LGS Examination

Date : 21 – 4 –79 Technical Paper Max. Marks : 100

Note :- ( I ) Attempt any four questions.

( ii ) All questions carry equal marks.

Q.1.- Describe the procedures for acquisition and relinquishment of land.

Q.2.- Write short notes on any Three of the following -

1. Directed track maintenance.
2. Measured shovel packing.
3. Procedure for presage of over dimensional consignment.
4. LWR
5. Building Cost Index.

Q.3.- Anclear car has run over trunk rout section, the chart indicates a high percentage under ‘C’ category in the difference to track parameters. Describe the track parameters and tolerances adopted in Anclear car analysis and what steps will be taken by you to improve the track standards.

Q.4.- Fill in blanks –

1. Quantity of cement required for a cubic meter of concrete is 1 : 1½ : 3 mix is …… Bags.
2. Vertical clearance for FOB in AC electrified section is ………..
3. Length of BG passenger Platform is …………
4. Distance from edge of a passenger platform is an isolated structure is ……….
5. Volume of Red lead paint required for one coat of paint on steel working area 100 m2 is ….. Liters.
6. Number of bricks required for one m3 of brick masonry is …….. numbers.
7. Length of BG goods loops is ……….. m.

Q.5.- ( a ) When are bridge inspections to be carried out and by whom.

( b ) What is the responsibility of a ADEN with regard to the inspection of bridge.

( c ) What bridges would be classified as important and what special precaution should be taken with regard to their maintenance.

Q.6.- Describe in detail the system of monsoon patrolling.

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**LGS Examination 1981**

**Paper I**

**Q.1.-** ( a ) What are the location where LWR is prohibited.

( b ) Give details procedure of distressing of LWR.

Q.2.- A wing wall of a girder bridge having a span of 20 m is leaning. Height of the girder from bed level is 4 m. Describe the bridge rehabilitation procedure.

Q.3.- What are the permitted locations for laying concrete sleeper. Describe the mechanical relaying.

Q.4.- Write short notes on –

1. SEJ
2. Moveable switch.
3. Diamond.
4. Catch siding.

Q.5.- What are the classification of high speed routs and what are the standards for each rout category of the following –

( I ) Rails. ( ii ) Sleepers. ( iii ) Fastenings. ( iv ) Ballast cushion.

Q.6.- How will you include your work in works programme.

**Paper II**

Q.7.- Say whether right or wrong –

1. Estimate is required for renewal of ballast.
2. Supplementary estimate is required if some of the items are left in the original estimate.
3. Revised estimate is required when at any stage of the work the sanctioned cost if a work is likely to exceed.
4. Abstract estimate is required for officers to give administrative approval for a work.

Q.8.- Define the following –

1. Adequate distance.
2. Act.
3. Fouling mark.
4. Facing / Trailing direction.
5. Block station.
6. Authority to proceed.
7. PWI
8. Gate.

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**LGS Examination 1981**

**Paper I**

Q.1.- What are different types of patrolling in this railway? Describe the double frequency patrolling.

Q.2.- Write brief inspection of the following bridges –

1. An arch 1 / 9.10 m.
2. Girder bridge 3 / 30.10 m.

Q.3.- What are works involving CRS’s sanction? Describe the method to obtain CRS’s sanction to open a new line.

Q.4.- Write short notes on –

1. Assisted siding.
2. Urgency certificates.
3. Hospital leaves facilities.
4. Grow more food campaign.

Q.5.- A 2.5 x 2.5 x 2.5 m box is to be inserted on a double line section having bank 4.8 m. high using the RH girder, describe your planning to do the work.

Q.6.- A busy single line section having 3 stations is to be doubles. The section having major and important bridges, Describe the method.

**Paper II**

Q.1.- What are the welfare activities in C.Rly? What are your suggestion to the work them.

Q.2.- As an ADEN, what are your ways to give more earnings to engineering department.

Q.3.- ( a ) What are the silent features of Payment of wages act?

( b ) What are authorized deductions under this act/

Q.4.- After completion of a work the following materials are surplus with you write the procedure to dispose of them – ( a ) Bricks. ( b ) Bars. ( c ) Tiles.

Q.5.- Write short notes on –

1. Staff benefit fund.
2. WSSC.
3. PNM.
4. Hours of employment regulation.
5. Productivity linked bonus to railway men.

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**L.G.S. Examination for Engg. Deptt.**

Date : 29 – 08 - 1982

Time :- 2½ Hrs. Paper I ( Technical ) Total Marks :- 100

Note :- 1. Answer any four Questions.

2. All Questions carry equal marks.

3. Assume suitable additional data where necessary.

Q.1.- Which of the following works require CRS’s sanction.

Answer any six only.

1. Providing on ash pit in a Passenger line.
2. Removal of an existing ash pit.
3. Construction of a foot over bridge.
4. Replacement of 1 in 8½ turn out by a 1 in 12½ turn out.
5. Demanning of a level crossing.
6. Track Renewal Works.
7. Providing additional classification lines in a Marshalling Yard.
8. Permitting new type of loco in a Private siding.
9. Heavy regrading of track for easing the rulling gradient.

Q.2.- Explain briefly with the help of neat sketches the road opening and procedure for deep screening of track on a main line , indicating the sequence of speed restrictions, engineering time allowance required for the work and the total duration of speed restriction of any one location or stretch of track while achieving a daily progress of 0.1 Km on a Broad Gauge main line with out the use of tie tamping machines.

Q.3.- A single storied auditorium hall 10 m wide x 30 m long ( Internal clearly dimensions ) has an RCC roof slab supported by RCC Tee beam at 3 m spacing ( center to center ) on load bearing stone masonry walls 0.40 m thick, with the roof slab projecting all round 1.50 m clear beyond the wall, There are no parapets.

Draw neat free hand sketches showing longitudinal and cross sections clearly indicating the spacing and bending of the steel reinforcement bars in the roof slab and the Tee beam including the shear reinforcement. No design calculations are required, you may assume reasonable sections and sizes and spacing of reinforcement based on your experience.

Q.4.- Explain any method of either –

1. Regirdering under traffic on a single line.
2. Launching girders on a new line for 3 x 30.6 m through type RBC open web girders on a parenuaial river including transport of steel work members to site, site assembly and reverting.

Q.5.- It is proposed to rebuild a 1 x 6 ft. Girder bridge as a 1 x 2 m RC slab culvert on a broad gauge single line section under traffic by using a RH girder span having an over all length of 12 m and a depth 1.00 m from rail level to bottom of the RH Girder with the following data :-

Rail level to bottom of foundation – 4.5 m.

Bottom width of proposed foundation for each abutment – 2.00 m.

Draw a neat dimensioned free hand sketch of the above showing the seating arrangements under the ends of the RH girder span, depth of supporting cribs, and the calculated slopes of earth to the level of excavation for the foundations.

Q.6.- What is meant by M 300 concrete ? What are the five major factors which require to be controlled in to consistently produce high strength concrete at site based on design mix.

Q.7.- What are the advantage of welded bridge girders over riveting girders? What are the precautions required in the fabrication of welded bridge girders?

Q.8.- Write short notes on any two of the following –

1. Prestressed concrete.
2. Transition Curves.
3. Foundations for buildings on Black cotton soil.
4. Formation treatment by blanketing.
5. Earth work compaction at optimum moisture content.
6. Monsoon Patrolling.

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**Central Railway - Selection to Class II – Civil Engineering Department**

Date : 12 – 09 – 1982 Time : 2½ Hrs.

Establishment & General Total marks : 100

Note :- 1. Two questions to be attended from section I & II each.

2. All Questions carry equal marks.

**Section – I**

Q.1.- Write short notes on :-

1. PNM.
2. Special Casual leave.
3. Staff benefit fund.
4. Minor Penalties covered by D & A rules.

Q.2.- ( a ) What are selection posts and non selection posts?

( b ) Indicate the procedure followed in filling up these posts?

Q.3.- What is the procedure for removing a class III employee from service?

Q.4.- ( a ) What are the main provision of workmen’s compensation Act?

( b ) What are the main provision of Payment of wages Act?

**Section – II**

Q.1.- Write short notes on :-

1. Pink Book.
2. Contractor’s ledger.
3. Material at site account.
4. Single tender.

Q.2.- What is the procedure to be followed for terminating a work contract –

* 1. Due to failure of contractor.
  2. Due to freesing of work for want of funds.

Q.3.- ( a ) What is Deposit work?

( b ) What is the procedure to be followed for undertaking a deposit work of a Railway siding?

Q.4.- ( a ) What do you under stand by Standard Schedule of Rate and Non schedule rate?

( b ) What is the procedure for finalizing limited tenders?

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**Selection of Class III staff for promotion to class II service ( AEN ) in the Civil Engineering Department**

**L.G.S. Examination**

### Date : 20 – 6 – 1987 Marks : 100 Time : 2½ Hrs.

**Paper I ( Technical )**

Note :- 1. Answer any Five Questions.

2. All Questions carry equal marks.

Q.1.- A Girder Bridge of 1 / 20 ft. span B.G. in to be rebuild as 1 / 20 ft. RCC slab bridge. Height of bank is 3 mts. Stop dead end proceed restriction is to be avoided. Describe what arrangements you will make and what procedures you will follow right from the time the work is sanctioned to the time speed restriction on the new bridge is completely removed. Assume data where necessary. Also draw sketches where required.

Q.2.- Write out the specification for track ballast for the main line. What procedures and precaution are required to be taken by the ADEN for collection and insertion of ballast with out any irregularity occurring.

Q.3.- ( a ) Name works requiring CRS’s sanction. Also name a few works not requiring his sanction. Write a safety certificate for a work sanctioned by CRS.

( b ) Show by sketches the types and locations of speed restriction boards used for temporary Engineering speed restrictions.

Q.4.- ( a ) What are LWR’s. Calculate the force developed in a 52 Kg rail in LWR in the peak of summer. Assume data.

( b ) What is the procedure for maintenance of these LWR’s and what precautions are necessary to prevent buckling?

Q.5.- An Important bridge ( 10 span of 150 ft Girders ) is to be inspected by you as ADEN during your annual bridge inspection schedule. This bridge had guide bunds also. Write out the proforma for inspection of such bridges and your inspection notes for this bridge assuming data where necessary.

