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| E.G.S-Pillay-Engineering-College-Logo.jpg | **https://www.anexia-it.com/fileadmin/_processed_/csm_iso-9001-logo_01_1f19c84ee4.pngE.G.S. PILLAY ENGINEERING COLLEGE**  Approved by AICTE, New Delhi | Affiliated to Anna University, Chennai  Accredited by NAAC with ‘A’ Grade | An ISO 9001 : 2008 Certified Institution  **NAGAPATTINAM – 611002 TAMIL NADU INDIA**  Ph : 04365-251112 / 251114 | E-mail:enquires@egspec.org | Website : www.egspec.org |  |
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**CYCLE TEST-I**

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| Sem & year | | : III & II | Date & Session | : 17.08.2016 & AN | | | |
| Branch | | : CIVIL- B | Max. Time | : 3 Hours | | | |
| Subject Code | | : Mechanics of Solids | Subject Code | : CE6302 | | | |
| Staff Name | | : V.Balasubramani | Max. Marks | : 100 marks | | | |
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| Q.No. | PART-A ANSWER ALL THE QUESTIONS (10X2=20 Marks) | | | | M | CO# | BL |
| 1. | Define point of contra flexure or point of inflexion? | | | | 2 | 3 | R |
| 2. | Define simple bending and bending stresses. | | | | 2 | 4 | U |
| 3. | When will be the bending moment is maximum? | | | | 2 | 4 | AP |
| 4. | What are the assumptions made in theory of simple bending? | | | | 2 | 3 | R |
| 5. | What is meant by section modulus?Find it for rectangular section. | | | | 2 | 3 | R |
| 6. | What are the types of transverse load? | | | | 2 | 4 | U |
| 7. | Define Shear force and Bending moment at a section. | | | | 2 | 3 | U |
| 8. | Draw shear force and bending moment diagram of a cantilever beam subjected to point load at free end. | | | | 2 | 3 | R |
| 9. | Draw shear force and bending moment diagram of a cantilever subjected to udl throught its length | | | | 2 | 3 | R |
| 10. | What is the differential equation for bending moment? | | | | 2 | 4 | R |
|  |  | | | |  |  |  |
| Q.No. | PART-B ANSWER ALL THE QUESTIONS (5X13=65 Marks) | | | | M | CO# | BL |
| 11.a | A simply supported beam of length 10m, carries the uniformly distributed load and two point loads as shown in fig.Draw shear force and Bending moment for the beam. Also calculate the maximum bending moment. | | | | 13 | 3 | U |
|  | (OR) | | | |  |  |  |
| 11.b | Draw the shear force ad Bending moment diagram of a simply supported beam of length 7m carrying uniformly distributed load as shown in fig | | | | 13 | 3 | U |
| 12.a | Draw the shear force and bending moment diagram of the overhanging beam carrying uniformly distributed load of 2KN/m over the entire length of and a point load of 2KN as shown in fig. Locate the point of contra flexure | | | | 13 | 4 | R |
|  | (OR) | | | |  |  |  |
| 12.b | Draw the shear force and bending moment diagram of the overhanging beam as shown in fig. | | | |  |  |  |
| 13.a | A simply supported beam AB of span 4 meters is subjected to two point loads of 2KN and 4KN each at C and D, distances of 1.5m and 3m from the left end. Calculate the shear force and bending moments values at sailent points. | | | | 13 | 3 | U |
|  | (OR) | | | |  |  |  |
| 13.b | A Cantilever beam 1.5m long, fixed at A is carrying point loads of 1000 Kg at B,C and D each and at distances of 0.5meter,1.0meter and 1.5 meter from the fixed end. Calculate the shear force and bending moments at salient points. | | | | 13 | 3 | U |
| 14.a | A rectangular beam 200mm deep and 300mm wide is simply supported over a span of 8m. What uniformly distributed load per meter the beam | | | | 13 | 3 | R |
|  | (OR) | | | |  |  |  |
| 14.b | A flitched beam is made up of two timber joists , each 60mm wide and 100mm deep,with a 10mm thick and 80mm deep steel plate placed symmetrically between them on vertical faces. Determine the total moment of resistence of the section if the permissible stress in the timber joist is 7N/mm2. Take the modular ratio between and timber as 20 | | | | 13 | 4 | AP |
| 15.a | A beam of length 6m is simply supported at its ends and carries two point loads of 48KN and 40KN at a distance of 1m and 3m respectively from the left support.Find  (i)deflection under each load  (ii)maximum deflection and  (iii) the point at which maximum deflection occurs  Given E= 2 x 105N/mm2 and I = 85 x 106mm4 | | | | 13 | 3 | U |
|  | (OR) | | | |  |  |  |
| 15.b | A beam AB of span 7m is simply supported at its ends A and B. It carries a point load of 10KN at a distance of 3m from the end A and a uniformly distributed load of 6KN/m over the right half span length.Determine(i) the maximum deflection in the beam and (ii) slope at the ends. Take EI =10000KN-M2 | | | | 13 | 3 | U |
|  |  | | | |  |  |  |
| Q.No. | PART-C (1X15=15 Marks) | | | | M | CO# | BL |
| 16.a | A cantilever of length 2m carries a uniformly distributed load of 1.5KN/m over the whole length and a point load of 2KN at a distance of 0.5m from the free end.Draw the shear force and B.M diagram for the cantilever | | | | 15 | 4 | R |
|  | (OR) | | | |  |  |  |
| 16.b | An overhanging beam ABC of length 8m is simply supported at B and C over span of 6m is and the portion AB over hangs by 2m.Draw the shearing force and bending moment diagrams and determine the point of contraflexure if it is subjected to uniformly distributed load of 3KN/m over the portion of AB and 4KN/m over the portion BC. | | | | 15 | 4 | U |