Total No. of Printed Pages:01

SUBJECT CODE NO:- H-612
FACULTY OF SCIENCE AND TECHNOLOGY
S.Y.Arch. (Sem-IV)
T. D. S. III
(Revised)

[Time: Three Hours] **[Max. Marks: 100]**

Please check whether you have got the right question paper.

N.B
1) Q.1 & Q.5 are compulsory.
2) Use [IS-456-2000] is allowed.
3) Answer any two questions from the remaining in each section.

Section A

Q.1 Write a short notes on:- 20

a) Under reinforced section
b) Over reinforced section
c) Classification of slabs
d) Limit state of Collapse.

Q.2 a) Find moment of resistance of R.C Rectangular Section 250 mm wide 450 mm deep. Reinforced with 4 bars of 12 mm dia. clear cover is 25 mm. $M_2O\&Fe_{415}$ 08

b) Singly reinforced section & doubly reinforced section explain with sketch. 07

Q.3 Design a one way slab for effective span = 4m, live load = $2KN/m$, floor finish = 1 KN/m Use $M_{15}\&e_{250}$. 15

Q.4 Explain limit state method& working stress method in detail. And also state the assumption of limit state of flexure. 15

Section B

Q.5 Write short notes on:- 20

a) IS- Recommendation for effective span in slab.
b) Objective & Basic Requirements of Structural design.
c) Characteristics load & characteristics strength.
d) Flanged beam

Q.6 Enlist the steps involve in the design of R.C.C. waist slab & also draw sketch including reinforcement. 15

Q.7 Design a rectangular column of 4.5m unsupported tength, restrained in position & direction at both the ends to carry an axial load of 1200 KN. Use $M_2O\&Fe_{415}$ 15

Q.8 Write down step wise procedure for design as isolated square column. 15

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-5006
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch. (Rev.) (Sem-IV)
A. B. C. M.- IV

[Time: Four Hours] **[Max. Marks: 100]**

Please check whether you have got the right question paper.

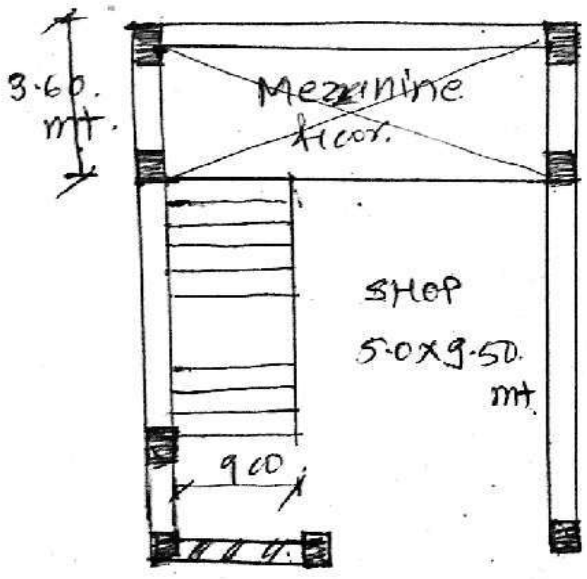
N.B
1. Solve any two questions from section A & any three from section B
2. Section A must be solved on drawing sheets & section B on answer sheet.
3. Assume data wherever necessary & mension it.
4. Figures to the right indicates full marks.

Q.1 A.R.C.C. Cantilevered staircase is tobe provided in a shop to give access to a mezzanine floor. Which has a height of 2.52 mt. up to the top of the slab of mezzanine floor from the top of floor level. Each step will be cantilevered from the wall & width of the staircase will be 900 mm. from the edge of the wall. The width of the mezzanine floor will be 3.06 m. from the rear wall. (Refer sketch) each flight will be 1.68m × 900 with a landing.

