(ख) कनिष्ठ अभियन्ता (सिविल) (डिप्लोमा)

परीक्षा की स्कीम

प्रश्न–पत्र	अंक	अधिकतम अंक	समय
भाग–अ :- सामान्य ज्ञान (राजस्थान का इतिहास, कला एवं संस्कृति, परम्पराऐं, विरासत एवं राजस्थान का भूगोल) **भाग–ब :-** सिविल अभियांत्रिकी(डिप्लोमा)	40 80	120 अंक	2 घण्टे

नोट :–

1. प्रश्न पत्र में बहुविकल्पीय प्रकार के प्रश्न होंगे व सभी प्रश्नों के अंक समान होंगे।
2. परीक्षा में न्यूनतम निर्धारित उत्तीर्णांक अंक 40 प्रतिशत है। इससें कम अंक प्राप्त करने वाले अभ्यर्थी नियुक्ति के लिए पात्र नहीं होगें।

पाठ्यक्रम (Syllabus)

भाग–अ :- सामान्य ज्ञान

राजस्थान का इतिहास, कला एवं संस्कृति, साहित्य, परम्पराऐं एवं विरासत

1. राजस्थान के इतिहास के प्रमुख स्रोत
2. राजस्थान की प्रमुख प्रागैतिहासिक सभ्यतायें
3. राजस्थान के प्रमुख राजवंश एवं उनकी उपलब्धियां
4. मुगल–राजपूत संबंध
5. स्थापत्य कला की प्रमुख विशेषताऐं
6. महत्वपूर्ण किले, स्मारक एवं संरचनाये
7. राजस्थान के धार्मिक आंदोलन एवं लोक देवी–देवताऐं
8. राजस्थान की प्रमुख चित्रकलाऐं, शैलियां एवं हस्तशिल्प
9. राजस्थानी भाषा एवं साहित्य की प्रमुख कृतियां, क्षेत्रीय बोलियां
10. मेले, त्यौहार, लोक संगीत, लोक नृत्य, वाद्ययंत्र एवं आभूषण
11. राजस्थानी संस्कृति, परंपरा एवं विरासत
12. महत्वपूर्ण ऐतिहासिक पर्यटन स्थल
13. राजस्थान के प्रमुख व्यक्तित्व
14. राजस्थान की रियासतें एवं ब्रिटिश संधियां, 1857 का जन–आंदोलन
15. कृषक एंव जन–जाति आंदोलन, प्रजामंडल आंदोलन
16. राजस्थान का एकीकरण
17. राजस्थान का राजनीतिक जनजागरण एंव विकास– महिलाओं के विशेष संदर्भ में

राजस्थान का भूगोल

1. स्थिति एवं विस्तार
2. मुख्य भौतिक विभाग :– मरूस्थलीय प्रदेश, अरावली पर्वतीय प्रदेश, मैदानी प्रदेश, पठारी प्रदेश
3. अपवाह तन्त्र
4. जलवायु
5. मृदा
6. प्राकृतिक वनस्पति
7. वन एवं वन्य जीव संरक्षण
8. पर्यावरणीय एवं पारिस्थितिकीय मुददे
9. मरूस्थलीकरण
10. कृषि–जलवायु प्रदेश एवं प्रमुख फसलें
11. पशुधन
12. बहुउद्देशीय परियोजनाऐं
13. सिंचाई परियोजनाऐं
14. जल संरक्षण
15. परिवहन
16. खनिज सम्पदाऐं

भाग–ब :- सिविल अभियांत्रिकी (डिप्लोमा)

1.Building Tecnology And Construction Management:- Physical and Chemical properties, classification, standard tests, uses andmanufacture/quarrying of materials e.g. building stones, silicate based materials, cement (Portland),asbestos products, timber and wood based products, laminates, bituminous materials, paints,varnishes.

2.Surveying, Estimating &Costing:-Principles of surveying, measurement of distance, chain surveying, working of prismaticcompass, compass traversing, bearings, local attraction,
plane table surveying, theodolite traversing,adjustment of theodolite,
Levelling, Definition of terms used in levelling, contouring, curvature andrefraction corrections, temporary and permanent adjustments of dumpy level,
methods of contouring,uses of contour map, tachometric survey, curve setting, earth work calculation, advanced surveyingequipment.
Estimate, glossary of technical terms, analysis of rates, methods and unit of measurement, Items of work – earthwork, Brick work (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering. Boundary wall, Brick building, Water Tank, Septic tank, Bar bending schedule, Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule.
Cost estimate of Septic tank, flexible pavements, Tube well, isolates and combined footings, Steel Truss, Piles and pile-caps.
Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation

3. Strength of Materials:-Elasticity constants, types of beams – determinate and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams.
Moment of area and moment of inertia for rectangular & circular sections, bending moment and shear stress for tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slope deflection of simply supported and cantilever beams, critical load and columns,
Torsion of circular section.

4.Reinforced Concrete Design:-RCC beams-flexural strength, shear strength, bond strength, design of singly reinforced and double reinforced beams, cantilever beams. T-beams, lintels.
One way and two way slabs, isolated footings. Reinforced brick works, columns, staircases, retaining wall, water tanks (RCC design questions may be based on both Limit State and Working Stress methods).

5.Irrigation & water resources:-Definition, necessity, benefits, , types and methodsof irrigation, Hydrology – Measurement of rainfall, run off coefficient, rain gauge, losses fromprecipitation – evaporation, infiltration, etc.
Water requirement of crops, duty, delta and base period,Kharif and Rabi Crops, Command area, Time factor, Crop ratio, Overlap allowance, Irrigationefficiencies.
Different type of canals, types of canal irrigation, loss of water in canals.
Canal lining –types and advantages. Shallow and deep to wells, yield from a well.
Weir and barrage, Failure ofweirs and permeable foundation, Slit and Scour, Kennedy's theory of critical velocity. Lacey's theoryof uniform flow.
Definition of flood, causes and effects, methods of flood control, water logging,preventive measure.
Land reclamation, Characteristics of affecting fertility of soils, purposes,methods, description of land and reclamation processes. Major irrigation projects in India.

6.Soil Engineering :-Origin of soil, phase diagram, Definitions-void ratio, porosity, degree of saturation,water content, specific gravity of soil grains, unit weights, density index and interrelationship ofdifferent parameters, Grain size distribution curves and their uses.
Index properties of soils,Atterberg's limits, ISI soil classification and plasticity chart.
Permeability of soil, coefficient ofpermeability, determination of coefficient of permeability,
Unconfined and confined aquifers,effective stress, quick sand, consolidation of soils,
Principles of consolidation, degree ofconsolidation, pre-consolidation pressure, normally consolidated soil, e-log p curve, computation ofultimate settlement.
Shear strength of soils, direct shear test, Vane shear test, Triaxial test.
Soilcompaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earthpressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test.

7.Auto- Cad Civil Engineering Drawing