AIKTC KALSEKAR TECHNICAL CAMPUS

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Knowledge Resource & Relay Centre (KRRC)

AIKTC/KRRC/SoA/ACKN/QUES/ 2019-20 /   Date: _____

School: __SoA-CBSGS__   Branch: __SoA__   SEM: ___III___

To,
Exam Controller,
AIKTC, New Panvel.

Dear Sir/Madam,   (Reg.)

Received with thanks the following **Semester/Periodic** question papers from your exam cell:

Sr. No.	Subject Name	Subject Code	Format SC	HC	No. of Copies
1	Architectural Building Construction			✓	02
2	Theory and Design of Structures III			✓	02
3	Architectural Building Services			✓	02
4	Humanities			✓	02
5	Environmental Studies			—	—
6	Architectural Representation & Detailing			—	—

Note: SC – Softcopy, HC - Hardcopy

(Shaheen Ansari)
Librarian, AIKTC

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Approved by : All India Council for Technical Education, Council of Architecture, Pharmacy Council of India New Delhi,
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SECOND YEAR B.ARCH- SEM III EXAMINATION OCT 2019

Subject: Architectural Building Construction

Max Marks: 50

Date: 25 /10/2019

Duration: 3 Hrs

All questions are compulsory.
Numbers at the right indicate marks.
Assume suitable data wherever necessary.

Q.1. Draft the following in suitable scale. (Any 1) **20M**

a. Draw a plan and section through shorter as well as longer span, of one way slab with

cantilever projection of balcony as shown in the diagram.

Clear span = 3000 x 7200

Balcony projection = 1200

Wall thickness = 230

Consider 10 mm thick φ steel at 150 c/c for shorter span and 200 c/c for longer span.

OR

P.T.O

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b.   Draft a neat plan and section of R.C.C column from footing to plinth level (600mm).

Footing type	Sizes						
Isolated column footing C1 (230 x750mm)	Excavation depth	P.C.C	Footing	Footing height	Reinforcement in both the direction	Column reinforcement	8 mm stirrups for column
	W= 2050 L= 2800 D= 2150	1750 x 2500 (150 thk.)	1500 x 1900	750 mm from P.C.C. with 32 mm φ steel bottom bars shown	100 mm c/c in shorter span and 150 mm c/c in longer span	20mm bars (4 nos.) at corners, and 16mm (8 nos.) in remaining section with stirrups bound.	100 mm c/c upto footing height, 200 mm c/c above that

all dimensions are in mm

Q.2.   Correct the sentence OR fill in the blanks OR give one line answer. (Any 5)   **15M**

a.   In frame structure, state the reason of providing ground beam, 2/3rd below ground level.

b.   Why do we need to provide sunk slab in toilets?

c.   What should be the orientation of the column in plan, to reduce the effective span?
     Draw a sketch.

d.   Sketch and explain cantilever chajja bar. Lintel size is 230mm x 230mm.
     Consider 4mm diameter, 4 nos. bars.

e.   Draw a sketch showing reinforcement details at junction between R.C.C column and beam.

f.   Draw sketches of dog legged, bifurcated and open well staircase.

Q.3.   Draft the following in suitable scale. (Any 1)   **15M**

a.   A staircase in R.C.C to be constructed to reach the first floor level of 3600 from
     ground floor. Draw plan and section explaining reinforcement detail upto mid landing.

OR

b.   Draw plan and section of two way slab having clear span of 3200 x 5000.

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B.ARCH. THIRD YEAR- SEMESTER III (OCTOBER 2019-20 REGULAR EXAM)

SUBJECT: THEORY AND DESIGN OF STRUCTURES III   Duration: 2 hours

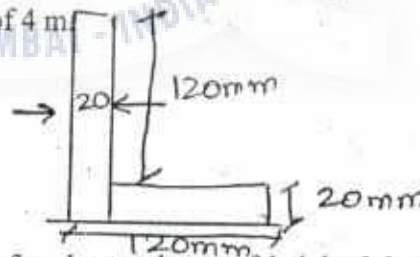TOTAL MARKS: 50   Date: 22/10/2019

Notes:

1) **Question No 1 is compulsory.**

2) **From question no 2, 3 & 4 - Attempt any two questions.**

3) Assume $E = 2.4 \times 10^5$ MPa.

