

06

Optional Paper
Civil Engineering
Paper – II

Time : 3 Hours

Maximum Marks : 200

IMPORTANT NOTES / महत्वपूर्ण निर्देश

- (A) Please fill up the OMR Sheet of this Question Answer Booklet properly before answering. Please also see the directions printed on the obverse before filling it.
प्रश्नोत्तर पुस्तिका में प्रश्न हल करने से पूर्व उसके संलग्न ओ.एम.आर. पत्रक को भली प्रकार भर लें। उसे भरने हेतु उसके पृष्ठ भाग पर मुद्रित निर्देशों का अध्ययन कर लें।
- (B) The question paper has been divided into three Parts - A, B and C. The number of questions to be attempted and their marks are indicated in each part.
प्रश्न-पत्र अ, ब और स तीन भागों में विभाजित है। प्रत्येक भाग में से किये जाने वाले प्रश्नों की संख्या और उनके अंक उस भाग में अंकित किये गये हैं।
- (C) Attempt answers in English.
उत्तर अंग्रेजी भाषा में दीजिये।
- (D) Answers to all the questions of each part should be written continuously in the script and should not be mixed with those of other parts. In the event of candidate writing answers to a question in a part different to the one to which the question belongs, the question will not be assessed by the examiner.
उत्तर पुस्तिका में प्रत्येक भाग के समस्त प्रश्नों के उत्तर क्रमवार देने चाहिये तथा एक भाग में दूसरे भाग के उत्तर नहीं मिलाने चाहिये। एक भाग में दूसरे भाग के प्रश्न के उत्तर लिखे जाने पर ऐसे प्रश्न को जाँचा नहीं जा सकता है।
- (E) The candidates should not write the answers beyond the limit of words prescribed in parts A, B and C failing this the marks can be deducted.
अभ्यर्थियों को भाग अ, ब और स में अपने उत्तर निर्धारित शब्दों की सीमा से अधिक नहीं लिखने चाहिये। इसका उल्लंघन करने पर अंक कांटे जा सकते हैं।
- (F) In case the candidate makes any identification mark i.e. Roll No./Name/Telephone No./Mobile No. or any other marking either outside or inside the answer book, it would be treated as resorting to using unfair means. In such a case his candidature shall be rejected for the entire examination by the Commission.
अभ्यर्थी द्वारा उत्तर पुस्तिका के अंदर अथवा बाहर पहचान चिन्ह यथा – रोल नम्बर / नाम / मोबाईल नम्बर / टेलीफोन नम्बर लिखे जाने या अन्य कोई निशान इत्यादि अंकित किये जाने को अनुचित साधन मान जायेगा। आयोग द्वारा ऐसा पाये जाने पर अभ्यर्थी की सम्पूर्ण परीक्षा में अभ्यर्थिता रद्द कर दी जायेगी।



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PART – A

Marks : 40

Note : Attempt all the **twenty** questions. Each question carries **2** marks. Answer should not exceed **15** words.

1 Which method would you apply for locating inaccessible points in plane table survey.

2 Write down the arithmetic check for rise and fall method in levelling.

3 Define the term 'Contour interval'.



4 Find the radius for 6 degree simple circular curve having standard chord length 30m.

5 Define the term building stone.

6 Define Asphalt.



7 Explain the meaning of term damp-proofing.

8 What type of flooring will you suggest for :

- (a) Gymnasium
- (b) Dancing hall
- (c) Theater
- (d) Important temple

9 State the relation between duty and delta.



10 State the factors affecting rainfall.

11 Define canal lining.

12 State the factors governing the selection of a particular dam.



13 Explain the term traffic.

14 Mention the formula for Super elevation.

15 Define the term Camber.



16 Write the name of various types of survey to be carried out for locating a proposed road.

17 Name any four water-borne diseases.

18 Define pH.



19 Define the term Most Probable Number - MPN.

20 Write down the Indian Standards for quality of drinking water for the following :

- (a) pH
- (b) Turbidity
- (c) Hardness
- (d) Fluorides



Note : Attempt all the twelve questions. Each question carries 5 marks. Answer should not exceed 50 words.

21 Name the fundamental lines of theodolite and their desired relationship.

22 The following bearings were taken in traversing with a compass in a place where local attraction was suspected.

Line	Fore Bearing	Back Bearing
AB	134°30'	314°30'
BC	120°00'	299°20'
CD	174°30'	356°40'
DA	355°30'	174°00'

Calculate the corrected fore and back bearings of each of the lines.



23 Name and state the formulae for computation of volume. Also write down their limitation if any.

24 Write in brief the different factors affecting properties of concrete.



25 Draw a simple sketch of a jack arch roof and illustrate the construction of jack arches.

26 Define and state the use of hydrographs.



27 Draw a layout of diversion head work and name the component parts.

Lined area for drawing and naming components of diversion head work.

28 Explain Traffic engineering, and also explain traffic volume study method of traffic census.

Lined area for explaining traffic engineering and traffic volume study methods.



29 Explain penetration macadam and bituminous macadam.

30 “Distilled water is not portable water”. Discuss.



31 There is difference in the design of water supply pipe and sewer. State such four parameters.

32 Explain self purification of streams.



Note : Attempt any 5 questions. Each question carries 20 marks. Answer should not exceed 200 words.

33 The following readings were taken with a Dumpy level and a 3 m staff on a continuously sloping ground at common interval of one chain (30 m)
0.780, 1.535, 1.955, 2.240, 2.430, 2.985, 1.155, 1.960, 2.365, 2.895, 0.935, 1.045, 1.635 and 2.545.

The reduced level of first point P was 190.750 m. Enter the readings in the form of a level book page and find the reduced levels of the points. Apply usual check. Also calculate the gradient of the line joining the first and the last point.













38 Draw a general layout of sewage treatment plant for a town. State names and main function of each unit of sewage treatment plant.

[Lined area for drawing and text]







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