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(Accredited by NAAC)

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GENERAL INSTRUCTIONS AND SCHEME OF EXAMINATION

The Candidates are requested to appear for a written test scheduled on **14.02.2026 (Saturday) from 10.30 a.m. to 12.30 p.m.** for the post of **Engineering Assistant (UR)** in the Goa University. Refer Goa University website www.unigoa.ac.in for venue **three days before the written test**.

The Written Test Question paper shall consist of three main Sections – SECTION A, SECTION B and SECTION C. SECTION A will be of 40 marks, SECTION B will be of 30 marks and SECTION C of 30 marks.

Shortlisting Criteria based on Performance in Written Test

Only those candidates who score a minimum of 4 marks out of 10 in Section A.1 (40% in Knowledge of Konkani Language) will be qualified for shortlisting.

The qualified candidates will be shortlisted based on the performance in the written test. The merit list will be prepared by sorting the total score obtained by the candidates in the Written Test in descending order.

In the event of tie, such cases will be resolved by applying following criteria in the order one after another, till the tie is resolved:

(i) Higher Score in Section C.1
(ii) Higher Score in Section B.1
(iii) Higher Score in Section B.2
(iv) Higher Score in Section B.3
(v) Higher Score in Section A.1
(vi) Higher Score in Section A.2
(vii) Higher Score in Section A.3
(viii) Higher Score in Section A.4
(ix) Date of Birth, with older candidate given higher preference

The selection of the shortlisted candidates will be subject to the condition that they fulfil the eligibility criteria as per the Information Brochure of the advertisement.

The candidates are required to remain present for the written test sharp at **10.00 a.m.** at their respective venue viz. block and room along with the hall ticket as per instructions given therein.

No interview will be conducted for the final selection of the candidates. The performance in the written test will be basis for the merit list and final selection.

Hall ticket will be sent through email registered at the time of filling up application form. **Candidates are required to bring the printout (Hard copy) of the hall ticket. Candidates must also carry any valid government approved photo identity card. (Adhaar/PAN/Voter's ID/Driving License/Passport/Student ID etc.)** Any assistance if required, the candidate may contact on 8669609022/8669609069 or email arnonteach@unigoa.ac.in.

No TA/DA will be paid for attending the written test.

No intimation in hard copy will be sent to the individual.

Sd/-
(Prof. Sunder N. Dhuri)
REGISTRAR

Details about the Written Test for the
Post of "Engineering Assistant" at Goa University

I) Question Paper Format

1. The Written Test Question paper will be of total **100 marks of 2 hours** duration. All Questions will be Compulsory and they will be of Multiple Choice Question (MCQ) type. Candidate will have to mark the correct answer on the OMR sheet. Instructions for filling the OMR sheet shall be provided separately.

2. The Written Test Question paper shall consist of three main Sections – SECTION A, SECTION B and SECTION C. SECTION A will be of 40 marks, SECTION B will be of 30 marks and SECTION C of 30 marks.

3. Each correct answer shall be awarded +1 mark and an incorrect answer shall be awarded negative ¼ mark. An un-attempted question shall be awarded zero mark.

4. **SECTION A** shall have the following sub-sections and consist of total 40 Questions.

   A.1 Knowledge of Konkani Language (10 questions)
   A.2 Quantitative Aptitude and Logical reasoning (10 questions)
   A.3 English Language Comprehension (10 questions)
   A.4 General Awareness (10 questions)

5. **SECTION B** shall have the following sub-sections and consist of total 30 Questions.

   B.1 Basic & Applied Computers (10 Questions)
   B.2 Basic & Applied Electronics (10 Questions)
   B.3 Basic & Applied Electrical (10 Questions)

6. **SECTION C** shall comprise of total 30 Questions.

   C.1 Skills in Editing (30 Questions)

Syllabus for the Written Test for the
Post of "Engineering Assistant" at Goa University

SECTION A

A.1 Knowledge of Konkani Language (10 Mks)

- कोंकणी व्याकरण (Konkani Grammar): नाम, सर्वनाम, विशेशण, क्रियापद, वाक्यविचार, लिंग, वचन, काळ, विभक्ती
- समानार्थी उतरां
- कोंकणी शुद्धलेखनाचे नेम (Konkani Orthography)
- कोंकणी आंकडे (Konkani Numbers)
- कार्यालयीन उतरावळ (Administrative Terminology): इंग्लीश – कोंकणी, कोंकणी – इंग्लीश उतरावळ.