Q.6.- ( a ) On what basis are the level crossing classified into various categories? Broadly what are the specifications and requirements of different types of level crossings?

( b ) What measures will you take to prevent accidents at level crossings – manned and unmanned?

Q.7.- Write short notes on any four of the following :-

1. Rail fractures and their prevention.
2. Direct maintenance of quarters.
3. Track monitoring by Recording Cars.
4. Formation Stabilisation.
5. Foundations for buildings on black cotton soil.
6. Transition curves.
7. Prestressed concrete.

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**Selection of Class III staff for promotion to class II service ( AEN ) L.G.S. Examination For Engineering Department**

### Date : 20 – 6 – 1987 Time : 2½ Hrs.

**Paper II ( General & Establishment )**

Note :- 1. Answer any two Questions of section I.

2. All Questions carry equal marks of section I.

Section I ( General ) Maximum Marks : 50

Q.1.- What are the different types of Engineering Surveys under taken before constructing a new Railway line? Explain their scope and significance.

Q.2.- ( a ) What is the difference between ‘’General Conditions of Contract’’ and Special conditions of Contract’’? In the event of a clash between the two, which will prevail?

( b ) Explain the procedure for terminating a works Contract with a view to carry out the work by another agency at the risk and cost of the contractor.

Q.3.- Write short notes on any Two of the following :-

1. Urgency Certificate.
2. Deposit Works.
3. P.P.E. Act.
4. Completion Estimate.
5. Material at site Account.

Q.4.- Explain the meaning of the following kinds of Estimates and when have to be prepared :-

1. Abstract Estimate.
2. Construction Estimate.
3. Revised Estimate.
4. Supplementary Estimate.
5. Completion estimate.

**Section II ( Establishment ) Maximum Marks : 50**

**L.G.S. Examination for promotion to assistant Engineer ( Cl. II ) On 20 – 6 - 1987**

Note :- 1. Please read the paper carefully.

2. Be brief in your answers.

Q.1.- Fill in the blanks :- ( Marks – 10 )

1. The standard hours of duty of an E.I. worker are ------------.
2. Retrenchment compensation equivalent to ----- days, average pay for every completed year of continuous service is payable under I.D. Act.
3. Workman should be deemed to have completed one year continuous service if he has worked for ------ days in a period of 12 months.
4. Project casual labour becomes entitled for temporary status on completion of ------ days of continuous service.
5. Over time allowance for period of work beyond roster hours and up to statutory limit is permissible at -------- times.

Q.2.- Write short notes on any four of the following :- ( Marks – 20 )

1. Qualifying Service.
2. PNM.
3. Substitutes.
4. Hospital Leave.
5. Trade Test
6. Compensatory casual leave.

Q.3.-

1. On what basis OT is paid to a Gang man? ( Marks -2 )
2. What procedure is followed to change the classification of a Gateman under HOER? ( Marks -4 )
3. What are the permissible deductions under payment of wages act? ( Marks -2 )
4. To what medical facilities to a casual labour is entitled? ( Marks -2 )
5. A class IV employee ( D Category ) is changed with serious misconduct who is competent to remove him from service? ( Marks -2 )
6. An employee under suspension reports sick can any leave be sanctioned to him? ( Marks -2 )
7. What is the upper age limit for the engagement of a casual labour? ( Marks -2 )
8. What is the family pension admissible as per extant orders? ( Marks -2 )

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**Selection of Class III staff for promotion to class II service ( AEN ) in the L.G.S. Examination Civil Engineering Department**

Date : 20 – 6 – 1987 Time : 2½ Hrs. Marks : 100

PAPER No. 1 – TECHNICAL

Answer any five Questions.

All Questions carry equal Marks.

Q.1.- The existing Versines on a curve are as follows :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Station No. | Versine in mm | Station No. | Versine in mm | Station No. | Versine in mm |
| 0 | 2 |  | 24 |  | 36 |
|  | 0 |  | 32 |  | 24 |
|  | 14 |  | 28 |  | 24 |
|  | 28 |  | 36 |  | 28 |
|  | 30 |  | 34 |  | 0 |
|  | 36 |  | 32 |  | 6 |
|  | 36 |  | 34 |  | 0 |

Total - 484

It is proposed to realign the curve. Calculate the proposed versines and slews at all stations. The theoretical versine on the curve portion is 32.

Q.2.- In regard to maintenance of LWRs / CWRs make out a work chart showing the details of work authorized level of supervision permitted temperature ranges and speed restrictions if any. The following proforma may be followed :

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of work | Extent to which it is permitted | Max. deviation from td | | Who is competent to be in charge of the work | Block or superstitions if any |
| + | - |

Cover all types of work pertaining to LWRs / CWRs including casual renewals. Lifting of track, realignment of curves, hot weather patrolling, fractures, buckling, De-stressing etc.

Q.3.- A double line is being constructed to the existing running line in black cotton soil area. When completed the double line is to be opened to traffic straight away at full speed. You are the AEN in charge of double line and you have to make banks ( average height 4 meter ), cutting ( average depth 3 meter ) and constructed a bridge 2 of 40 ft girders adjacent to the existing bridge. What specifications and superstructure of the bridge? What precautions will you take to ensure safety of traffic on the running line? Write dimensioned sketches wherever necessary.

Q.4.- What are distressed bridges?

What are the common types of distress seen in arch and Girder Bridge?

What types of repairs are carried out and what precautions are taken in maintaining such bridges before they are completely rebuilt?

Q.5.- A single storeye waiting hall 30 m x 8 m is to be constructed with load bearing walls and RCC roof slab. Design the slab and tee- beam ( spacing of T beams is 3 m center to center ) Assume data which is not given.

Q.6.- ( a ) Give the following dimensions for BG –

1. Minimum horizontal distance of any building on a passenger platform.
2. Height above rail level of a high level passenger platform.
3. Minimum height above rail level of any over head structure like FOB or ROB on an electrified section.
4. Length, thickness and spacing of bridge timbers.
5. Recommended gradient in station yard.

( b ) A new ‘C’ class manned level crossing is to be constructed on a single line BG section at a location at a location where the track is straight and on a bank of height 4 meters. Make out a plan and cross section showing important dimensions and facilities to be provided at the level crossing.

Q.7.- Describe unevenness and twist. What are all the Track parameters recorded in track recording cars? How are the results classified and how do they help you in maintaining your track?

Q.8.- Write short notes on any four of the following :-

1. Patrol Charts for monsoon Patrolling.
2. Elastic Fastenings.
3. Working of Push Trollies.
4. Restricted head way girders.
5. Assessing Water requirement of big railway stations and colonies.
6. Ballast measurements.
7. Water cement ratio.
8. Rocker and roller bearing for bridges.

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### CENTRAL RAILWAY

**Examination for Selection of Asst. Engineers – Group ‘B’**

**Date : 12 -01 – 1991 Time : 2½ Hours. Marks : 100**

**Technical Paper**

Answer any five questions. All questions carry equal marks please keep your answers brief eligible and illustrate with dimensioned sketches. Where required.

Q.1.- Give the schedule of dimensions in the following cases for BG –

1. Maximum cant and cant deficiency permitted on BG.
2. Maximum and minimum clearance between top of open switch BG.
3. Maximum and minimum clearance of a check rail in a BG level crossing.
4. Maximum spacing of bridge timbers.
5. Maximum distance apart for trolly refuges in cutting.

Q.2.- Write short notes on the following –

1. Monsoon Patrolling of track.
2. Oiling and Greasing of fish plated joints.
3. Prestressed Concrete Sleeper.
4. Direct maintenance of Quarters.

Q.3.- ( a ) What is ‘’Corridor Block’’?

( b ) What is ‘’Engineering time allowance’’?

( c ) What is an ‘’Alignment Kink’’ and a ‘’Rail Kink’’?

( d ) What is PQRS?

Q.4.- A work of 10 km of C.T.R. has to be executed in 1993. Please explain briefly what steps are taken to survey, sanction, estimating and executing the work, including labour planning and disposal of released materials.

Q.5.- Briefly describe any interesting technical job, you have handled in your carrier. Please restrict your answer to 2 pages, and include basic technical data, manpower used and solutions found.

Q.6.- How do you monitor rail fractures and weld failures? What are the different methods adopted on central Railway to reduce rail fractures and weld failures? Please restrict your answer to 3 pages.

Q.7.- Write short notes on the following –

1. Building cost Index.
2. Under reamed piles for a building.
3. Water Cement Ratio in concrete.
4. Permanent adjustment in a dumpy level.

Q.8.- What are main features of –

1. Deck type girders.
2. Under slung girders.
3. Through type girders.
4. Semi through type girders.

Please illustrate with simplest method.

Q.9.- ( a ) What are the different methods adopted on the Central railway for –

( i ) Water Filter. ( ii ) Sedimentation. ( iii ) Sterilisation.

( b ) What is –

( i ) Potential head. ( ii ) Friction head.

( iii ) Residual head in a water distribution system.

Q.10.- ( a ) What are the provisions under Official Languages Act?

( b ) What are the norms in track structure and track standard for Shatabdi route?

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### CENTRAL RAILWAY

**Examination for Selection of Asst. Engineers – Group ‘B’**

**Section II - Establishment**

**Date : 12 -01 – 1991 Time : 1½ Hours. Marks : 25**

Answer any two questions.

Q.1.- Write short notes on any three of the following –

1. Registers to be maintained and notices to be exhibited as per labour laws.
2. Compassionate Appointments.
3. NDA
4. PLB

Q.2.- Please write true or false.

* 1. DA is a non taxable income.
  2. Unmarried daughter having service is not eligible to be included in Privilege Pass.
  3. GM has no powers to transfer office bearers of unions.
  4. Essential staff can not take casual leave even up to 3 days with out prior permission.
  5. When a dependent is included in privilege pass, the number of other family members should not be more than 5.
  6. Seniority of construction and open line casual labour is to be maintained combinely.
  7. Seniority of casual labour in all departments is Assistant Office wise.
  8. A person going on deputation to other government department can commute 100% pension.
  9. Ministerial staff are not eligible for over time.
  10. Casual labour on open line get temporary status after 180 days of employment.

