

PRINTED SAMPLE

→ 257 ←

EA/634

2013

Series



NOFFNO. 24/2012

d.o.e: 16/6/2013

CONCERNED SUBJECT

(English Version)

Paper - II

Time : 150 Minutes

Max. Marks : 150

INSTRUCTIONS

1. Please check the Test Booklet and ensure that it contains all the questions. If you find any defect in the Test Booklet or Answer Sheet, please get it replaced immediately.
2. The Test Booklet contains 150 questions. Each question carries 1 mark.
3. The Test Booklet is printed in four (4) Series, viz. A B C D. The Series, A or B or C or D is printed on the right-hand corner of the cover page of the Test Booklet. Mark your Test Booklet Series A or B or C or D in Part C on side 1 of the Answer Sheet by darkening the appropriate circle with Blue/Black Ball point pen.

Example to fill up the Booklet Series

If your Test Booklet Series is A, please fill as shown below :



If you have not marked the Test Booklet Series at Part C of side 1 of the Answer Sheet or marked in a way that it leads to discrepancy in determining the exact Test Booklet Series, then, in all such cases, your Answer Sheet will be invalidated without any further notice. No correspondence will be entertained in the matter.

4. Each question is followed by 4 answer choices. Of these, you have to select one correct answer and mark it on the Answer Sheet by darkening the appropriate circle for the question. If more than one circle is darkened, the answer will not be valued at all. Use Blue/Black Ball point pen to make heavy black marks to fill the circle completely. Make **no** other stray marks. Use of whitener is prohibited. If used the Answer Sheet is liable for invalidation.

e.g. : If the answer for Question No. 1 is Answer choice (2), it should be marked as follows :



5. Use Blue/Black Ball Point Pen only, failing which your Answer Sheet will be invalidated. Gel pens/pencils are not allowed. It is not required to darken the second copy separately.

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6. Mark Paper Code and Roll No. as given in the Hall Ticket with Blue/Black Ball point pen by darkening appropriate circles in Part A of side 1 of the Answer Sheet. Incorrect/not encoding will lead to *invalidation* of your Answer Sheet.

Example : If the Paper Code is 027, and Roll No. is 95640376 fill as shown below :

Paper Code

0	2	7
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Roll No.

9	5	6	4	0	3	7	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please get the signature of the Invigilator affixed in the space provided in the Answer Sheet. An Answer Sheet without the signature of the Invigilator is liable for *invalidation*.
8. DO NOT fold, tear, wrinkle, tie, staple, do any rough work or make any stray marks on the OMR Answer Sheet, otherwise your Answer Sheet will be invalidated.
9. Using the Whitener/Blade/Eraser or any kind of tampering to change the answers on OMR Answer Sheet will lead to invalidation.
10. Do **not** mark answer choices on the Test Booklet. Violation of this will be viewed seriously.
11. Before leaving the examination hall, the candidate should hand over the original OMR Answer Sheet (top sheet) to the Invigilator and carry the bottom sheet (duplicate) for his/her record, failing which disciplinary action will be taken.

1. The ratio of shear modulus to the elastic modulus for a Poisson's ratio of 0.4 will be
- (1) 5/6
 - (2) 6/5
 - (3) 3/5
 - (4) 1/2
2. The maximum strain energy stored in a body without permanent deformation is
- (1) Resilience
 - (2) Proof Resilience
 - (3) Modulus of Resilience
 - (4) Impact Resilience
3. The shape of the kern area for a rectangular section is
- (1) circle
 - (2) square
 - (3) rectangle
 - (4) parallelogram
4. A train starts from rest on a curved track of radius 800 m. Its speed increases uniformly and after 3 minutes it is 72 km/hr. The tangential acceleration after 2 minutes would be
- (1) $\frac{1}{9}$ m/sec²
 - (2) $\frac{2}{9}$ m/sec²
 - (3) $\frac{1}{2}$ m/sec²
 - (4) $\frac{1}{3}$ m/sec²
5. The maximum stress induced in a body if the load 'P' is applied suddenly upon an area of cross section 'A' is
- (1) P/A
 - (2) 2 P/A
 - (3) 3 P/A
 - (4) 4 P/A
6. The maximum stress induced in a body if the load 'P' is applied with impact upon an area of cross section 'A' is
- (Where h = Height through which the load falls
E = Modulus of rigidity
L = Length of the body)
- (1) $\frac{P}{A} \left(1 + \sqrt{1 + \frac{2AEh}{PL}} \right)$
 - (2) $\frac{P}{A} \left(2 + \sqrt{1 + \frac{2AEh}{PL}} \right)$
 - (3) $\frac{P}{A} \left(1 + \sqrt{2 + \frac{2AEh}{PL}} \right)$
 - (4) $\frac{P}{A} \left(2 + \sqrt{2 + \frac{2AEh}{PL}} \right)$
7. Poisson's ratio for a cast iron is _____
- (1) 0.27
 - (2) 0.31
 - (3) 0.33
 - (4) 0.36
8. The tensile longitudinal stress produces
- (1) Compressive longitudinal strain
 - (2) Tensile longitudinal strain
 - (3) Shear strain
 - (4) Tensile lateral strain
9. Rivets are made normally of _____ material.
- (1) Brittle
 - (2) Hard
 - (3) Ductile
 - (4) Malleable
10. The depth of weld in case of a butt weld is _____ the thickness of the plate.
- (1) Less than
 - (2) More than
 - (3) Two times
 - (4) Equal to

11. An angle section welded to a plate is an example of
- (1) Symmetrical welded joint
 - (2) Unsymmetrical welded joint
 - (3) Axi-symmetrical welded joint
 - (4) Symmetrical welded section
12. In case of thin walled cylinders, the ratio of longitudinal stress is _____.
- (1) 2
 - (2) 1/2
 - (3) 4
 - (4) 1/4
13. If the value of Young's modulus of elasticity is zero, it implies that the material is
- (1) highly elastic
 - (2) plastic
 - (3) compressible
 - (4) incompressible
14. All short columns fail due to
- (1) Crippling
 - (2) Buckling
 - (3) Crushing
 - (4) Twisting
15. For a beam of span 'L' subjected to a couple 'M' at the centre, the shear force at the left support is _____.
- (1) $\frac{4M}{L}$
 - (2) $\frac{2M}{L}$
 - (3) $\frac{M}{L}$
 - (4) Zero
16. The load at which the column just buckles is called
- (1) Breaking load
 - (2) Permissible load
 - (3) Crippling load
 - (4) Ultimate load
17. The Crippling load (P) for a column by Euler's formula when both ends are hinged is
(Where E = Young's Modulus of the material of the column
L = Actual length of the column
I = Least moment of inertia of the column)
- (1) $\frac{\pi^2 EI}{L^2}$
 - (2) $\frac{\pi^2 EI}{4L^2}$
 - (3) $\frac{4\pi^2 EI}{L^2}$
 - (4) $\frac{2\pi^2 EI}{L^2}$
18. A uniform beam of effective length L, fixed at one end and loaded at the centre, will have maximum deflection at
- (1) free end
 - (2) $\frac{L}{\sqrt{3}}$ from free end
 - (3) $\frac{L}{\sqrt{2}}$ from free end
 - (4) $\frac{L}{\sqrt{5}}$ from free end

