and rotating masses; gyroscope.
5	**Vibrations**: Free and forced vibration of single degree of freedom systems, effect of damping; vibration isolation; resonance; critical speeds of shafts.
6	**Machine Design**: Principles of the design of machine elements such as bolted, riveted and welded joints; shafts, gears, rolling and sliding contact bearings, brakes and clutches, springs
7	**Fluid Mechanics**: Fluid properties; fluid statics, forces on submerged bodies, stability of floating bodies; control-volume analysis of mass, momentum and energy; fluid acceleration; differential equations of continuity and momentum; Bernoulli's equation; dimensional analysis; viscous flow of incompressible fluids, boundary layer, elementary turbulent flow, flow through pipes, head losses in pipes, bends and fittings; basics of compressible fluid flow.
8	**Heat-Transfer**: Modes of heat transfer, basics of conduction, convection and radiation. Heat exchanger, two-phase heat transfer.
9	**Thermodynamics**: Thermodynamic systems and processes; properties of pure substances, behavior of ideal and real gases; zeroth and first laws of thermodynamics, calculation of work and heat in various processes; second law of thermodynamics; thermodynamic property charts and tables, availability and irreversibility; thermodynamic relations.
10	**Applications**: Power Engineering: Air and gas compressors; vapour and gas power cycles, concepts of regeneration and reheat. I.C. Engines: Air-standard Otto, Diesel and dual cycles. Refrigeration and air-conditioning: Vapour and gas refrigeration and heat pump cycles; properties of moist air, psychrometric chart, basic psychrometric processes.
11	**Materials and Manufacturing:** Structure and properties of engineering materials, heat treatment, casting, forming and joining processes, conventional manufacturing processes.
12	**Metrology and Inspection**: Limits, fits and tolerances; linear and angular measurements; tolerance analysis in manufacturing and assembly.
13	**Computer Integrated Manufacturing**: Basic concepts of CAD/CAM and their integration tools; additive manufacturing.
14	**Production Planning and Control**: Forecasting models, aggregate production planning, scheduling, materials requirement planning; lean manufacturing.
15	**Internal Combustion Engine**: I C engines – part and their functions, I C engines – types and classification, types of fuels used in I C engines and their properties. Working of petrol and diesel engines, fuel injection systems – for petrol, diesel, LPG and CNG, MPFI, cooling & lubricating system of IC engine, combustion process, performance test on IC engine, eco-friendly fuels-conventional, LPG, CNG, bio fuel
16	**Automobile Engineering** : Anatomy of vehicles, automobile systems - necessity of clutch, types of clutch, constructional and functional details of clutch, necessity of transmission, types of

જાહેરાત ક્રમાંક: GPRB/202526/3

પોલીસ સબ ઇન્સ્પેકટર (મોટર ટ્રાન્સપોર્ટ) વર્ગ-૩ સંવર્ગની સ્પર્ધાત્મક પરીક્ષાનો વિગતવાર અભ્યાસક્રમ

Scheme of examination

Total Marks – (210) Duration – (3 Hours) Total MCQs-(210)

The Written Examination shall consist of Part A and Part B as follows:

PART-A :

1. 90 Mark; 90 MCQs;
2. 40 % minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

ક્રમ	વિષય	ગુણ
1	તાર્કિક કસોટી (Reasoning), Data Interpretation	30
2	ગાણિતિક કસોટી (Quantitative Aptitude)	30
3	બંધારણ, વર્તમાન પ્રવાહો, અંગ્રેજી અને ગુજરાતી કોમ્પ્રિહેન્શન (Constitution of India, Current affairs, English and Gujarati Comprehension)	30
	કુલ ગુણ	90

PART-B :

1. 120 Mark; 120 MCQs;
2. 40 % minimum qualifying standard
3. Negative marking 0.25
4. 0 (Zero) marks for "E" option

