Answer BookletNo.----------

EP-RPSC-AE-18M-03-SW-CE

Optional Paper

Subject:**CIVILENGINEERING** RollNo._____
(InFigures)

RollNo._____

Total Pages :**32**
Time : 3Hours

_____
(In Words)

MaximumMarks : **200**

(Signature oftheInvigilator) (Signature of theCandidate)

FOR EXAMINER'S USE ONLY

Marks Obtained

PART-A		PART-B		PART-C	
Q.No.	Marks Obtained	Q.No.	Marks Obtained	Q.No.	Marks Obtained
1		21		33	
2		22		34	
3		23		35	
4		24		36	
5		25		37	
6		26		38	
7		27		39	
8		28			
9		29			
10		30			
11		31			
12		32			
13					
14					
15					
16					
17					
18					
19					
20					
Total		Total		Total	

INSTRUCTIONS FOR CANDIDATES

1. Write your Roll Number in the space provided on the top of this page.
2. Read the instructions given insidecarefully.
3. Two pages are attached at the end of the Test Booklet for rough work.
4. You should return the Test Booklet to the Invigilator at the end of the examination and shouldnotcarryanypaperwithyououtsidethe examinationhall.
5. A candidate found creating disturbance at the examination center or misbehaving with Invigilation Staff or cheating will render himself liable todisqualification.

Marks Obtained

PART-A:

PART B:

PART-C:_____

Total: _____

_____. _____. _____.

(Marksin Words) (SignatureofExaminer) (Signature of HeadExaminer)

RSM-08 CIVIL ENGINEERING - I

Time: Three**Hours** **Maximum Marks**:**200**

IMPORTANT NOTE

(a) Thequestionpaperhasbeendividedintothreeparts-PartA,BandC.Thenumberofquestions to be attempted and their marks are indicated in eachpart.

(b) Attempt answers **either** in Hindi or English, not inboth.

(c) Writetheanswersinthespaceprovidedbeloweachquestion.AdditionalBookletorBlankPaper will neither be provided notallowed.

(d) The candidates should not write the answers beyond the limit of words prescribed in Parts A, B and C, failing which the marks can bededucted.

(e) In case candidate makes any identification mark i.e. Roll No./Name/Telephone No./Mobile No. oranyothermarkingeitheroutsideorinsidetheanswerbook,itwouldbetreatedasusingunfair means. The candidature of the candidate for the entire examinations shall be rejected by the Commission, if he is found doingso.

PART-A

Marks: 40

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

1.What is plane stress condition?

2.Write down 04 examples of Plane Stress Condition.

3.What is major principle plane?

4.What is minor principle plane?

5.What is the angle between major principle plane and minor principle plane?

6.What is the angle between major principle plane and the plane of maximum shear stress?

7.What is the angle between minor principle plane and plane of maximum shear stress?

8.Which failure theory is best for ductile materials?

9.Which failure theory is best for brittle materials?

10.Which is the most conservative failure theory?

11.What is pure bending?

12.What is nonuniform bending?

13.Write down the flexure formula?

14 What is elastic section modulus?

15.What do you mean by Moment of Resistance?

16.What is shear flow and What is shear center?

17. What is Kern?

18.What is pure torsion? Define 'Torsion'. Write down the torsion formula.

19.What do you mean by a column?

20.What do you mean by a thin shell? Name the theory based on that analysis of thick shells are done.

PART-B

Marks: 60

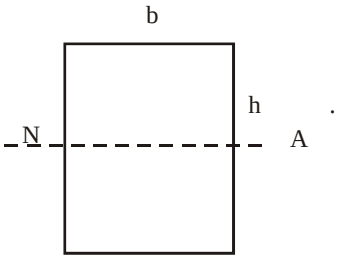
Note- Attempt all the twelve questions. Each question carries 5 marks. Answer should not exceed 50 words.

1.What do you mean by transformation of stresses? Explain in brief.