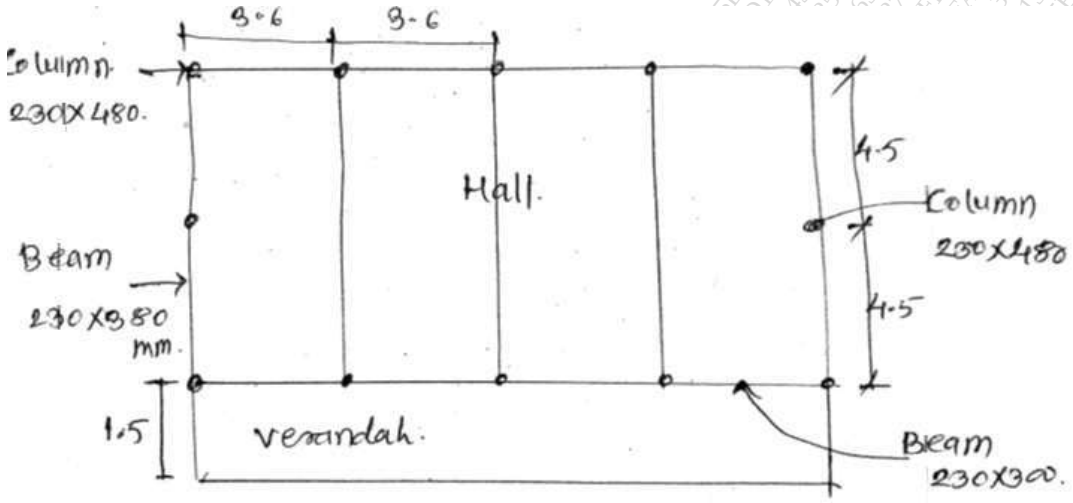
Draw :-

i) Plan & section of the shop & stairs.(1:50) 10

ii) Draw large scale details of 13
   a) Reinforcement of the each step & the beam from which cantilevered steps are taken.
   b) Fixing details of m.s. railing with tw handrail for the staircase. 12



Q.2 a) Design a continuous slab for a hall (Refer-sketch) 35



Drawing requirements:

i) Draw keyplan & section
ii) Draw plan showing detail reinforcement of slab & verandah
iii) Two sections with detailed reinforcement.

Q.3 Draw neat sketches (any four) 35

i) Folded step staircase with reinforcement.
ii) Detail plan & section of isolated footing.
iii) Fixing detail of handrail & balusters of teakwood.
iv) R.C.C. pargolla for a terrace with dimensions of $3.0m \times 2.5\ mt$ wide
v) Section of flat slab with column capital & general reinforcement

Section B

Q.4 What are different market form's of steel? Explain with sketches. 10

Q.5 What are different operations involved in the mechanical treatment of steel. 10

Q.6 Write short notes on (any two) 10

i) Powder coating
ii) Uses of Aluminium in building
iii) Pig iron – wrought iron-caste iron.

Q.7 Precast slab and Beam's as developed by C.B.R.I. explain with neat sketches. 10

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5019
FACULTY OF SCINECE AND TECHNOLOGY
S. Y. Arch.(Rev.) (Sem-IV)
H. A. -III

[Time: Three Hours] **[Max.Marks:100]**

Please check whether you have got the right question paper.

N.B
1. Answer to the two sections must be written on the same answer book.
2. Q.no.1 from section A and Q,no.5 from section B are compulsory
3. Attempt any two questions out of the remaining of each section.

Section -A

Q.1 Write short notes with neat sketch (any four) 24
a) Baptistry , Pisa
b) Flying buttresses
c) Nave and Aisles
d) St. Michele , pavia
e) Gothic arches
f) Bell tower

Q.2 Show the development of Romanesque architecture in Italy. 13

Q.3 Describe with sketches the architectural features of Gothic style in Milan Cathedral Italy. 13

Q.4 Explain with neat sketches the characteristic features perpendicular Gothic style in Britain with suitable examples. 13

Section – B

Q.5 Write short notes with neat sketch (any four) 24
a) Elizabethian style
b) Brunelleschi
c) Baroque style
d) Mannerism
e) Pallazo Ricardi
f) Grand staircase

Q.6	State the contribution of any four masters of the Renaissance period	13
Q.7	Discuss the architectural features of St. Paul cathedral , London	13
Q.8	Illustrate the scheme and architectural features of St.Peter's Basilica in Renaissance period	13

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-5024
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch. (Sem-IV)
E.S.S.-II
[Revised]

[Time: Three Hours] **[Max. Marks:100]**

Please check whether you have got the right question paper.

N.B.: 1) Question No.1 from Section A and Q.No.5 from Section B are compulsory.
2) Solve any two question from remaining from Section A and B each.
3) Assume data wherever required.
4) Draw neat sketches.