Sr.No.	Subject	Marks
1	**Engineering Drawing:** Engineering curves, projection of points, lines & planes, orthographic and isometric projections.	100
2	**Engineering Mechanics**: Free-body diagrams and equilibrium; friction and its applications including rolling friction, belt-pulley, brakes, clutches, screw jack, wedge, vehicles, etc.; trusses and frames; virtual work; kinematics and dynamics of rigid bodies in plane motion; impulse and momentum (linear and angular) and energy formulations; Lagrange's equation.	
3	**Mechanics of Materials**: Stress and strain, elastic constants, Poisson's ratio; Mohr's circle for plane stress and plane strain; thin cylinders; shear force and bending moment diagrams; bending and shear stresses; concept of shear center; deflection of beams; torsion of circular shafts; Euler's theory of columns; energy methods; thermal stresses; strain gauges and rosettes; testing of materials with universal testing machine; testing of hardness and impact strength.	

	Architecture , Explain utilization of various parts of IDE , Creating simple Web Application in ASP.NET ,1 Introduction to Visual Studio , Creating a New Web Project (ASP.NET), start page, the menu system, toolbars, the new project dialog box, graphical designer, code designer.	
10	**Android Application Development:** Android OS : Concepts, Android, Architecture, Android Activities and UI Design, Advanced UI Programming, Toast, Menu, Dialog, List and Adapters, Working with Database.	
11	Current Trends (4G LTE, POLNET, Disaster Management communication, Real Time Surveillance etc.) and Recent Advancement in the relevant field	

3	**Electronics Networks and Instruments & Measurements:** Network Theorems, Resonance & Couples Circuits, Attenuator, Equalizers, Filters, Transmission line theory, Hardware Structure for Networks, Introduction, Bridges, Basic Parameter Measurements, Oscilloscopes, Signal Generators, Frequency Counters, Transducers, Component Testers and Analyzers .
4	**Communication Engineering:** Introduction to Communication systems, AM, FM, PM, AM Radio Receiver, FM Receiver, Antenna wave propagation, SSB techniques, SSB receivers, communication receiver, pulse & digital modulation, source coding & multiplexing, data communication, Electronic Space Division switching, speech Digitization and Coding, Time Division switching, Traffic Engineering, Telephone networks.
5	**Communication Applications:** **Microwave Engineering:** Microwave propagation & components, mw tube oscillators and amplifiers, semiconductor microwave devices, microwave measurements, RADAR systems, satellite communication systems. **Fibre Optics Engineering:** Principles of optical ray transmission, optical fibres and cables, Optical sources, detectors and components, optical communication systems and fibre optic measurements **Mobile Communication:** Cellular telephone concepts, GSM, CDMA, Mobile Handset and Introduction to Advance Concepts **Television Engineering:** Essential of Television system, TV Optics and Video Signal, Color theory and color signal processing, TV signal modulation and TV systems, PAL-D Color Receiver, receiver servicing and Alignment, Advance topics in TV technology.
6	**Microprocessors & Microcontrollers:** Microprocessor Architecture & Microprocessor system, 8085 instruction and timing, 8085 Instruction Set, Programming techniques, Advance Microprocessor, Main memory system. Evolution of Microcontrollers and Introduction to Microcontrollers, Introduction to Assembly Language Programming (8051), Advance Programming Techniques, External peripheral devices and advance RISC machines.
7	**Computer Networks:** Reference Models, LAN Technologies, Network devices,TCP/IP and Internet, IP protocol IP V4 Header & protocol functions ,IP addressing schemes, Network security and application, Introduction to High Speed Networking Technologies, Internet Applications.
8	**Essentials of Network Security:** Introduction of Information Security, System Security, Basic Arithmetics in Encryption, Symmetric Encryption Algorithm, Asymmetric Key Encryption, Operating System Security
9	**Web Technology:** Features of ASP.NET , Differences between ASP.NET and Classic ASP , Web Applications and Webpage , Components of Web application , Client Server