



ANJUMAN-I-ISLAM'S

**KALSEKAR TECHNICAL CAMPUS, NEW PANVEL**

Approved by : All India Council for Technical Education, Council of Architecture, Pharmacy Council of India New Delhi,  
Recognised by : Directorate of Technical Education, Govt. of Maharashtra, Affiliated to : University of Mumbai.

- SCHOOL OF ENGINEERING & TECHNOLOGY  
 SCHOOL OF PHARMACY  
 SCHOOL OF ARCHITECTURE

**SECOND YEAR B. ARCH- SEMESTER IV EXAMINATION APRIL 2018. (Reg.)**

SUBJECT: Theory and Design of Structures IV

Duration: 2 hours

TOTAL MARKS: 50

Date: 17/4/2018.

Notes:

- 1) Question no 1 is compulsory, attempt any 3 questions from the remaining 4 questions.
- 2) Figures to the right indicate full marks.
- 3) Assume suitable additional data, if necessary and state clearly the same.
- 4) Use of non-programmable scientific calculator is permitted.

**Q.1. Attempt any 4.**

**[20]**

- i) Explain Euler's Theory, and state its assumptions.
- ii) Explain the advantages of fixed beams.
- iii) Explain with sketches, what are Portal Frames, What are its advantages.
- iv) Explain Stiffness coefficients, Distribution Factors, Carry over Moment, Fixing End Moments.
- v) Differentiate between Long and Short columns.

**Q.2. i) Analyze the Fixed Beam shown in Fig.1. Draw SFD & BMD.**

**[4]**

**ii) Analyze the Fixed Beam shown in Fig. 2.**

Draw SFD & BMD, also find Support Reactions.

**[6]**

**Q.3. Analyze the Continuous Beam shown in Fig.3. Draw SFD & BMD. Find Support Reactions.**

**[10]**

**Q.4. Analyze the Portal frame shown in Fig. 4. Draw BMD.**

**[10]**

**Q.5. i) Find the safe load carrying capacity of a steel column 100mm dia, with 3 mm thickness; when is placed as column 6m High with both ends held in position but not restrained against rotation.**

**[4]**

**ii) Give a broad classification of Soils. Explain Plate load test of finding bearing capacity of soil.**

**[6]**

PTO

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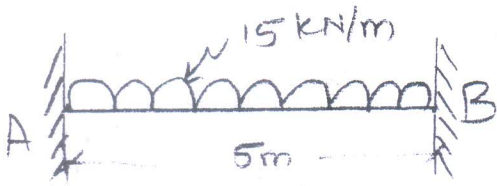


Fig. 1. Q. 2i)

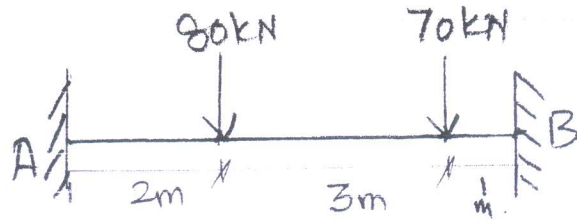


Fig. 2. Q. 2ii)

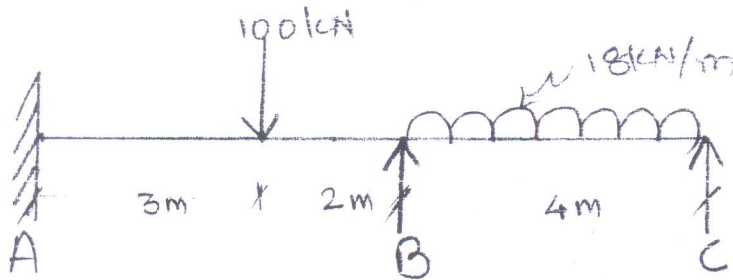


Fig. 3. Q. 3

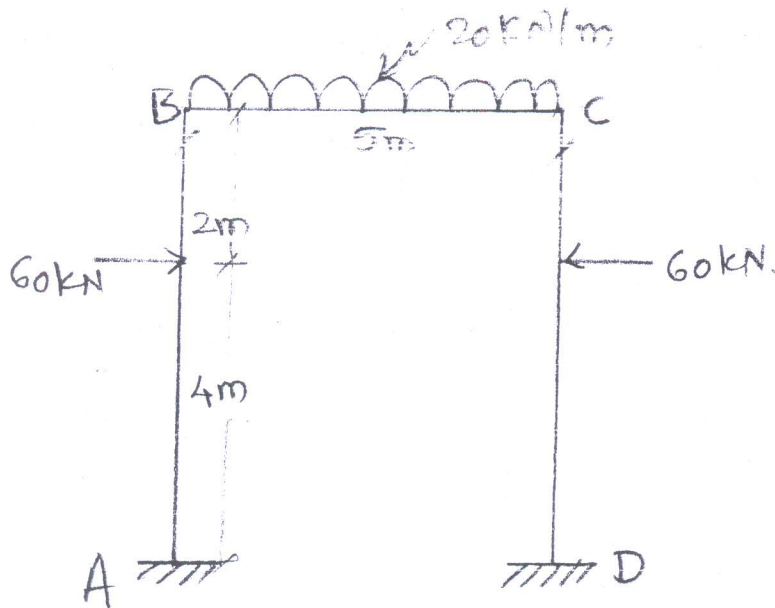


Fig. 4. Q. 4



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**SECOND YEAR B.ARCH- SEM IV EXAMINATION APRIL 2018**

Subject: Architectural Building Construction

Max Marks: 50

Date: 18/04/2018

Duration: 3 Hrs

NOTES:

Question no. 2 is compulsory, attempt any 2 questions out of remaining.