SECTION – A

Q.1 Describe the necessity of studying acoustics. Explain the bahavior of sound on different surfaces with help of sketches. 20

Q.2 What are defects of sound? Give the remedies with neat sketches. 15

Q.3 Give the acoustical design for a open air theater with the help of sketches. 15

Q.4 Write short notes (any three) 15
a) Sound foci-dead spot
b) Concrete floating floor
c) Frequency of sound
d) Types of noise

SECTION – B

Q.1 What is reverberation and reverberation time? Give reverberation time for auditorium, Lecture hall, and cinema hall. 20

Q.2 Give different methods to reduce air born noise. 15

Q.3 Explain in detail different types of acoustical defects. 15

Q.4 Write short notes (any three) 15
a) Inverse square law.
b) Sound audition at night time and at day time
c) Impact noise and structure born noise
d) Acoustical correction.

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5030
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch.(Sem-III)
A.B.C.M. – III
[Revised]

[Time: Four Hours] **[Max. Marks:100]**

Please check whether you have got the right question paper.

N.B.: 1) Solve any two from Section A and any three from Section B.
2) Answer to Section A must be solved on drawing sheets only. Answers to Section B can be solved on answer sheets.
3) Assume suitable data wherever necessary.

SECTION – A

Q.1 Design a R.C.C. Doglegged Staircase for a residential building. The building is G+1 R.C.C. frame structure with 230 mm thk brick wall.

i) Floor to floor height is 3.2 mts. above plinth level.
ii) Plinth level is 0.9 mts above ground level.
iii) Consider tread as a 280 mm and riser is of 160 mm.
iv) Width of flight is 1.0 mts and gap of 50mm between two flights.
v) Width of mid landing is 1.0 mts andwidth of upper landing is 1.2 mtrs.

Drawing requirements: Use suitable scale

i) Detail plan and detail sections also show general arrangement of reinforcement 14
ii) Fixing detail of M.S. Baluster to the R.C.C tread. 07
iii) Fixing detail of Handrail to the wall. 07
iv) Englarge sketch of Noising, going, soffit, and waist slab. 07

Q.2 Draw detail sketches of following with suitable scale. 35

i) Bifurcated staircase plan and elevation
ii) Stairs with close string.
iii) Fixing of studs, Nogging and wooden boards.
iv) Joinery detail of wall plate, sleeper wall and Bridging joist.
v) Fixing of ceiling joist, Binder and Bridging joist.

Q.3 Design Timber Flooring on an upper floor for a hall measuring 4.2×6.2 mts. Load bearing structure of 350mm thk brick wall having 3.6m floor to floor height and 0.9m as plinth level.
Drawing requirement:

i) Detail plan (Scale 1:50) 07
ii) Detail two sections along both spans (Scale 1:50) 14
iii) Different types of joints for floor boards (Scale1:2) 07
iv) Fixing detail of Binders and Bridging joist (Scale 1:2) 07

SECTION – B

Q.4 Explain “Types of Paints”. 10

Q.5 Importance of Glass as a building material. 10

Q.6 Write down uses of plastic in construction industry. 10

Q.7 Write short note son “Reinforced plastic” 10

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5035
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch. (Rev.) (Sem-III)
T.D.S. - II

[Time: Three Hours] **[Max. Marks:100]**

Please check whether you have got the right question paper.

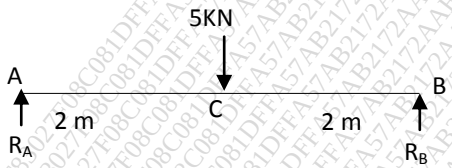
N.B.: 1) Solve any five Questions.
2) Assume suitable data if necessary.
3) Figures to the right indicate marks.

Q.1 a) Explain Eulers Theory. 08

b) An IsH_B300 is used as a column having an effective length of 6m. Calculate the maximum safe load it can carry taking a factor of safety 3. Take the following Rankine's constant $\sigma_c = 320\ Mpa, a = \frac{1}{7500}$ 12
$A=8025mm^2$, $I_{min} = 2.25 \times 10^7 mm^4$

Q.2 a) Define shear force &Bending moment along with point of zero shear. 08

b) Find SFD & BMD for given beam. 12

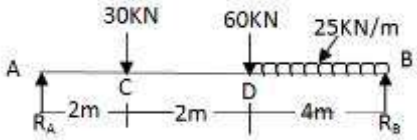


Q.3 a) Explain theory of Simple Bending 10

b) What are the assumptions in simple bending theory. 10

Q.4 a) Find Deflection under point D 16

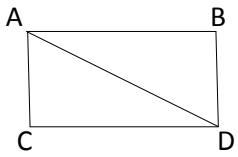
$E = 2 \times 10^5 N/mm^2$ $I = 12 \times 10^6 mm^4$



b) Define Slope, Deflection & Elastic Curve. 04

Q.5 a) Explain statically in Determinant structures. 10

b) State the type of frame & the degree of indeterminary. 10



Q.6 Short Notes on:- 20

a) Pure Bending
b) Point of Contraflexure
c) Limitations of Macaulay's
d) Rankine's formula