Q.3.- Fill in the blanks –

1. Upper age of recruitment in Group ‘D’ Category is ------------ .
2. Minimum family pension is --------- .
3. Statuary hours of duty for an EI worker are ------------ .
4. Widow of class IV employee is eligible for Privilege pass for ---------- sets.
5. Running allowance is -------------- Percentage of pay.
6. Ex gratia pension per month is ----------- .
7. Scale of Group ‘A’ Junior scale officer is ----------------- .
8. Surcharge on Income Tax is ------------ when gross taxable income is more than Rs. 75 thousand per year.
9. Maximum number of casual leave permissible is -------------- for workshop staff.
10. Gazetted Holidays per year are ---------------- .

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### CENTRAL RAILWAY

**Examination for Selection of Asst. Engineers – Group ‘B’**

**Section II – Finance Rules**

**Date : 12 -01 – 1991 Time : 1½ Hours. Marks : 25**

Answer any two questions, each question carries 12.5 marks.

Q.1.- What are the Canons of Financial property? How is financial justification prepared for items in works, machinery and plant Programme.

Q.2.- Distinguish between and write short notes on –

1. Preliminary works Programme and Final works Programme.
2. Budget order and Budget allotment.
3. Works Register and Revenue Allocation register.
4. ACF & DF3.
5. Late tender & Delayed tender.

Distinguish between –

1. Completion Report and Completion Estimate.
2. DRF & Development Fund.
3. Abstract Estimate & Detailed Estimate.
4. Earnest money & Security Deposit.
5. Works tender & Store Tender.

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING – July 1993 ( Supplementary )

Date : 31.07 .1993 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

* 1. Candidates should clearly write their Roll Number in words also.
  2. You are required to answer Part ‘A’ , any 2 ( two ) questions from Part ‘B’, From Part C attempt Question 7 and any other three questions.
  3. After completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

( Answer any two questions )

**Q.1.-** Write short notes on any Three of the following - ( 3 x 4 = 12 )

1. Single tender.
2. P.P.E. Act.
3. Completion estimate.
4. On Account Bill and Final Bill..
5. MAS Account.

**Q.2.-** Describe the various budget stages for review / modification of budget grants, what is the time schedule for the divisions to submit their requirements to the Head quarters at each stage? ( 12 )

**Q.3.-** Distinguish between any three of the following - ( 3 x 4 = 12 )

1. Earnest money and security deposit.
2. General Conditions of Contract and Special Conditions of contract.
3. Revised Estimate and Supplementary Estimate.
4. Final modification Material Modification.
5. Reappropriation of Funds and Misappropriation of Funds.

## PART ‘B’

( Answer any two questions )

**Q.4.-** Write short notes on any Three of the following - ( 3 x 4 = 12 )

1. Trade Test.
2. Over Time.
3. Corporate Enterprise Group.
4. Payment Of Wages Act.
5. Minor Penalty.

**Q.5.-** ( a ) ( i ) Who is the highest paid employee who is entitled to earn Bonus? ( 2 )

( ii ) When is an employee detained in custody deemed to be under suspension? ( 2 )

( iii ) Under the Railway service conduct rules, above which financial limit is a non gazetted employee required to report a transaction in movable property? ( 2 )

**Q.6.-** What are the various types of leave that an AEN can possibly get ? What are their respective entitlement/ which of these can be carried forward to the next year? What is the maximum limit to which the same can be accumulated? ( 12 )

**PART “C”**

( Attempt Question No. 7 which is compulsory and any other three questions )

**Q.7.-** ( Compulsory ) Write short notes on any Six of the following - ( 5 x 6 = 30 )

1. Under Reamed Piles.
2. C.S.M.
3. Track Recording.
4. Railway affecting tanks.
5. Over dimensional consignment ( O.D.C. )
6. Scour.
7. Pressure Filter for drinking water supply.
8. ‘A’ region states under Official Language Act.
9. Security patrolling.
10. Gauge conversion.

**Q.8.-** ( a ) What do you understand by gap survey? On what type of track is it carried out and when? What is the follow up action. ( 12 )

( b ) What do you understand by distressing? On what types of track is it generally done? What are the advantages and disadvantages of using a rail tensor for distressing work? ( 12 )

**Q.9.-** A bridge of 2 x 3.05 m arch is distressed and required to be rebuild. What type of new bridge would you recommended as replacement? Explain briefly with a neat free hand sketch as to how you would execute the work? ( 24 )

**Q.10.-** An Express train has derailed in mid section in your jurisdiction as an AEN, you are the first officer to reach the site. On reaching the site, you are sure that apart from serious injuries, some deaths have also taken place. Explain in brief what action would you take in order of precedence till a more senior officer arrives and there after. ( 24 )

**Q.11.-** What are steps required to be taken to acquire land for new line/ Part of the Alignment passes through Forest Land. Is it possible to commence the work before compensation has been paid to the landowners? If so under what circumstances and how? ( 24 )

**Q.12.-** Distinguish between any three of the following. ( 3 x 8 = 24 )

* 1. Slip Siding and Catch Siding.
  2. Reinforced concrete and pre stressed concrete.
  3. Permanent and Temporary adjustments of dumpy level.
  4. On track tamper and Off track temper.

**Q.13.-** ( a ) What are the works require the sanction of CRS? ( 12 )

( b ) Indicate the following dimension for BG track - ( 6 x 2 = 12 )

1. Minimum clearance at checkrail on level crossings.
2. Maximum distance apart between trolley refuges in tunnels.
3. Maximum horizontal distance from center of track to the face of a goods platform.
4. In 25 kv AC electrified section, the minimum height above rail level for a distance of 1600 mm on either side of the centerline of track for a road over bridge.
5. The minimum length and depth of a bridge timber resting directly on longitudinal girders.
6. Maximum gradient that can be normally permitted in the station yards on a new line under construction.

**Q.14.-** The roof of a rectangular hall 6.00 m wide and 21.00 m long is supported by rectangular RCC beams located 3.00 center to center. Assuming the thickness of slab to be 10 cm. design an intermediate beam using M 150 concrete and a live load 500 kg/ m2, ignore ‘T’ beam affect. Indicate clearly the assumptions made. ( 18 )

Make a neat sketch showing the reinforcement details. ( 6 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING – Oct 1993

Date : 30.10.1993 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words also.
2. You are required to answer Part ‘A’ , any 2 ( two ) questions from Part ‘B’, and in Part C attempt Question 5 which is compulsory and any other three questions. Marks for each question are clearly indicated.
3. After completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

**Q.1.-** Write short notes on any Four of the following - ( 4 x 6 = 24 )

1. Tender Committee.
2. Proprietary Article certificate.
3. Termination of contract.
4. Operating ratio.
5. P.P.E. Act.
6. Revenue Grants pertaining to Engineering Department.
7. Fixing of License fee for Railway land.

## PART ‘B’

( Answer any two questions )

**Q.2.-** Spot the correct answer for each of the following questions from amongst the multiple choice given against each. Each correct answer gets you 2 marks, while each wrong answer would attract a penalty mark of 1.

( a ) A candidate has to pass a trade test to get promoted from-

1. Highly skilled Fitter Gr. I to SOM.
2. Hammer man to Black smith.
3. Junior clerk to Senior Clerk.
4. None of these.

( b ) Engagement of Casual labour ( fresh faces ) can be done under personal approval of - ( 1 ) G.M. ( 2 ) C.E. ( 3 ) D.R.M. ( 4 ) Sr. DEN.

( c ) The normal upper age limit for recruitment of group ‘D’ service in Railway is –

( 1 ) 25 years. ( 2 ) 28 years. ( 3 ) 30 years. ( 4 ) None of these.

( d ) Night duty allowance is payable for performance of duty between –

( 1 ) 22.00 to 08.00 hrs. ( 2 ) 00.00 to 08.00 hrs.

( 3 ) 22.00 to 06.00 hrs. ( 4 ) None of these.

( e ) Leave on half average pay can be converted into ‘commuted leave’ as leave on average pay for half the period on -

( 1 ) Medical ground only. ( 2 ) In emergent cases.

( 3 ) When LAP due to the employees in nil. ( 4 ) For higher studies.

( f ) An employee can request for voluntary retirement after putting in minimum service of - ( 1 ) 15 years. ( 2 ) 20 years. ( 3 ) 25 years. ( 4 ) None of these.

**Q.3.-** What are the entitlement of a monthly rated casual labour? What additional benefits does he get when absorbed against a regular post? ( 12 )

**Q.**4.- Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Declaration under service conduct Rules.
2. Family Pension.
3. Hours of Employment Regulations.
4. Compassionate appointment.
5. Major Penalty.

**PART “C”**

( Attempt Question No. 5 and any other three questions )

**Q.5.-** Write short notes on any Five of the following - ( 5 x 6 = 30 )

1. Hot weather patrolling.
2. Rail Tensor.
3. Well foundations.
4. Land acquisition Act.
5. CRS Sanction.
6. Cover in RCC.
7. Oiling and greasing of Important Bridge.
8. POH of the tie Tamping Machine.

**Q.6.-** A single storied community hall 30 x 9 m size has a R.C.C. roof. The roof slab overhangs beyond the outer walls by 1.0 m on all sides. Draw a neat free hand sketch including the arrangement of typical reinforcement required for the beam and slab arrangement by drawing a cross section. ( 24 )

**Q.7.-** Explain the action to be taken after a weld failure has been reported in a LWR track. ( 16 )

If there are frequent weld failures in a section, what could it indicate and what is the remedy? ( 8 )

**Q.8.-** ( a ) What do you understand by the provisions of section 3 ( 3 ) of the Official languages Act? ( 15 )

( b ) As per the extent instructions are the schedules of inspection of an AEN of the following - ( 3 x 3 = 9 )

1. Catch water and side drains in cuttings.
2. Infringements.
3. Surprise Inspection of payments of PWI / IOW.

**Q.9.-** Distinguish between the following. Attempt any four. ( 4 x 6 = 24 )

* 1. CTR value of the track and CTR of track.
  2. Reinforced concrete and pre stressed concrete.
  3. CSM and TRT.
  4. Channel sleepers and S.T. sleepers.
  5. R.H. Girder and Early steel girder.
  6. Ruling Gradient and Compensated gradient.