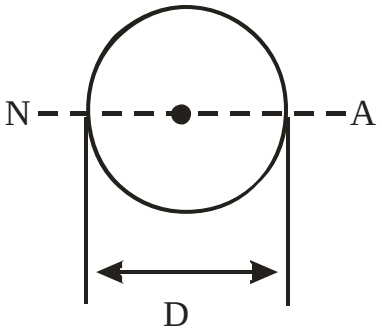
2.What are the assumptions of pure bending theory?

3.Find out the elastic section modulus of following sections?

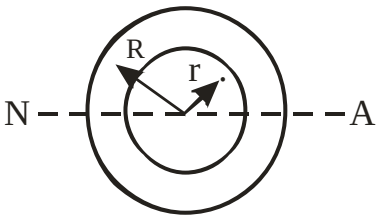
(a)



(b)



(c)



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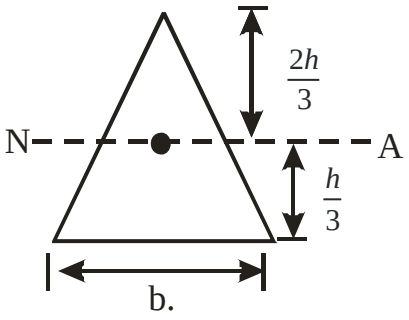


4.Justify the use of I- section as a beam.

5.What do you understand by beam of constant strength? Write down its at-least 02 uses?

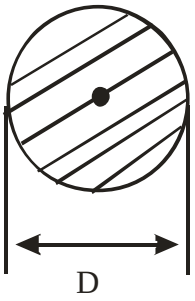
6.Find out maximum shear stress on the cross section of a rectangular cross section.

7.What do you mean by equivalent moment? Explain.

8.What do you mean equivalent torque? Explain.

9.Mark the Kern area for the following cross sections.

(a)



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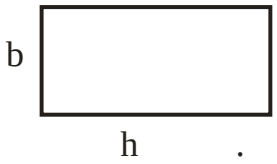

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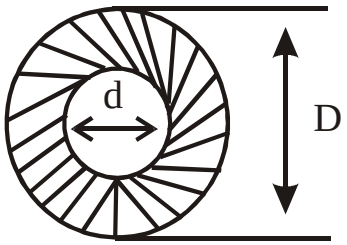
(c)



10.What are the basic assumptions which are used while driving torsion formula?

11.What are the various types of columns? On what basis columns are classified?

12.Write down the basic assumptions of Euler's Theory. Also explain the 'Rankine Formula'.

PART-C

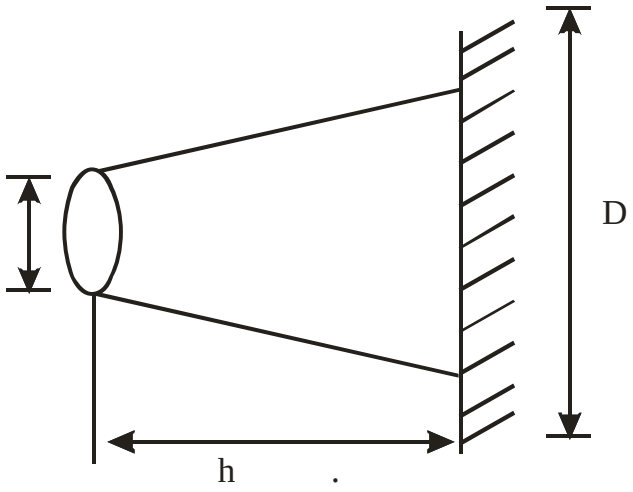
Marks: 100

Note- Attempt any 5 out of 7 Questions. Each question carries 20 marks. Answer should not exceed 200 words.

1. Why do we study theories of failure? Explain at-least any 05 theory in detail.

2. Drive the flexure formula.

3.A cantilever beam has a circular cross section with the variation of diameter as shown below. Calculate the location at which maximum bending stress will act.



4.Find out the maximum shear stress on circular cross section.

5. Find out the maximum shear stress on triangular cross section.

6.Find out the maximum shear stress on diamond cross section.

7.Find out the maximum shear stress on thin tubular cross section

8.Drive the torsion formula.

9.Drive the formula for critical buckling load when both the ends are hinged.