Total No. of Printed Pages:01

SUBJECT CODE NO:- H-5040
FACULTY OF SCINECE AND TECHNOLOGY
S. Y. Arch. (Rev.) (Sem-III)
H.A. - II

[Time: Three Hours] **[Max.Marks:100]**

Please check whether you have got the right question paper.

N.B
i. Q. No. 1 from section A and Q. No.5 from section B are compulsory.
ii. Out of the remaining three questions, solve any two questions from each section.
iii. Figures to the right indicate full marks.

Section A

Q.1 Write short notes with neat sketches (any four) 24
a. Quwwat– ul Islam Mosque, Delhi
b. Sultan Ghari's Tomb
c. Mihrab and mimbar
d. Mubarak Sayyid's Tomb
e. Jahaj Mahal

Q.2 Describe with sketches the architectural features and planning of the Tughlaq period. 13

Q.3 Describe with neat sketches the provincial Islamic architecture of Bijapur with suitable example. 13

Q.4 Describe with neat sketches the provincial Islamic architecture of Mandu with suitable example. 13

Section B

Q.5 Write short notes with neat sketches (any four): 24
a. Jama Masjid Fatehpur Sikri
b. Minarets of the Taj Mahal
c. Bibi Ka Maqbara
d. Tomb of Jahangir
e. Salim chisti's Tomb

Q.6 Describe with neat sketches the architectural features and plan of the red fort at Delhi. 13

Q.7 Describe with sketches the architectural features of wall surface treatment and decoration during the Mughal period. 13

Q.8 Describe with sketches the architectural features and planning of Jama Masjid Delhi 13

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-5045
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (Sem-III)
E.S.S. - I
(Revised)

[Time:Three Hours] **[Max.Marks:100]**

Please check whether you have got the right question paper.

N.B
1. Q.No.1 from section A & Q.5 section B are compulsory.
2. Solve any two questions out of the remaining questions from each section.
3. Draw neat sketches wherever necessary.
4. Figures to the right indicate full marks.

Section A

Q.1 Explain in brief with neat sketches (any three)

a) Pumping system of water distribution. 08
b) Tree system of distribution network 08
c) The ferrule connection 08
d) Hourly variation in water demand. 08

Q.2 Draw a neat sketch & explain the hydraulic cycle in nature. Also write selection criteria for deciding source of water for water supply to a town. 13

Q.3 Explain with neat sketches the need & importance of rain water harvesting system. 13

Q.4 What are "traps"? State importance of traps, different types of traps and specific locations for installation of these traps. (Draw neat sketches) 13

Section B

Q.5 Draw neat sketch and explain the functioning. (any three)

a) Aqua privy 08
b) Septic tank 08
c) European type of W.C 08
d) Inspection chamber 08

Q.6 Explain in detail the stages of sewage treatment process. 13

Q.7 Draw neat sketches and explain various types of distribution networks for water supply in an area. Also mention advantages and disadvantages of each type. 13

Q.8 Write a note on importance of rain water harvesting and also explain water harvesting system for a small building with suitable sketch. 13

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-5049
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch. (Rev.) (Sem-IV)
A.D. III

[Time: 1st Day-6 Hours **[Max.Marks: 100]**
2nd Day-3+3 Hours]

Please check whether you have got the right question paper.

N.B
1) The candidates are instructed to submit line plans, site plan at the end of the first day. No major deviations will be allowed in the final design from the design submitted at the end of the 1st day sketch should be written in bold letters.
2) The candidates are further instructed to submit the final design in the form of a portfolio binding all the drawings including sketches, tracings, and 1st Day sketches together and covering the portfolio with white sheets on both sides. The candidates shall write their examination number on the top right hand corner of the cover sheet. All the drawings in the portfolio shall carry the examination number of the candidate.
3) The candidates are instructed to see that all the drawings in the portfolio are signed by the invigilator.
4) Your design paper will be assessed as a whole.
5) Assume suitable data wherever possible and mention it clearly.