**Q.10.-** A 1 x 4.57 m span distressed arch bridge is to be rebuild fully ( including sub structure and foundation ) with a 1 x 6.10 m PSC slab bridge. Height of formation above bed level is 6.0 m. Bottom of the proposed and existing foundations is 1.50 m below bed level. Other dimensions may be suitably assumed. No raising of the existing rail level is necessary. Please draw a neat dimensioned sketch indicating the temporary arrangements required to carry out this rehabilitation work. ( 24 )

**Q.11.-** ( a ) Describe in brief the various tests laid down to judge the portability of drinking water? ( 12 )

( b ) Draw a neat sketch showing the general layout of a ‘ Sujala type of filtration plant.

( 12 )

**Q.12.-** A serious accident involving a Passenger carrying train on a double line section has led to both deaths and grievous injuries, the affected train was an up train but the derailed vehicles are also fouling the DN track. You are the first officer to reach the site. Described briefly the action required to be taken by you at the site of the accident in order of priority. ( 24 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING – Oct – Nov 1993

Date : 20.11.1993 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

* 1. Candidates should clearly write their Roll Number in words also.
  2. You are required to answer Part ‘A’ , any 2 ( two ) questions from Part ‘B’, and in Part C attempt Question 5 which is compulsory and any other three questions. Marks for each question are clearly indicated.
  3. After completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

**Q.1.-** Write short notes on any Four of the following - ( 4 x 6 = 24 )

1. Procedure for calling and finalization of single tender.
2. PU-27 and PU- 28 for stores expenditure.
3. Procedure for approval of works at divisional level.
4. List of passenger amenity works.
5. Capital Fund.
6. Liability register.
7. Material modification.

## PART ‘B’

( Answer any two questions )

**Q.2.-** What are the latest instructions regarding fixing of gang strength of P. Way gangs. ( 12 )

**Q.3.-** If a working monthly rated casual labour dies in service, what are the rules and procedure for compassionate appointment? ( 12 )

**Q.4.-** What are minor penalties and what is the procedure for imposing these? ( 12 )

**PART “C”**

( Attempt Question No. 5 and any other three questions )

**Q.5.-** If you are the senior most officer at a site of Passenger train accident, what action will you take? ( 30 )

**Q.6.-** What are the rules regarding adoption of steel girders, composite girders and prestressed concrete girders / Give advantages and disadvantages of these type of girders. ( 24 )

**Q.7.-** What could be reason for pealing of concrete cover of RCC slab Bridge? What action will you take for repair of such a bridge? What precautions should be taken during construction to avoid such a failure? ( 24 )

**Q.8.-** What are rules regarding provision of LWR on girder bridges? Why LWR is not allowed on certain girder bridges? ( 24 )

**Q.9.-** Why it is necessary to record conditions of track both by a track recording car and by an accelerometer mounted on coaches? Which track defects remain undetected even after using both above methods of testing? ( 24 )

**Q.10.-** What are the advantages of using 60 kg 90 UTS rails on heavy traffic density routes? What are the do’s and don’ts to be observed while using 60 kg, 90 UTS rails? ( 24 )

**Q.11.-** ( a ) What are the classification of states regarding correspondence in Hindi? What are the rules regarding Hindi correspondence with different types of States? ( 15 )

( b ) Give your opinion regarding relative advantages and disadvantage of trolley and foot inspection of track. ( 9 )

**Q.12.-** How water supply requirement of a railway station is calculated, and what are the rules regarding providing proper source, pumping and storage.  ( 24 )

**Q.13.-** What quality controls are to be observed in an earthwork and RCC / PRC work of a new line construction? What records are to be maintained in this regard? ( 24 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 25.04.1998 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words also.
2. Attempt any 2 ( Two ) questions from Part ‘A’ , any 2 ( two ) questions from Part ‘B’, Question No. 7 and any other three questions from Part ‘C’.
3. Please be brief in your answers.
4. Before completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

( Answer any two questions )

**Q.1.-** ( a ) Describe the various budget stages for review / modification of budget grants. ( 6 )

( b ) Describe the various kinds of tender system for letting out works on contracts. ( 6 )

**Q.2.-** Write short notes on any Four of the following - ( 4 x 3 = 12 )

1. Deposit works.
2. Pink book.
3. Urgency Certificate.
4. Supplementary estimate.
5. Canons of financial properties.
6. Arbitration.
7. Depreciation reserve Fund.
8. Stock verification Sheets.

**Q.3.-** What are the different types of Engineering surveys under taken before construction of a new line/ Explain their scope and significance. ( 12 )

## PART ‘B’

( Answer any two questions )

**Q.4.-** ( a ) Describe briefly the provisions of the Payment of Wages Act. ( 9 )

( b ) Who is eligible to get PLB as per extant instructions? ( 3 )

**Q.5.-** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Hours of Employment Regulations.
2. Compassionate appointment.
3. Permanent Negotiating machinery.
4. Staff benefit Fund.
5. Family Pension.
6. Section 3 ( 3 ) of Official Language Act.

**Q.6.-** ( a ) Enumerate major and minor penalties under the Railway Rules for discipline & Appeal. ( 6 )

( b ) Describe in brief the procedure for imposing of a major penalty on a Railway Servant? ( 6 )

**PART “C”**

( Attempt Question No. 7 and any other three questions )

**Q.7.-** ( Compulsory ) Write short notes on any Five of the following - ( 5 x 6 = 30 )

1. Under Reamed Piles.
2. Water Cement Ratio.
3. Afflux.
4. Early steel girders.
5. Railway affecting Works.
6. CMS.
7. Cumulative frequency diagram for curves.
8. Switch Expansion Joint.
9. Lubrication of Rail joints.
10. R.H. girder.

**Q.8.-** ( a ) What are the permitted locations for LWR/CWR? ( 12 )

( b ) Why LWR require distressing? ( 4 )

( c ) What is breathing length? ( 4 )

( d ) What is a hot weather patrolling and when is it necessary? ( 4 )

**Q.9.-** ( a ) Enumerate the Pre-temping and Post-temping operations in a section under machine maintenance. ( 15 )

( b ) What precautions will you take to obtain a good results for cast in situ weld? ( 5 )

( c ) How will you utilize CMS 2000 for improving the running quality of your section? ( 4 )

**Q.10.-** In an embankment 3 m high, a culvert 1 x 3.0 m arch is in distressed condition and is required to be rebuild. Describe the phase of work, illustrating by neat sketches. The depth of foundation existing is 1.2 m below the bed level. ( 24 )

**Q.11.-** ( a ) What precautions are required for achieving good quality in painting of steel girders?

( 12 )

( b ) Illustrate with sketches the following types of girders, and the locations for their adoption- ( 3 x 4 = 12 )

1. Deck Type Girders.
2. Under Slung Girders.
3. Through Type Girders.
4. Semi Through Type Girders.

**Q.12.-** ( a ) Write short notes on any Three of the following - ( 4 x 3 = 12 )

* 1. Direct maintenance of quarters.
  2. Prestressed Concrete.
  3. Earth Work compaction at optimum moisture content.
  4. Dumpy Level.
  5. Pressure Filter for drinking water supply.

( b ) Describe any type of foundation you would recommend for a double storied building in black cotton soil area. The depth of BC soil is up to 3.0 m. Data required if any may be assumed. ( 12 )

**Q.13.-** Design and draw neat sketch of a septic tank for colony having 100 units of quarters. Indicate and design the arrangements for disposal of affulents, if there is no natural drainage such as a nallah or a river, nearby ( 24 )

**Q.14.-** ( a ) What are the various categories of Over dimensional consignments ( ODCs )? Who can authorize their movement? ( 12 )

( b ) Give the following Schedule of dimensions for Broad Gauge section - ( 12 )

1. Maximum spacing of bridge sleepers.
2. Maximum distance apart of trolly refugees on bridges.
3. Maximum gradient in station yards unless special safety devices are provided.
4. Minimum radius of curves.
5. Minimum distance center to center of tracks.
6. Maximum distance of checkrail opposite nose of crossing.

**Q.15.-** A Beam A B 10 meter long is simply supported at 2 m and 1 m from A and B respectively. The Beam carries a uniformly distributed load of 200 kg per meter and concentrated loads of 1500 kg and 2000 kg at A and B respectively.

Draw the shear force and bending moment diagrams and also calculate the maximum bending moment. ( 24 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

**( SUPPLEMENTARY )**

Date : 23.05.1998 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words also.
2. Attempt any 2 ( Two ) questions from Part ‘A’ , any 2 ( two ) questions from Part ‘B’, Question No. 7 and any other three questions from Part ‘C’.
3. Please be brief in your answers.
4. Before completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

( Answer any two questions )

**Q.1.-** What are the various type of estimates prepared for railway works? Essence in 4-5 lines for each of them should be given. ( 12 )

**Q.2.-** Write short notes on any Four of the following - ( 4 x 3 = 12 )

1. On account Bills.
2. Issue of Tool & Plants to the Contractor.
3. Single Tender.
4. MAS account.
5. Draft Para.
6. Material Modification.
7. Consolidated Fund of India.
8. Late tender and delayed tender.

**Q.3.-** ( a ) What is meant by standard Schedules of Rates and Non- Schedules rates. ( 4 )

( b ) What is the procedure for finalizing Limited Tenders. ( 8 )

## PART ‘B’

( Answer any two questions )

**Q.4.-** ( a ) When is a Railway Employee Required to be placed under suspension? ( 4 )

( b ) How is the classification of gate – keepers of an engineering gate done? In which of the categories can a gate – keeper fall ? ( 8 )

**Q.5.-** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Factory Act.
2. Permanent Disability Leave.
3. Corporate Enterprise Group.
4. Workmen’s compensation Act.
5. Trade Test.
6. Family Pension.

**Q.6.-** What are the various types of leave that an AEN can possibly get ? What are their respective entitlement/ which of these can be carried forward to the next year? What is the maximum limit to which the same can be accumulated? ( 12 )

**PART “C”**

( Attempt Question No. 7 and any other three questions )

**Q.7.-** ( Compulsory ) Write short notes on any Five of the following - ( 5 x 6 = 30 )

1. Chamfering of Rail holes.
2. Cant Deficiency.
3. UNIMAT
4. Off Track Tampers.
5. Oiling and Greasing of Girder Bridges.
6. Workability of Concrete.
7. Cover in RCC.
8. Buffer Rails.
9. Submerged Arc Welding.

