ANJUMAN-I-ISLAM'S

Symbol of Secularism & National Integration

SECOND YEAR B.ARCH- SEM IV EXAMINATION APRIL 2016

Subject: Theory and Design of Structures IV.　　　　　Max Marks: 50

Date: 11/04/2016　　　　　Duration: 2 hrs.

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Note : 1) **Question no. 1 is compulsory**. Attempt any 3 from out of the remaining 4 questions.

　　　2) Figures to the right indicate full marks.

　　　3) Assume suitable data wherever necessary, and state clearly the same.

　　　4) Use of non-programmable scientific calculators is allowed.

Q 1] Attempt any 4.　　　　　　　　　　　　　　　　　　　　　　　[20]

　　a) Define Porosity, Void ratio, Safe bearing capacity, Bulk density and Degree of saturation.
　　b) What are the assumptions made in Euler's Theory.
　　c) Explain Compaction and Consolidation of soil.
　　d) Write methods of improving soil properties.
　　e) Explain what is a Fixed Beam and write it's advantages.

Q 2] a) Analyze the Fixed beam shown below in Fig.1 and draw its BMD　　　[4]

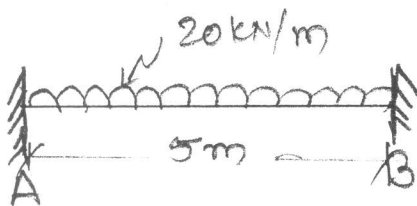　　　b) Analyze the Fixed beam shown below in Fig.2 and draw its BMD.　　　[6]
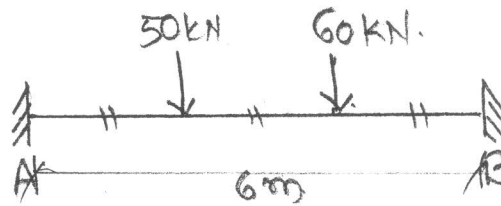

Fig.1
(Q.2.a)

Fig 2
(Q.2.b)

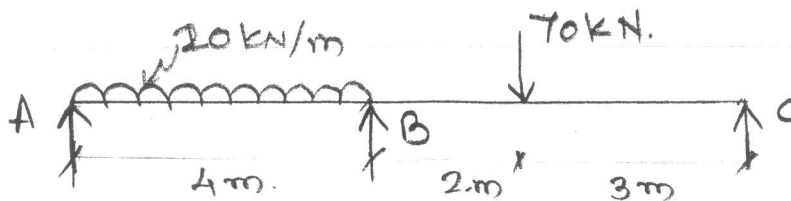Q 3] a) Analyze the Continuous beam shown below in Fig.3　　　　　[10]

Fig.3.
Q.3.

Q 4] a) Explain what is meant by the effective length of a column and write its value for different end conditions [4]

b) Write Rankine's Formula and Euler's Formula for finding the load on columns. [2]

c) A 3m long hollow circular cross-section 40 mm dia and 3 mm thick, is used as a column, with both ends fixed. Find the safe load it can carry. Take $E = 2 \times 10^5 \, N/mm^2$ [4]

Q 5] a) Draw and Explain the Plate load test on Soil . [5]

b) Draw the different standard steel sections used for structural members. [5]

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SECOND YEAR B.ARCH- SEM IV EXAMINATION APRIL 2016

Subject: Architectural Building Construction
Max Marks: 50

Date: 16th April 2016   Duration: 3 Hrs

Q.1 Define & sketch the following (Attempt any 4)   **(20 marks)**

A) Collapsible and rolling shutters.

B) Grillage foundation .

C) Sketch & define different structural steel elements.

D) Detail at junction between strut and purlin .

E) Glass curtain to steel structure details .

Q.2 Draw a typical section through steel column from footing to the terrace level .   **(20 marks)**

    Consider structure to be G+2 .

OR

Q.3 Show a detail between landing beam and stringer through sketches.

Q.4 Gutter detail for north light truss.   **(05 marks)**

Q.5 Advantages and disadvantages of steel structure.   **(05 marks)**

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Approved & Recognised by: All India Council for Technical Education and Council of Architecture, New Delhi

Directorate of Technical Education, Govt. of Maharashtra Affiliated to: University of Mumbai