Topic: **Working Women Hostel**

Aiming at Women Empowerment, Ministry of Women and Child Development is supporting an NGO to establish a hostel under "Working Women Hostel Scheme" at Aurangabad for the women, who have to stay away from their homes for job purpose, often suffering from insecurities related to safety.

The design requirements to accommodate 60 women are as follows:

- **Administrative area**
  a) Entrance and waiting area (with adequate ladies and gents toilet) – 25 – 30 sqm
  b) Reception area(with income-out going record etc.)
  c) Administrative office for 4 persons 35 sqm.
     - Account office (for 2 persons)-10 sqm
     - Warden's office with attached toilet 20 sq.m
     - Store room
  d) Doctors cabin/sick room with attached toilet- 15-20 sqm
  e) Adequate toilets

- **Accommodation**
  a) Single seater rooms with attached toilet 10 no.s – 10 sq m each
  b) Two seater rooms with attached toilet – 10 no. s – 20 sqm
  c) Three seater room – 10 no.s 25-30 sqm

- Adequate common toilet

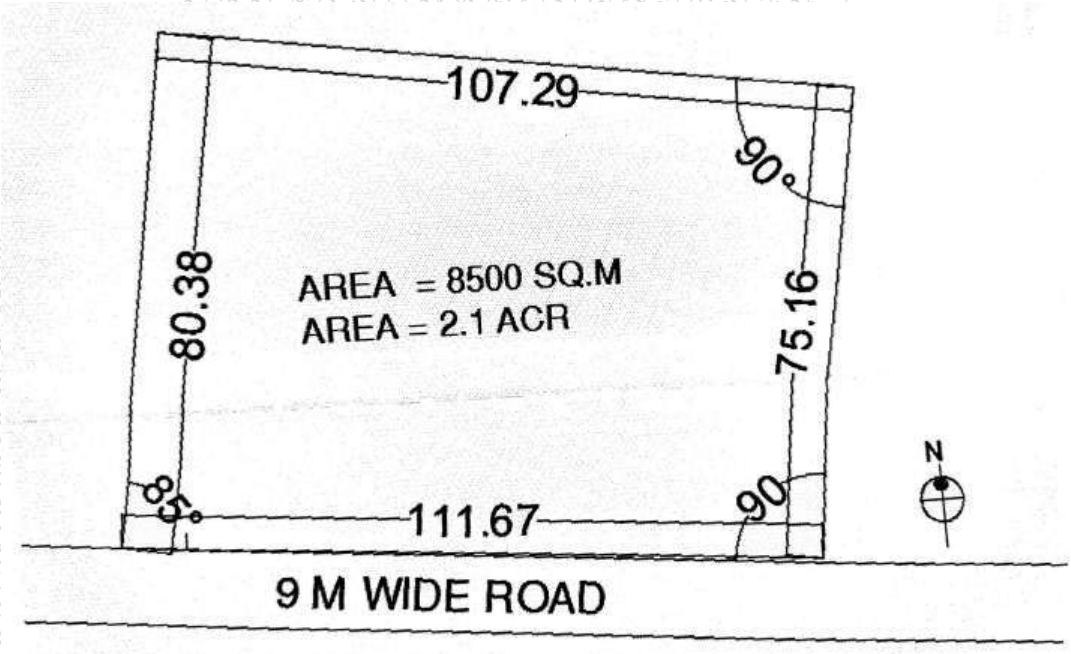
d) Store – 25 sq.m

Space for interaction, drinking water facility, drying cloths, and proper garbage disposal should be considered.

- **Dining hall** with capacity of 75 persons – 80-90 sqm
- **Kitchen with store** (dry and green) – 60 sqm
- **Recreation**:
  a) Hall for Table tennis, Chess, Carom, cards etc. 200 sq.
  b) TV room
  c) Yoga hall
  d) Library
- Caretakers quarters 2 nos.
- Adequate Parking with separate visitors parking
- Security cabin
- Location for Separate residence for warden in campus to be shown.