**Q.8.-** ( a ) When is the distressing of LWR / CWR necessary? ( 6 )

( b ) What precautions will you take for safe maintenance of SWR? ( 8 )

( c ) A weld fractured in LWR section. Explain briefly the procedure for carrying out temporary and permanent repairs. ( 10 )

**Q.9.-** ( a ) Explain briefly the working of a Ballast Cleaning Machine and steps to be followed to maximize its output? ( 18 )

( b ) What are the different types of On-Track Ballast Cleaning Machines available on Central Railway? ( 6 )

**Q.10.-** ( a ) Name works requiring CRS’s sanction. Also name a few works not requiring his sanction. ( 8 )

( b ) Show by sketches the types and locations of speed restriction boards used for temporary engineering speed restrictions. ( 16 )

**Q.11.-** Distinguish between the following attempt any four. ( 4 x 6 = 24 )

1. Slip Siding and catch siding.
2. CTR value of track and CTR of track.
3. Reinforced concrete and prestressed concrete.
4. CSM and TRT.
5. RH girder and Early Steel Girder.
6. Channel sleepers and ST sleepers.

**Q.12.-** ( a ) What is grade compensation in curved? What in the rate of such compensation in BG? Work out the actual gradient required to be provided on a 40 curve where the rulling gradient is 1 in 100. ( 8 )

( b ) Describe the various items of work to be done under systematic through packing.

( 16 )

**Q.13.-** What is meant by M 30 concrete? What are the major factors, which require to be controlled in order to produce high strength concrete at site, based on the design mix?

( 24 )

**Q.14.-** ( a ) What are the advantages of welded girder over riveted girder? ( 8 )

( b ) What do you understand by DTM as applied to Track maintenance? What are its advantages and disadvantage if any? ( 8 )

( c ) Describe briefly the various tests laid down to judge the portability of drinking water?

( 8 )

**Q.15.-** It is proposed to rebuild a 1 x 6 ft. girder bridge as 1 x 2 m. RCC slab culvert on a BG single line section under traffic by using RH girder span having an over all length of 17 m and a depth of 1 m from Rail level to bottom of girder with the following data –

Rail level to bottom of foundation = 4.5 m.

Bottom width of proposed foundation for each abutment = 2.00 m.

Draw a neat dimensioned free hand sketch of the above showing the seating arrangement under the end of RH girder span depth of the supporting crib and the calculate slopes of earth to be level of excavation for the foundation. ( 24 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 05.09.1998 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words also.
2. Attempt any 2 ( Two ) questions from Part ‘A’ , any 2 ( two ) questions from Part ‘B’ Question No. 7 and any other three questions from Part ‘C’.
3. Please be brief in your answers.
4. Before completing the paper, blank pages in the answer books must be crossed by the candidate.

## PART ‘A’

( Answer any two questions )

**Q.1.-** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Revise Estimates.
2. Development Fund.
3. Material Modification.
4. Liability Register.
5. Write- off sanction.
6. MAS account.

**Q.2.-** ( a ) Explain briefly the difference between ‘’Out of turn work’’ and the work on urgency certificate. ( 4 )

( b ) Who will bear the cost of manning of unmanned level crossing. ( 3 )

( c ) What procedure is followed for under taking Deposit work. ( 5 )

**Q.3.-** ( a ) Through which demands / grants, the expenditures for Engineering department is provided for? ( 3 )

( b ) Who will bear the cost of ROB / RUB to be constructed replacement of level crossing? ( 3 )

( c ) Distinguish between private Siding and Assisted siding. ( 3 )

( d ) Explain briefly the procedure to be followed for replacement of ‘’cash-Imprest’’. ( 3 )

**PART ’B’**

( Answer any two questions )

**Q.4.-** ( a ) When can a Railway Servant be deemed to have been placed under suspension. ( 3 )

( b ) What are the basic conditions to be satisfied for a person injured on duty to be eligible for compensation under Workman’s Compensation Act? ( 3 )

( c ) how is the classification of gate – keepers of an engineering gate done? In which of the categories can a gate – keeper fall ? ( 6 )

**Q.5.-** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Trade Test.
2. Over Time.
3. Payment of wages Act.
4. Compassionate Appointment.
5. Retirement Benefits.

**Q.6.-** A PWI has been found responsible for causing a collision of a dip-lorry with an express train. Spell out the steps to be train to take DAR action against him, commencing from the time, the accident Enquiry Report has been accepted by the DRM. ( 12 )

**PART “C”**

( Attempt Question No. 7 and any other three questions )

**Q.7.-** Write short notes on any Five of the following - ( 5 x 6 = 30 )

1. CRS Sanction.
2. Rail Tensor.
3. Buffer Rails.
4. Well foundation.
5. PPE Act.
6. Oiling and Greasing of Important Bridges.
7. Submerged Arc Welding.

**Q.8.-** ( a ) What are the items that are to be complied with before laying of a LWR? ( 10 )

( b ) Why LWR require distressing? ( 6 )

( c ) What is breathing Length? ( 4 )

( d ) What is a hot weather patrolling and when is it necessary? ( 4 )

**Q.9.-** ( a ) What do you understand by “Residual Chlorine” in water? How is it checked? ( 6 )

( b ) Distinguish between “Pressure Filter and Gravity Filter”. ( 9 )

( c ) What is a “Non return valve”? Where is it provided? ( 4 )

( d ) What is the function of “ Alum Dosing” in a water treatment plant? ( 5 )

**Q.10.-** What step are required to be taken to acquire land for a new line? Part of the alignment passes through forest land. Is it possible to commence the work before compensation is paid to the land owners? If so under what circumstances and how? ( 24 )

**Q.11**.- ( a ) How will you check the camber of a 45.7 m. through Girder span during inspection?

( 5 )

( b ) Which is the vulnerable location in a 30.5 m through girder requiring special attention during periodical examination? ( 10 )

( c ) What precautions are required for achieving good quality of painting of steel structures? ( 9 )

**Q.12.-** ( a ) what are the various types of track Machines in operation on central Railway and for what purpose are they used? ( 12 )

( b ) Describe briefly the working of PQRS. ( 12 )

**Q.13.-** ( a ) Describe briefly the latest specification for ballast. ( 12 )

( b ) What could be reason for pealing of concrete cover of RCC structure? What action will you take to repair the same? What precautions should be taken during construction to avoid such a failure? ( 12 )

**Q.14.-** ( a ) What are the various methods of monitoring track geometry running quality of track being used by the railways at present? Describe briefly. ( 12 )

( b ) What pre-tamping attention, attention during tamping and post-tamping attention should be ensured to achieve good results? ( 12 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 01.02.2003 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words.
2. Attempt any 2 ( Two ) questions from Part ‘A’.
3. Attempt any 2 ( two ) questions from Part ‘B’.
4. Attempt Question No. 7 and any other three questions from Part ‘C’.
5. All Questions carry equal marks except Q.No. 7 as indicated against each.
6. Answer to be to the point and brief.
7. Before depositing the answer books, blank pages to be crossed by the candidate.

## PART ‘A’

**Q.1.-** ( a ) What are the two main Grants for engineering Department and what are detailed heads, sub heads and primary units? ( 6 )

( b ) Mention the various Budgetary stages for reviews in a financial year? ( 6 )

**Q.2.-** ( a ) What are On Account Bill and Final Bill of works and what documents and certificates are to be attached with each? ( 6 )

( b ) Describe the Material at site account. ( 6 )

**Q.3.-** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Operating Ratio.
2. Material Modification.
3. Completion Report.
4. Canons of financial properties.
5. D.S.8 Note.

**PART ‘B’**

**Q.4.-** ( a ) What steps are being taken for Man Power planning on Indian Railway? ( 6 )

( b ) What are the classification of staff under HOER? Give one example for each.

( 6 )

**Q.5.-** ( a ) What are the steps involved in finalizing a major penalties charge sheet? ( 6 )

( b ) Describe in brief the procedure for compassionate Ground Appointments? ( 6 )

**Q.6. -** Write short notes on any Three of the following - ( 4 x 3 = 12 )

1. Trade Test.
2. PREM
3. Hospital Leave.
4. Qualifying service.
5. Calamity Advance.

**PART ‘C’**

**Q.7.-** Write short notes on any Six of the following - ( 5 x 6 = 30 )

1. Cant Deficiency and Cant Excess.
2. Switch & Expansion joint and Breathing Length.
3. Free Board & Clearance.
4. Scour Depth and Danger Level.
5. Private & Assisted Siding.
6. Security Deposit & Earnest money.
7. Catch siding & Slip Siding.
8. Temporary & Permanent Speed restriction and Engineering Allowance.
9. Design Mix and Quality control in concrete.
10. CRS Sanction.