SECOND YEAR YEAR B.ARCH SEM IV EXAMINATION 2016

Subject: Humanities
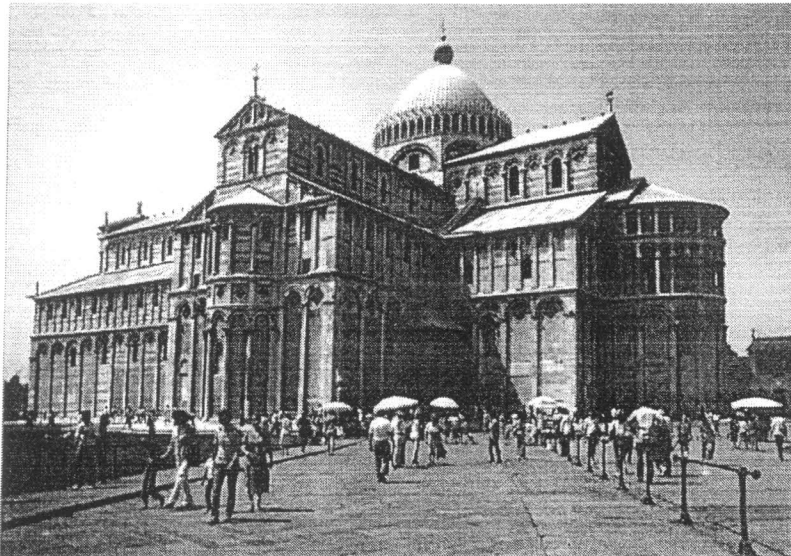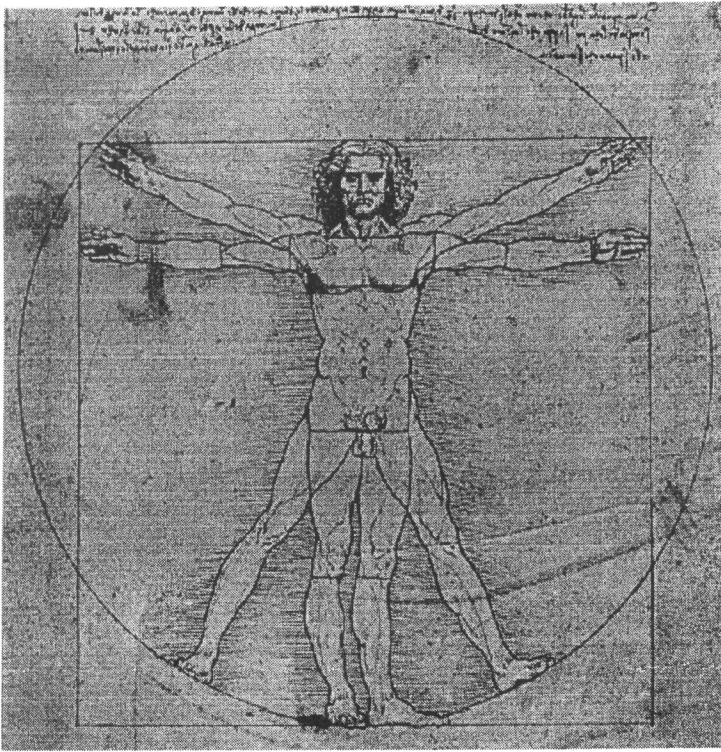Max Marks: 50

Date: 13/04/2016   Duration: 2 Hrs

ANSWER ALL QUESTIONS THROUGH INFO-GRAPHICS
WRITE ANSWERS IN POINTERS.
ANSWER ANY FIVE
EACH QUESTION CARRIES 10 MARKS

1. Post modern structures are all about drawing inspiration from the classical period. Point out these inspirations in architecture throughout Mumbai. Draw and explain.

2. Write a short note on Romanesque architecture. Elaborate on factors that affected the Romanesque architecture in France, England and Italy.

3. Notre dame in Paris is a Gothic structure. What are the features that allow you to call the cathedral a Gothic structure. Draw and explain.

4. Identify the images below and write a short note on the same.

5. If you are asked to draw inspiration from Roman architecture and build a watchman's cabin for the Pantheon, how would you go about the design and what modifications would you incorporate? Design and explain.

6. Do you feel that public architecture and religious structures have a symbiotic relationship? The Greeks built theaters along the temples, how does this work? Will it work now?

7. Write a short note on
i. Hagia sophia
ii. Early christian art
iii. Milan cathedral
iv. Ribbed vaults
v. Flying buttresses

8. What do you understand by the "classical orders". Draw and explain.

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Directorate of Technical Education, Govt. of Maharashtra **Affiliated to:** University of Mumbai

SECOND YEAR B.ARCH Sem IV EXAMINATION APRIL 2016

Subject: Building Services   Date: 12/4/2016

Notes:
- Question 1 is compulsory
- Solve any 4 questions out of remaining six.
- Numbers on the right hand side indicate marks.

Q 1.   Design a septic tank and soak pit for a building with total no. of 45 residents and draw a sketch of the same.   (10)

Q 2.   What is rain water harvesting? Draw and explain the process of rain water harvesting with the help of a neat schematic diagram.   (10)

Q 3.   Write a short notes on : (Any four)   (10)

   a. Grease Trap
   b. Inspection Chamber
   c. First flush pipe
   d. Soak Pit
   e. Contour trenching

Q4.   Enumerate various sewer appurtenances. Explain any five sewer appurtenances in detail with sketches.   (10)

Q5.   Draw sketch and explain any three traditional methods of rain water harvesting used in India. (10)

Q6.   Write a short notes on : (Any four)   (10)
   a. Recharge pit
   b. Rain water harvesting calculation
   c. One pipe system of plumbing
   d. Conservancy system of drainage
   e. Drop manhole

Q7.   Make a flow chart starting from the source of water upto the ultimate disposal of waste.   (10)