Assume suitable data. Draw neat and proportionate sketches wherever necessary.

- Q.1.A Draw sectional elevation of steel grillage foundation (suitable scale) considering data below. 15
- Excavation - 3000(L) x 3000(B) x 1200 (D)  
P.C.C in 1:3:6 - 2700(L) x 2700(B) x 150 (D)  
Concreting above P.C.C - 2550(L) x 2550(B) x 1050 (D) upto ground level.  
250mm above P.C.C top, provide M.S joist as lower ties (9 nos.) 150(W) x 200(D) which are in concreting.  
ISMB 150(W) x 300(D) as upper ties (3 nos.) in concreting.  
Angle tie 50 x 50 x 6mm running end to end.  
Spacing bar as per required length end to end for lower as well as upper ties.  
Base plate 1200 x 1200 x 18mm above upper ties (3 nos.).  
Channel section as column above (Assume suitable size).  
Above ground level, take 450mm concrete opla with granite stone finishing for sitting (1500 x 1500) on Railway platform.
- Q.1.B Explain in brief where and why steel grillage foundation is used. 5
- Q.2. Fill in the blank OR correct the sentence OR give answer in one line with justification (Any 10) 10
- All steel members are to be painted with suitable \_\_\_\_\_ whenever exposed.
  - Draw the sketch of equal and unequal angle indicating flange, fillets and web.
  - Steel structure is generally fireproof. Say right or wrong with justification.
  - Why Industries are generally constructed in steel structures?
  - In a factory building, steel trusses are placed 4.0M. c/c. Clear span of the truss is 9.0M. Find the effective span of thickness of the wall is 230mm.
  - Facia is fixed to the end of the rafter. Say right or wrong.
  - In sloping roof, the end triangular wall is called as \_\_\_\_\_ end.
  - Ridge is the apex of the roof truss. Say right or wrong.
  - Where are the stiffeners are used generally? Explain its function.
  - Which are two types of steel structures?
  - Draw the sketch of junction at purlin, cleat, 12mm bolts and roofing material.
  - Give the size of the M.S joist used in mezzanine floor with centre to centre dimension in mm to be provided above M.S. plate.

P.T.O.

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- Q.3. Show elevation of connection of M.S. beam and M.S. column with given data below. **20**  
Column - ISMB 250 x 450  
Beam - 160 x 400  
Seat angle 100 x 75 x 8  
Stiffening angle - 90 x 90 x 8  
Set angle - 160 x 400 for beam.
- Q.4. Draw plan of mezzanine floor 2500 high from plinth level. **20**  
2 nos.channel for column 100 x 450 x 12 mm  
200mm thick wall.  
Joist 150 x 200 x 10mm placed at 450 c/c. on the column, with the help of M.S plate at top and bottom of the column.  
6mm M.S.plate above and finished floor with any material.
- Q.5. Draw sketch of elevation showing bottom channel of steel truss by using equal angles **20**  
(2 nos.) of 75 x 75 x 8 mm, strut 50 x 50 x 6mm with 10mm thick gusset plate shown welded properly.



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**SECOND YEAR B.ARCH Sem-4 EXAMINATION APRIL 2018**

SUBJECT: Arch. Building Services

Duration: 2 hours

TOTAL MARKS: 50

Date: 19/04/2018

Notes:

- Question 1 is compulsory
- Solve any 3 from remaining.
- Numbers on the right hand side indicate marks.

- 
- Q 1. Design a septic tank and soak pit for a building with total no. of 50 residents and draw the sketches of the same.  
(Assume Retention Time: 18 hrs. and absorption rate of soil: 1500 liters / day) (20)
- Q 2. What is rain water harvesting? Why do you think the practice of rain water harvesting should be encouraged in urban areas? (10)
- Q 3. Enlist various types of traps with sketches. (10)
- Q 4. What are various sewer appurtenances? Explain any three sewer appurtenances in detail with sketches. (10)
- Q 5. Write brief notes on: (Any two) (10)
- a. Recharge pit and recharge trench
  - b. Rain water harvesting calculation
  - c. One pipe and two pipe system of plumbing



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**B.ARCH. SECOND YEAR- SEMESTER IV (APRIL 2017-18 EXAM)**

SUBJECT: Humanities

Duration: 2 hours

TOTAL MARKS: 50

Date: 20/04/2018

Notes:

- Answer Any Five.
- Numbers on the right hand side indicate marks for each question.
- Support all answers with neat sketches.

- Q1. Mahajanpadas , write a short note on. (10 M)
- Q2. Write a note on Early Vedic Zone & Late Vedic Zone. (10 M)
- Q3. Art & Architecture of Rock Cut Architecture. Explain Bhaja Caves. (10 M)
- Q4. Temple traditions of Himachal Pradesh & Kath-Kuni style of architecture. (10 M)
- Q5. Explain in plan Sun temple of Modhera. (10 M)
- Q6. Discuss about Sultanates & Empire with respect to Delhi. (10 M)
- Q7. Explain & elaborate on Kandhariya Mahadev temple & Khajuraho temple complex .  
Elaborate on components of temples. (10 M)
- a. Ardhamandapa
  - b. Mahamandapa
  - c. Mandapa
  - d. Antarala
  - e. Garbagriha
- Q.8. Sketch the illustration from the book Indian Architecture by Percy Brown. (10 M)

OR

Sketch the illustration from the book Islamic Architecture by Satish Grover.

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