**Q.8.-** ( a ) What safety precautions are to be taken for maintenance of LWR / CWR during extreme hot weather and cold weather? ( 12 )

( b ) Explain in brief USFD testing of rails and welds. ( 12 )

**Q.9.-** As AEN in charge you have to carry out 3.0 Km of CTR with 60 Kg 10 rail welded panels on MBC sleepers of existing LWR main line track of 52 KG. on CST9 sleepers. Broadly give the planning and steps involved for execution of this work from start to finish in a financial year. ( 24 )

**Q.10.-** ( a ) What is mechanical compaction of earth work and what system you will observe for quality control and measurements and payments to the contractor? Draw the typical cross section of a double line track in bank and cutting. ( 12 )

( b ) What are the function of blanketing material and how its thickness is to be decided in case of earth work in railway bank. ( 12 )

**Q.11.-** ( a ) How are the zonal contract fixed? What is the limit of a zonal work order? ( 8 )

( b ) What is the procedure for dispensing with calling of tenders and doing work on quotation? ( 8 )

( c ) How the variations in contract are dealt with? ( 8 )

**Q.12.-** ( a ) What are the monsoon precautions to be taken in a sub division having heavy rain fall? ( 12 )

( b ) A breach of 6m. length with average depth of 4.5 meter has taken place in a flash flood. Design the temporary girder arrangement for restoration of traffic. Assume suitable dimensions for drawing the sketch? ( 12 )

**Q.13.-** ( a ) What are items of detailed inspection of a open web steel girder of 45.7 m. span.

( 12 )

( b ) Suggest the launching scheme for super structure of 3 x 30.5 m span steel girders to bridge a deep gorge. ( 12 )

**Q.14.-** ( a ) Draw out a plan for PQRS yard and mention the various activities dealt with in PQRS yard. ( 12 )

( b ) What are the various schedules of maintenance for CSM ( Tamping Machine ) and draw a labeled sketch of tamping bank of CSM. ( 12 )

**Q.15.-** ( a )Draw bending moment and Shear force diagram for a simply supported beam of 6 m span having over hange of 2 m on one side ( 6 + 2 ) and one end at wall with a UDL of 500 kg per meter. ( 12 )

( b )Sketch out the typical detailing of reinforcement of above RCC beam. ( without detailed design calculations ) ( 12 )

**Q.16.-** ( a ) What is final location survey and what details are to be covered for FLS of a new line project. ( 9 )

( b ) Describe various provisions under official languages Act 3 ( 3 ) and also explain the prize incentives for good work done in Hindi. ( 15 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

**( SUPPLEMENTARY )**

Date : 08.02.2003 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates should clearly write their Roll Number in words.
2. Attempt any 2 ( Two ) questions from Part ‘A’.
3. Attempt any 2 ( two ) questions from Part ‘B’.
4. Attempt Question No. 7 and any other three questions from Part ‘C’.
5. All Questions carry equal marks except Q.No. 7 as indicated against each.
6. Answer to be to the point and brief.
7. Before depositing the answer books, blank pages to be crossed by the candidate.

## PART ‘A’

**Q.1.-** What is alphanumeric system of allocation of expenditure under revenue Grant and works grants? Give an example of such allocation of expenditure on an activity you are associated with. ( 12 )

**Q.2.-** Describe in brief the format in which a detailed Estimate of construction covering all activities will have to be arranged ( without quantities ) for –

A Road Over Bridge for PWD on Deposit term basis.

Or

Railway siding for a cement Plant on deposit term basis. ( 12 )

**Q. 3. -** Write short notes on any four of the following - ( 4 x 3 = 12 )

1. Part I & Part II Audit Reports..
2. Advice Note.
3. Stock Sheets.
4. Write Off.
5. Final Bill.
6. Variation Statement in Contracts.
7. Briefing Note.

**PART ‘B’**

**Q.4.-** ( a ) What is the procedure for creation of additional posts for additional assets? ( 6 )

( b ) How Group ‘D’ vacancies are filled up these days on Railways? ( 6 )

**Q.5.-** ( a ) What are various minor penalties under D & AR ? ( 6 )

( b ) Give steps up a staff for loss of stores on account of neglect of duty. ( 6 )

**Q.6. -** Write short notes on any four of the following - ( 4 x 3 = 12 )

1. Conduct Rules.
2. Suspension.
3. Industrial dispute Act.
4. Final Settlement on superannuation.
5. Productivity Linked Bonus.
6. PNM.
7. Communal Roster.

**PART ‘C’**

**Q.7.-** Write short notes on any Six of the following - ( 5 x 6 = 30 )

1. Cumulative frequency diagrams for curve Realignment.
2. Distressing of LWRs / CWR.
3. Pre-temping & Post-temping operations.
4. Guard Rails & Check Rails.
5. Rocker & Roller Bearings.
6. Camber in Triangulated Girders.
7. Launching aprons.
8. Arbitration.
9. Septic Tank & Acqua Privy.
10. Chlorination of Water.

**Q.8.-** ( a ) What are ( I ) Grade Compensation, ( ii ) Cant Deficiency, ( iii ) Cant Excess in respect of curves? ( 12 )

( b ) Calculate the Equilibrium Cant , maximum permissible speed and length of transition curve for a 3 degree in BG with the following data -

Maximum sectional speed - 110 km/h.

Speed for determining Equilibrium Cant - 80 km/h.

Booked speeds for goods trains - 50 km/h.

Permitted cant deficiency - 100 mm.

Permitted cant excess - 75 mm. ( 12 )

**Q.9.-** ( a ) What are the schedules of inspection of an AEN in-charge of an open line sub-division? ( 12 )

( b ) What are the various items to be checked while inspecting manned Level crossing gate across a motor able road?

Or

1 : 12 Turnout ( 12 )

**Q.10.-** ( a ) Draw the Plan & Elevation of 3 x 6 m Slab Bridge with open foundations in alluvial showing the floor and bank protection works . Assume suitable levels with reference to bed of channel having square & stable flow. ( 12 )

( b ) Describe in brief annual inspection of major and minor bridges. ( 12 )

**Q.11.-** ( a ) What soil investigations are required to be done for designing the foundation of major bridge. ( 6 )

( b ) Raker & under Reamed Piles. ( 6 )

( c ) Cube Tests & Slump Tests for prestressed concrete girder designed Mix.( 6 )

( d ) Anti corrosion care of reinforcement bars in concrete work in saline environment.( 6 )

**Q.12.-** ( a ) Suggest a scheme for replacing of existing early steel plate girders of 10 x 18.2 m. span by new MBG welded girders received at site on a single branch line non electrified section Daily / weekly. Blocks of required duration can be arranged on this section and adequate width is available on abutments and piers for temporary arrangements and all spans are having flowing water. ( 18 )

( b ) Suggest the painting scheme for these new plate girders. ( 6 )

**Q.13.-** ( a ) How will you fix danger level for a major bridge? ( 6 )

( b ) A Distressed 1 x 3 m arch bridge is to be replaced by 1 x 6 m PSC slab bridge by using temporary girder arrangement for constructing the sub-structure and launching PSC slab in position. Assume suitable height of bank and other dimensions. Channel remains dry during working season. Draw a detailed dimensioned sketch of temporary arrangement. ( 18 )

**Q.14.-** ( a ) Draw atypical reinforcement diagram ( cross section ) of one way continuous roof ( 5 x 6 m span ) Slab simply supported on brick walls. ( 12 )

( b ) Draw Bending moment and Shear force diagram for a simply supported beam of 6 m span having over hange of 2 m on either side ( 2 + 6 + 2 ) with a UDL of 500 kg per meter. ( 12 )

**Q.15.-** ( a ) What are the latest track tamping machines available with central Railway for tamping of main line and turnouts? Describe in brief the salient features of these two machines. ( 12 )

( b ) Describe the formation of track Relaying train. Mention the operations involved in relaying of a single line 52 Kg. MBC sleeper track by 60 Kg. on MBC sleepers. ( 12 )

**Q.16.-** ( a ) What details are to be covered in Reconnaissance Engineering – cum – Traffic Survey for a new line project and what is meant by rate of Return and economic rate of return in railway projects. ( 9 )

( b ) What provisions under section 3 of official language Act? What rules for corresponding for ‘B’ reason to ‘A’ reason ? ( 15 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 30.01.2005 ( Maximum Marks 150 ) Time : 3 hours

**Note** : 1) Candidates may write the examination either in English or in Hindi.

1. Candidates should not write his name / roll number anywhere in answer

sheet except on fly slip.

1. In case of any ambiguity in Hindi version, the English version is to be considered authentic.
2. Candidates should also write their Roll Number in words.
3. Answer to be to the point and brief.
4. Before depositing the answer books, blank pages to be crossed by the candidate.
5. Attempt any 4 ( four ) questions from Part ‘A’.
6. Attempt any 2 ( two ) questions from Part ‘B’.

## PART ‘A’

Q.1. ( a ) Explain the salient features covered under Section 3 ( 3 ) in the Official Languages Act. 1963. ( 7½ )

( b ) Write the correct Hindi terms for the following English Administrative terms.

1. Interim reply may be given.
2. Discuss with papers.
3. Keep pending.
4. Please circulate & file.
5. Immediate action please. ( 1½ x 5 = 7½ )

( c ) Protection of line in case of ‘**STOP DEAD RESTRICTION’** for carrying out a work of short duration on a single line section on a B.G. route – Explain with a sketch giving all the details along with specified distances etc. ( 10 )

Q.2. ( a ) A theodolite was set up at a distance of 150 m from a tower. The angle of elevation to the top of the parapet was 100 8’ while the angle of depression to the foot of the tower was 30 12’. The staff reading on the B.M. of R.L. 50.217 m with the telescope horizontal was 0.880 m. Find –

1. Height of the tower. (7½ )
2. The reduced level of the top of parapet wall. (7½ )

( Note : Assume sin 100 8’ = 0.1759 & sin 30 12’ = 0.0558 , cos 100 8’ = 0.9844 & cos 30 12’ = 0.9984 )

( b ) Explain in detail the various stages of attending to Rail fracture / weld failure in a L.W.R. track in field. ( 10 )

Q.3. ( a ) Calculate super elevation, maximum permissible speed and transition length for a 3o curve on **‘HIGH SPEED B.G. SECTION’** having maximum sanctioned speed of 110 km/h. Assume the equilibrium speed as 80 km/h and booked speed of goods trains as 50 km/h. ( 5 x 3 = 15 )

1. Write short notes on the following items-
   1. DBM system of maintenance
   2. Single tender system
   3. Painting schedule for steel bridge girders
   4. Slump test ( 4 x 2½ = 10 )

Q.4. ( a ) Position of Engineering indicators in case of Multi speed restrictions on one of the line in a Double line section where the first speed restriction is of less value (say 20km/h) In comparison with the following speed restriction (say 45 km/h) in the direction of traffic movement. Explain with a sketch giving all the details along with specified distances etc. ( 13 )

( b ) Distinguish between the following – ( 4 x 3 = 12 )

1. Catch siding & Slip siding.
2. Prestressed concrete & Reinforced cement concrete.
3. Final modification & Material modification.