A.2 Quantitative Aptitude and Logical Reasoning (10 Mks)

Quantitative Aptitude: Number series, Data Interpretation (Tabulation, Pie chart, Line Chart, Bar Graph, Line Graph), Average, Interest, Percentage, Ratio and Proportion, Profit and Loss, Time, Speed and Distance, Time and work, Probability, Mixed Problems, Number System, Problems on trains, Calendar, Odd man out series, problems on age.
Logical Reasoning: Coding-Decoding, Blood relations, Seating arrangements (Circular, Linear), Grouping and Selection, Verbal classification, Analogies, Statement and Assumption, Statement and Conclusion, Letter and Symbol series, Artificial Language.

A.3 English Language Comprehension (10 Mks)

Fill in the Blanks, Reading Comprehension, Para Jumbles, Error Spotting, Spellings, Phrase/Idiom Meaning, Synonyms and Antonyms, Sentence Correction.

A.4 General Awareness (10 Mks)

State Affairs, National Affairs, International Affairs, Economy and Business, Science and Technology, Sports and Games, Environment and Ecology, Art and Culture, Important Days, Goa University Statutes and Ordinances.

SECTION B

B.1 Basic & Applied Computers (10 Mks)

Knowing computer: What is Computer, Basic Applications of Computer; Components of Computer System, Central Processing Unit (CPU), VDU, Keyboard and Mouse, Other input/output Devices, Computer Memory, Concepts of Hardware and Software; Concept of Computing, Data and Information; Applications of IECT; Connecting keyboard, mouse, monitor and printer to CPU and checking power supply.
Operating Computer using GUI Based Operating System: What is an Operating System; Basics of Popular Operating Systems; The User Interface, Using Mouse; Using right Button of the Mouse and Moving Icons on the screen, Use of Common Icons, Status Bar, Using Menu and Menu-selection, Running an Application, Viewing of File, Folders and Directories, Creating and

Renaming of files and folders. Opening and closing of different Windows: Using help: Creating Short cuts. Basics of O.S Setup: Common utilities.

Understanding Word Processing: Word Processing Basics: Opening and Closing of documents: Text creation and Manipulation: Formatting of text: Table handling: Spell check, language setting and thesaurus: Printing of word document. Using Spread Sheet: Basics of Spreadsheet: Manipulation of cells: Formulas and Functions: Editing of Spread Sheet, printing of Spread Sheet. Introduction to Internet, WWW and Web Browsers: Basic of Computer networks: LAN, WAN: Concept of Internet: Applications of Internet: connecting to internet: What is ISP: Knowing the Internet: Basics of internet connectivity related troubleshooting. World Wide Web: Web Browsing softwares, Search Engines: Understanding URL: Domain name: IP Address: Using e-governance website. Communications and collaboration: Basics of electronic mail: Getting an email account: Sending and receiving emails: Accessing sent emails: Using Emails: Document collaboration: Instant Messaging: Netiquettes. Making Small Presentation: Basics of presentation software: Creating Presentation: Preparation and Presentation of Slides: Slide Show: Taking printouts of presentation / handouts.

Problem solving – general awareness of computing -developing applications ,tools and systems for use in digital world-scientific and technological awareness to help digitization to solve problems –web development tools awareness -mobile software tools.

B.2 Basic & Applied Electronics **(10 Mks)**

Number Systems: Decimal Number System, Binary Number System, Converting Decimal to Binary, Hexadecimal Number System: Converting Binary to Hexadecimal, Hexadecimal to Binary, Converting Hexadecimal to Decimal, Converting Decimal to Hexadecimal, Octal Numbers: Binary to Octal Conversion. Complement of Binary Numbers. Boolean Algebra Theorems, De Morgan's theorem. Digital Circuits: Logic gates, NOT Gate, AND Gate, OR Gate, XOR Gate, NAND Gate, NOR Gate, X-NOR Gate. Algebraic Simplification, NAND and NOR Implementation, NAND Implementation, NOR Implementation. Half adder, Full adder. BJT operation, BJT Voltages and Currents, BJT amplification, Common Base, Common Emitter and Common Collector Characteristics, Concept of differential amplifier using BJT, BJT switch and logic circuits, MOSFET as logic circuits.Network Theorems: Mesh Analysis, Nodal Analysis, Superposition, Millman's theorems, Thevenin's and Norton's theorems, Maximum Power transfer theorem.