4) Use of non-programmable calculator is allowed.

5) Assume additional data and draw sketches wherever necessary, and specify the same.

Q1) **Attempt any four**   (20M)

i. Explain slope and deflection of any two cases of beam with standard loadings.

ii. Explain the performances of any two sections of beam in bending and direct plus bending stress if area is kept same for both.

iii. Explain different types of loading pattern on a column section.

iv. What is shear & bending stress, explain it detail with the help of an example of a load.

v. What is Simple Bending Theory, write its assumptions and importance.

Q2) Calculate bending stress of symmetrical L section as shown, for simply supported beam carrying udl of 6 kN/m over the span of 4 m.   (15M)

Q3) Compute direct and bending stresses for short column of height 3.3 m uni-axially eccentric loaded as shown: (15M)

Q4) Calculate deflection and slope for cantilever beam of 3.3 m span carrying point load of 5 kN at the free end of hollow rectangular section of 250 x 500 mm and thickness 50 mm   (15M)

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B.ARCH. SECOND YEAR- SEMESTER-3, OCTOBER 2019

SUBJECT: Arch. Building Services   Duration: 2 hours
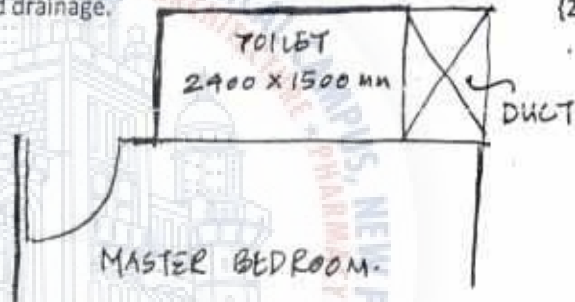
TOTAL MARKS: 50   Date: 23/10/2019

- Question no.1 & 5 are compulsory, attempt any 2 from remaining.

- Numbers on the right hand side indicate marks.

- Draw neat and proportionate sketches wherever required.

Q1. Propose plumbing layout and toilet fixtures for an attached premium toilet to a master bedroom.

Size of the toilet block: 1500 x 2400 mm (having access door along the longer wall).

- Draw detailed plan and 2 sections, showing necessary CP fittings, sanitary appliances and scheme for water supply and drainage.   {20}

Q2. a. Explain with sketches coagulation-flocculation process of water treatment.

b. Sketch and explain a Non-return valve.   {5+5=10}

Q3. Draw detailed sketches of RCC Underground and Overhead water tanks?   {10}

Q4. What is 'Trap' in sanitary system? Explain various components of a wash basin with a bottle trap, with the help of appropriate sketches.   {10}

Q5. A residential cum commercial building has 75 residents, 25 office staff and average 50 visitors per day. It requires a water supply system with Underground and Overhead RCC tanks.

As per National Building Code-2016, daily average water consumption for the above categories is as follows.

Residential -	135 Ltrs / person / day
Office Staff–	45 Ltrs / person / day
Visitors –	15 trs / person / day

(a) Calculate Underground water tank capacity and its size

(b) Calculate Overhead water tank capacity and its size (Internal dimensions of the Staircase block is 3.2 meters)   {5+5=10}

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B.ARCH. SECOND YEAR- SEMESTER III (OCTOBER 2019-20 REGULAR EXAM)

SUBJECT: Humanities

TOTAL MARKS: 50

Duration: 2 hours

Date: 24/10/2019

Notes:

- Answer any 5.
- Numbers on the right hand side indicate marks for each question.
- Support all answers with neat sketches.
- **Assume relative data as applicable.**

Q1. Draw the Western wall and write briefly about it. (10 M)

Q2. Discuss the elements of Gothic style of architecture with example. (10 M)

Q3. Discuss the relationship between spread of Christianity and geographical spread of Roman empire. (10 M)

Q4. Draw the Eight important stages of evolution of a Mosque. (10 M)

Q5. Draw and describe three holy shrines of Islam . (10 M)

Q6. Discuss the evolution of cathedral form of church also give example for the same. (10 M)

Q7. Write briefly about three sister religions. (10 M)

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