Q.5. ( a ) A beam AB 12 m long is simply supported at 2 m & 1 m from A & B respectively. It carries a uniformly distributed load of 300 kg/m and concentrated load of 1500 kg & 2000 kg at A & B respectively. Draw the bending moment and shear force diagram duly indicating the values at critical locations. ( 7½ x 2 = 15 )

( b ) Explain in detail the need and the system of carrying out **‘GAP SURVEY’** and subsequent adjustment of gaps in SWR track in field. ( 10 )

**PART ‘B’**

Q.6. ( a ) What do you understand by budgetary review and explain the same in detail. ( 8 )

( b ) Explain **‘Standard Measurement books’**  ( 5 )

( c ) Write short notes on the following –

1. Dismissal and Removal from service.
2. PREM- meeting.
3. An employee deemed to be placed under suspension.
4. Trade test. ( 3 x 4 = 12 )

Q.7. ( a ) Explain so as to what do you understand by **‘Break in Service’** due to strike and how they are settled one way or the other finally. ( 6 )

( b ) What do you understand by **‘revising Authority’** in DAR cases and what are his power? What procedure needs to be followed by **‘Revising authority’** in case he decides to enhance the penalty imposed to a Railway servant in a DAR case. ( 7 )

( c ) Write short notes on the following –

1. Operating Ratio.
2. Liability register.
3. Deposit Works.
4. Audit Paras. ( 3 x 4 = 12 )

Q.8. ( a ) What do you understand by ‘Late & Delayed’ tenders and how they will have to be dealt as per rule. ( 6½ )

( b ) Variation in quantity during the execution of work – how they are to be dealt with as per rule. ( 6 )

( c ) What do you understand by ‘Supernumerary Posts’ and under what circumstances such posts are created. ( 6½ )

( d ) Explain the term **‘Declaration under Service Conduct Rules’**. ( 6 )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 15.05.2005 ( Maximum Marks 150 ) Time : 3 hours

**Instructions:**

1. Candidates have option to answer either in English or in Hindi. Question paper is available in both languages. However, in case of any mistake or ambiguity in Hindi version, the English version will prevail.
2. Candidates should write their roll number, both in words & numbers, only on fly leaf and should not write his name/ roll number anywhere else in answer sheet.
3. This paper contains total 18 questions in three parts. Attempt any 10 questions from Part ‘A’ and two questions each from Part ‘B’ & ‘C’.
4. The blank spaces between the answers and blank pages at the end should be crossed by the candidate before depositing the answer scripts.
5. Answer should be brief & to the point.

## PART ‘A’

Attempt any ten questions :

1. Draw labeled free hand sketch plan and X section for inturning and jacketing of 6.1 m arch bridge. Also write briefly the important steps of execution. ( Height of abutment 5 m, depth of foundation 1 m, foundation strata – rock.) ( 10 )

2. Write short notes on any two of the following - ( 5 x 2 )

1. Distressed bridge & vulnerable Bridge.
2. Painting of Girder Bridges.
3. Numerical rating of Bridges.

3. Write short notes on any two of the following - ( 5 x 2 )

1. Loss of camber in steel girders.
2. Types of bridge bearings.
3. Replacement of loose rivets.

4. Write short notes on any two of the following - ( 5 x 2 )

1. License fee and way leave charges for Railway land.
2. Minimum essential amenity and desirable amenity.
3. Powers of recording measurement in M.B.

5. a) Write the specifications of earth work in embankment briefly. ( 5 x 2 )

b) Write specifications of machine crushed ballast briefly.

1. a) Draw a free hand sketch of conventional SEJ on concrete sleeper and show the most common location of fracture. ( 5 )

b) Write briefly the important precautions to be observed in maintenance of LWR track. ( 5 )

1. Write short notes on any two of the following – ( 5 x 2 )
   1. Hot weather patrolling.
   2. CTR value of track & CTR of track.
   3. Chamfering of bolt holes.
2. a) What do you understand by super-elevation, cant deficiency and cant excess for curves.

( 6 )

b) Approximate maximum speed which can be permitted on a 3 degree curve. ( 4 )

9. Describe for any two of the three items listed below the procedure to be followed for maintenance in LWR / CWR track. ( 5 x 2 )

1. Overhauling of level xing.
2. Rectification of rail fracture.
3. Scattered renewals of sleeper.

10. Draw a neat free hand sketch of channel sleeper, including fixing arrangement of track and girder. ( 10 )

11. Draw Bending moment and Shear Force diagram for a simply supported beam of 6 m span having overhangs of 2 m on either side ( 2 + 6 + 2 m ) with a UDL of 500 kg per meter.

( 10 )

12. Explain the salient features covered under Section 3 ( 3 ) in the Official Languages Act. 1963. ( 10 )

**PART ‘B’**

Attempt any two :

13. Write short notes on any three of the following –

1. SRSF
2. DRF
3. RSF
4. Deposit work. 3 x 4 = 12 + ½ for neatness

14. Write short notes on any three of the following – 3 x 4 = 12 + ½ for neatness

1. Single Tender.
2. P.P.E. Act.
3. Completion Estimate.
4. On Account Bill and Final Bill.
5. M.A.S. Account.

15. Distinguish between any three of the following : 3 x 4 = 12 + ½ for neatness

1. Earnest money and Security Deposit.
2. General Conditions of Contract and Special Conditions of Contract.
3. Revised Estimate and Supplementary Estimate.
4. Final Modification and Material Modification.
5. Re-appropriation of funds and Misappropriation of Funds.

**PART ‘C’**

Attempt any two –

16. Describe briefly the main features of Hours of Employment regulation. ( 12½ )

17. Write short notes on any three of the following – 3 x 4 = 12 + ½ for neatness

1. Family Pension.
2. Compassionate appointment.
3. Major Penalty.
4. Staff Benefit Fund.
5. Retirement benefits.

18. What are the various types of leave that an AXEN / ADEN can possibly get? What are their respective entitlement ? Which of these can be carried forward to the next year ? What is the maximum limit to which the same can be accumulated ? ( 12½ )

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CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 29.05.2005 ( Maximum Marks 150 ) Time : 3 hours

**Instructions:**

1. Candidates have option to answer either in English or in Hindi. Question paper is available in both languages. However, in case of any mistake or ambiguity in Hindi version, the English version will prevail.
2. Candidates should write their roll number, both in words & numbers, only on fly leaf and should not write his name/ roll number anywhere else in answer sheet.
3. This paper contains total 18 question in three parts. Attempt any 10 questions from Part ‘A’ and two questions each from Part ‘B’ & ‘C’.
4. The blank spaces between the answers and blank pages at the end should be crossed by the candidate before depositing the answer scripts.
5. Answer should be brief & to the point.

## PART ‘A’

Attempt any ten questions :

1. Explain briefly the precautions to be taken during maintenance to control fractures of rail, welds and fish plated zone. ( 10 )

2. Draw a labeled free hand sketch of 18.3 m temporary girder arrangement on sleeper crib. Height from base level to rail level is 3.0 m. What speed restriction will be imposed.

3. Write short notes on any two of the following - ( 5 x 2 )

1. Breathing length of LWR.
2. Pre-Temping operation.
3. Lubrication & Toe load of ERC.

4. Write short notes on any two of the following - ( 5 x 2 )

1. Gap Survey and adjustment of gap.
2. SEJ maintenance.
3. Pulling back creep.

5. Write short notes on any two of the following - ( 5 x 2 )

1. Cement pressure grouting.
2. Sliding centralized bearings.
3. Distressed Bridge diagram.

6. Write the name of various types of heavy on-track, track machines used on Central Railway for maintenance and relaying. Describe their use and output in a block period of three hours.

( 10 )

7. Write short notes on any two of the following - ( 5 x 2 )

1. Encroachment Inspection Register.
2. Standards of quality of Drinking water.
3. Plinth area limits for different type of quarters.

8. Write short notes on any two of the following - ( 5 x 2 )

1. Official Languages Implementation Committee.
2. Hindi Week.
3. Schemes of Cash Awards & incentives.

9. Describe various types of patrollings and their purpose. ( 10 )

10. Describe in brief annual inspection of major and minor bridges. ( 10 )

11. Draw neat free hand sketches bringing out the details of the reinforcement, the bending of the bars and their spacing, for a typical T – Beam with two adjacent panels of slab, assuming suitable data based on your experience. No design calculations are required.

( 10 )

12. Draw a neat free hand sketch of a septic tank for 100 users and explain its working. There is no nallah river nearby. Indicate how you will treat the effluent. ( 10 )

**PART ‘B’**

Attempt any two questions :

13. Write short notes on any three of the following - (3 x 4 = 12 + ½ for neatness )

1. Completion Report.
2. Cannons of Financial Property.
3. August Review.
4. Write off Sanction.
5. Works Programme.

14. Write short notes on any three of the following - (3 x 4 = 12 + ½ for neatness )

1. Stock Verification Sheets.
2. Operating Ratio.
3. Works Register.
4. Assessed Rent.
5. DRF.

15. Write short notes on any three of the following - (3 x 4 = 12 + ½ for neatness )

1. Part I & Part II Audit Reports.
2. Advice Note.
3. Variation Statement in Contracts.
4. Non-Schedule Items.
5. Briefing Note.

**PART ‘C’**

Attempt any two questions :

16. Describe briefly the main features of Workmen Compensation Act. ( 12½ )

17. Write short notes on any three of the following - (3 x 4 = 12 + ½ for neatness )

1. Running Allowance.
2. Breach of rest allowance.
3. Break down allowance.
4. Night Duty allowance.
5. National Holiday allowance.

18. What are the different ( Minor and Major ) penalties under D & A Rules. What is the underlying intention, in your opinion for grouping the penalties under two heads - Minor and Major? ( 12½ )

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### CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 23.12.2006 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

* + 1. Candidates have option to answer either in Hindi or in English. In case of any mistake of ambiguity in Hindi version. The English version will prevail.
    2. Candidates should write their Roll Number, both in words & numbers, only on fly leaf and should not write his name / roll number any where else in answer sheet.
    3. This paper contains total Fifteen ( 15 ) questions in three parts. Attempt any 2 ( Two ) questions from Part ‘A’ & Part ‘’B’ and Five ( 5 ) questions from Part ‘C’.
    4. The blank spaces between the answers and blank pages at the end should be crossed by the candidates before depositing the answer scripts.
    5. Answer should be brief & to the point.
    6. Mobile / calculators / pagers etc. are not allowed in the Examination hall otherwise candidates will be debarred from the examination.
    7. Except answer nothing should be written in answer sheet.