Communication : Amplitude modulation and Demodulation ,Generation and detection of amplitude, Frequency modulation and demodulation, Analog pulse modulation, Sampling theorem, Basic principles of pulse amplitude modulation ,Data transmission, TDM in PCM, Amplitude shift keying ,Frequency shift keying ,Phase shift keying. Image processing : Image acquisition, Image representations, Image digitalization, Sampling, Quantization, Histograms, Image Quality, Noise in Images Basic operations on images, Image Enhancement, Pixel intensity transformations, Histogram equalization and matching, noise removal, Edge sharpening, Spatial Filtering, Image smoothing, Morphological operations: erosion, dilation.

B.3 Basic & Applied Electrical **(10 Mks)**

Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis. Simple diode circuits: clipping, clamping, rectifiers; Amplifiers: biasing, equivalent circuit and frequency response; oscillators and feedback amplifiers; operational amplifiers: characteristics and applications; single stage active filters, Active Filters:

Sallen Key, Butterwoth, VCOs and timers, combinatorial and sequential logic circuits, multiplexers, demultiplexers, Schmitt triggers, sample and hold circuits, A/D and D/A converters.
Electrical Machines : Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three-phase transformers: connections, vector groups, parallel operation; Auto-transformer, Electromechanical energy conversion principles; DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, speed control of dc motors; Three-phase induction machines: principle of operation, types, performance, torque-speed characteristics, no-load and blocked-rotor tests, equivalent circuit, starting and speed control; Operating principle of single-phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance and characteristics, regulation and parallel operation of generators, starting of synchronous motors; Types of losses and efficiency calculations of electric machines.
Power Systems: Basic concepts of electrical power generation, ac and dc transmission concepts, Models and performance of transmission lines and cables, Economic Load Dispatch (with and without considering transmission losses), Series and shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities, Bus admittance matrix, Gauss- Seidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential, directional and distance protection; Circuit breakers, System stability concepts, Equal area criterion.

SECTION C

C.1 Skills in Editing **(30 Mks)**

Introduction to Editing: Basics of digital video and movie editing, Comparing camcorder formats, Understanding video codecs. Getting Started with Editing Software: Working with workspace, Project properties, Customizing the Workspace, Working with project settings. Importing and Capturing Footage: Importing files as footage, Importing stills, Dealing with missing media, Setting up to capture from tape, Batch-capturing footage. Timeline, Sequence and Clip Management: Timeline, Using Multiple Sequences, Clip Project Management. Basic Video Editing: Basic Editing Concept and Tools, Working with Monitor Panels, Creating Insert and Overlay Edits,Editing in the Timeline, Setting In and Out Points in the Timeline Panel. Editing Audio: What is Audio?, Timeline Audio Tracks, Editing Audio, Recording Audio, Gaining, Fading and Balancing, Using Audio Effects and Transitions. Mixing and Creating Effects with the Audio Mixer: Audio Mixer Overview, Setting Track Volume & Mixing Tracks, Panning & Balancing, Applying effects with Audio Mixer. Creating Transitions: About Video Transitions (Overview), Applying transitions, Adjusting Transitions, Customizing Transitions, Various Transitions Effects. Creating Titles and Graphics: Using the Titler, Creating titles from templates, Modifying a title, Creating titles from scratch, Superimposing a title, Creating a title roll or crawl. Using Video Effects: Exploring the Video Effects, Applying a Video Effect ,Using Video Effects with Keyframes, Superimposing Video Clip Using Keying Video Effect, Applying effects using Image Matte Keying Effects, Touring Premiere Pro Video Effects. Using Color mattes and Backdrops: Mattes, Transparency and Opacity, Create transparency, solid colors with keys mattes. Matte other than the alpha channel, Using more mattes. Enhancing Video: Understanding video color, Color Correcting Basics, Start a Color Correcting Session, Using the Video Scopes, Color Enhancement Effects, Special color and luminance adjustments, Retouch Using Photoshop and After Effects. Wrapping Up and Exporting: Preparing to export video, Exporting to various formats using Encoder.