## PART ‘A’

**Attempt any two questions. All Questions carry equal marks. One mark is for neatness.**

**Q.1.-** Distinguish between any three of the following : 3 x 4 = 12 marks

1. Earnest money and Security Deposit.
2. General Conditions of Contract and Special Conditions of Contract.
3. Revised Estimate and Supplementary Estimate.
4. Final Modification and Material Modification.
5. Final bill and completion Report.

**Q.2.-** Write short notes on any Three of the following - 4 x 3 = 12 marks.

* 1. Capital Fund.
  2. Fixing of license fee for railway land.
  3. P.P.E. act.
  4. Variation statement in contracts.
  5. Non Schedule items.
  6. Briefing Note.

**Q.3.-**Explain the procedure laid down for – 3 + 3 + 6 = 12 Marks.

* + 1. Entering the measurements in MB.
    2. Maintenance of MB.
    3. Testing checking of MB in

1. AEN Office.
2. Divisional Engineer’s Office.
3. Divisional Account Office.

Or

What are the powers for acceptance of tenders at various levels and to record measurement by Engineering subordinates and officers for works. And supply of materials on open line construction. 12 Marks.

**PART ‘ B ‘**

**Attempt any two questions. All Questions carry equal marks. One mark is for neatness.**

**Q.1.-** Write short notes on any Four of the following - 4 x 3 = 12 marks.

1. Productivity linked Bonus.
2. Communal Roster.
3. Break down allowance.
4. Final Settlement payment on superannuation.
5. Conveyance allowance.
6. Family Pension.
7. Staff Benefit Fund.

**Q.2.-** Answer any Three of the following - 4 x 3 = 12 marks.

* 1. What notice required to be displayed in offices / depots under Hours of Employment regulation?
  2. Distinguish between dismissal and removal from service.
  3. How much DCRG a railway servant is due to receive on superannuation.
  4. What is meant by Temporary partial Disablement, Permanent Partial Disablement. And Total Disablement for the purpose of payment of compensation?

**Q.3.-** Write in details the salient features of any one of the following –

1. Hours of Employment Regulation.
2. Workmen Compensation Act.

**PART ‘ C ‘**

**Attempt any five Questions. All Questions carry equal marks.**

**Q.1.-** a ) Write short notes on any two of the following - 5 x 2 = 10 marks.

* + - * 1. Section 3 ( 3 ) of Official Language Act 1963.
        2. Parliamentary Committee on Official Languages.
        3. Various incentive schemes for encouraging the use of official Language in offices.

B ) List the equipments required for Alumino Thermit Welding of Rail joint by short pre heating process. 10 marks.

**Q.2.-** Write short notes on any Four of the following - 5 x 4 = 20 Marks.

1. Switch Expansion Joint.
2. Compensation for curvature on gradients.
3. Over Dimensional Consignment ( ODC ).
4. Pressure filter for drinking water supply.
5. Numerical Rating of Bridges.
6. Painting schedule for steel Bridge girders.
7. River Training works.

**Q.3.-** a ) Draw a neat hand sketch of 30.5 m through type girder ( side elevation and cross section ) and label ( name ) its various components. Dimensions are not important.

12 marks

B ) What are the R.H. Girders and where are they used. 8 marks.

**Q.4.-** Write short notes on any four of the following - 5 x 4 = 20 marks.

1. Concrete mix design.
2. Ready mix concrete and admixtures.
3. Permanent and Temporary speed restriction and Engineering Time Allowance.
4. Scour depth, Foundation level and danger level.
5. Design cant, cant deficiency and cant excess.
6. Forging and machining.

**Q.5.-** Write in detail the various methods of corrosion protection of steel i.e. painting, epoxy painting, galvanizing and metalizing. Also write their relative advantages and disadvantages. 20 marks

**Q.6.-** What procedure is required to be followed for the following items of track maintenance in LWR / CWR track.

1. Cleaning of ballast by BCM. 8 marks.
2. Over hauling of level crossing. 4 marks.
3. Rectification of rail fracture. 4 marks.
4. Scattered renewal of sleepers. 4 marks.

**Q.7.-** What do you understand by OMC. What is mechanical compaction of earth work and what system you will observe for quality control measurements and payments to the contractor? Draw the typical cross section of a double line track in bank and cutting. 20 marks.

**Q.8.-** Describe briefly the main features of any two of the following - 2 x 10 =20 marks.

1. Measurement of tension in LWR by pull up method.
2. High speed End unloading Rake with ball bearing rollers.
3. 52 kg – 60 kg transition SEJ.
4. Special Diamond Crossing with full speed on main line.

**Q.9.-** Attempt any two of the following - 2 x 10 = 20 marks.

* 1. Describe briefly the various maintenance schedules of tie tamping machine. Also describe the stipulated output of different type of tie tamping machines.
  2. Draw a neat diagram of a three line station on a single line section.
  3. Describe briefly the terms: MMD 1929. ‘X’ class loco profile condo nation of infringements.

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### CENTRAL RAILWAY

# L.G.S. EXAMINATION – CIVIL ENGINEERING

Date : 21.01.2007 ( Maximum Marks 150 ) Time : 3 hours

**Note** :-

1. Candidates have option to answer either in Hindi or in English. In case of any mistake of ambiguity in Hindi version. The English version will prevail.
2. Candidates should write their Roll Number, both in words & numbers, only on fly leaf and should not write his name / roll number any where else in answer sheet.
3. This paper contains total 21questions in three parts. Attempt any 2 ( Two ) questions each from Part ‘A’ & Part ‘’B’ and Ten ( 10 ) questions from Part ‘C’.
4. The blank spaces between the answers and blank pages at the end should be crossed by the candidates before depositing the answer scripts.
5. Answer should be brief & to the point.
6. Mobile / calculators / pagers etc. are not allowed in the Examination hall otherwise candidates will be debarred from the examination.
7. Except answer nothing should be written in answer sheet.

## PART ‘A’

**Attempt any two questions. All Questions carry equal marks. One mark is for neatness.**

**Q.1.-** Describe in brief format in which a Detailed Estimate of Construction covering all activities will have to be arranged ( without quantities ) for 12 Marks.

A Road Over Bridge for PWD on deposit Term Basis.

Or

Railway siding for a cement Plant on deposit Term Basis.

**Q.2.-** Write short notes on any Three of the following - 4 x 3 = 12 marks.

1. Part I & Part II Audit Reports.
2. Advice Note.
3. Stock Sheet.
4. Write Off.
5. Final Bill.

**Q.3.-** State the agency would meet the expenditure on following cases: 6 x 2 = 12 marks.

Construction of a level crossing meant to meet Railway’s Statutory Liability.

Construction of a new ROB / RUB to meet demand due to increased road traffic.

Replacement of a Busy Level Crossing by an RUB which was originally provided at Railway’s cost.

Widening of Existing ROB.

Upgrading of a level Crossing.

Interlocking of an existing Level crossing

## PART ‘B’

**Attempt any two questions. All Questions carry equal marks. One mark is for neatness.**

**Q.1.-** ( a ) What is the procedure for creation of additional posts for additional assets. 6 marks.

( b ) How Group ‘D’ vacancies are filled up these days on Railways. 6 marks.

**Q.2.-** What procedure is to be adopted for change of classification of staff from one category to other under HOER Rules. 12 marks.

**Q.3.-** What is meant by –

Permanent total disablement & Permanent partial disablement in case of an accidental injury to Railway workman. What is the compensation admissible in both the cases?

12 marks.

## PART ‘C’

**Attempt any ten questions. All Questions carry equal marks. 10 x 10 = 100 marks.**

**Q.1.-** Explain with hand sketch, the method of building a bridge under running line by ‘box pushing’ method. What are the advantages and disadvantages of this method.

**Q.2.-** Please explain the important items to be observed while inspecting a multi span plat Girder Bridge of 18.3 m span.

**Q.3.- ÊEòºÉ |ÉªÉÉäVÉxÉ Eäò Ê±ÉB Eäò´É±É Ë½þnùÒ ¨Éå {ÉjÉÉSÉÉ®ú +ÊxÉ´ÉÉªÉÇ ½èþ \* ¨ÉÚ±É {ÉjÉÉSÉÉ®ú ÊEòºÉä Eò½þiÉä ½èþ \***

**Q.4.-** Explain in brief the classification of Rail / weld defects for need based concept of USFD.

**Q.5.-** List the various types of small track machines. Write short notes on any two small track machines.

**Q.6.-** ( a ) What are the different methods of chlorination available for disinfection of water? Indicate the form of chlorine use in each of them. 6 marks.

( b ) What do you mean by and how do you check ‘residual chlorine’’? 4 marks.

**Q.7.-** Write short notes on any Three of the following - 5 x 2 = 10 marks.

* + - * 1. Cant Deficiency and Cant Excess.
        2. Score depth and danger level.
        3. Design mix and quality control in concrete.

**Q.8.-** Suggest a scheme for replacing of existing early steel plate girders of 10 x 18,3 m span by new MBG welded girders received at site on a single branch line non electrified section Daily / Weekly Blocks of required duration can be arranged on this section and adequate width is available on abutments and piers for temporary arrangements and all spans are having flowing water.

**Q.9.-** Write the important items to be inspected during level Crossing inspection. How do you take census of traffic at level crossing. 7 + 3 = 10 marks.

**Q.10.-** Describe briefly the specifications of machine crushed ballast. What are the important precautions required while measurement & passing of ballast.

**Q.11.-** What are the different types of Patrolling? When these are adopted? What are points to be considered while preparing the charts?

**Q.12.-** ( a ) As an AEN what precautions you will take while casting of an RCC slab of room.

( b ) Show the details of reinforcement of an over hanging canopy with a sketch.

**Q.13.-** You have been posted as an open Line AEN in charge of works and track. Draw your annual inspection schedule taking into consideration the latest CE’s Circular on the subject.

**Q.14.-** What are the items to be attended on the track for getting best result from machine tamping at the following periods –

1. Before Tamping.
2. During Tamping.
3. After Tamping.

**Q.15.-** What are the various items to be checked while inspecting 1 in 12 turnout on PSC sleeper with CMS crossing and curved switch.

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