Drawing requirements

1. Site plan and landscape layout – 1:500
2. All floor Plans with sample furniture layout for each type of residential unit – 1:100/1:200
3. Section(min. 2nos)-1:100
4. Elevations 1:100
5. External views



Total No. of Printed Pages:02

SUBJECT CODE NO:- H-5059
FACULTY OF SCINECE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-III)
Architectural Building Construction-III

[Time: Four Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

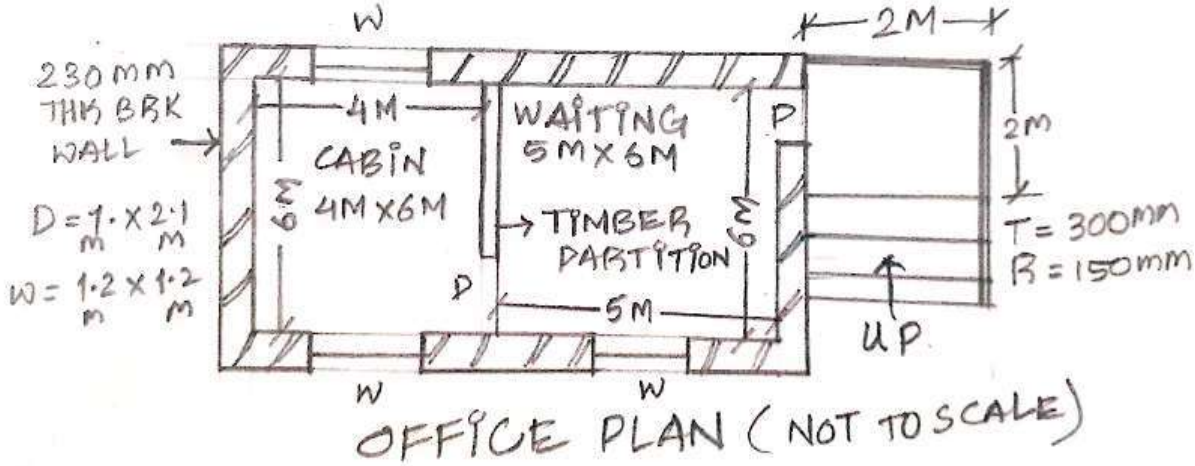
N.B
1. Solve any two questions from each section.
2. Answers to section A must be solved on drawing sheets only. Answer to section B can be solved on answer sheets.
3. Assume suitable data wherever necessary.

Section -A

Q.1 Design suitable type of timber floor for a hall measuring $3.6 \times 4.2 mts$. Load bearing structure of 350 mm thk brick wall having 3.6 mm floor to floor height and 0.9m as plinth level.
Drawing requirement:

i)	Detail plan (scale 1:25)	06
ii)	Detail two sections along both spans (scale 1:25)	12
iii)	Fixing detail of wall plate and joist with external wall (scale 1:2)	06
iv)	Fixing detail of joist and strutting (scale 1:2)	06

Q.2 Design a suitable type of timber / wooden partition, admeasuring 6.0 mts. (width) × 2.70 mts (height) having door opening of 0.9 mts at one end. The partition is finished with wooden panels. 12



Draw: use suitable scale. 06

i)	Plan, Elevation and section	06
ii)	Fixing detail of sill with bed plate and wall.	06
iii)	Fixing detail of studs and nogging	06
iv)	Fixing detail of door frame and wooden panels with partition.	

Q.3 Draw detail sketches of following with suitable scale. (any four) 30

i)	Open well staircase plan and elevation.	
ii)	Any three type of shallow foundation.	

iii) Types of strutting for timber floor.
iv) Joinery detail of Girder, binder and bridging joist.
v) Fixing detail of banister to R-C-C. tread

Section B

Q.4 Explain the method of construction of single joist timber floor with sketches. 10

Q.5 Explain in detail the function of studs and nogging in timber partition and how the finishing material is fixed on it. 10

Q.6 Explain the joinery detail of timber floor board with its advantages and disadvantages. 10

Q.7 Explain the function of wall plated joist with neat sketches. 10

Total No. of Printed Pages:01

SUBJECT CODE NO:- H-5060
FACULTY OF SCINECE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-III)
Building Materials - III

[Time: Two Hours] **[Max.Marks:40]**

Please check whether you have got the right question paper.

N.B
i) Q.1 and Q.6 are compulsory.
ii) Solve any the remaining in each section.

Section -A

Q.1 Write correct answer:

a) Chemical formula for potash – lime glass _____. 02
   i) $K_2O\ , CaO,\ 6siO_2$
   ii) $Na_2O\ , CaO\ ,\ 6\ siO_2$
   iii) $K_2O\ \ , PbO\ , 6\ siO_2$

b) Annealing is process of _____. 02
   i) Cooling of glass
   ii) Fabrication of glass
   iii) Melting of glass

c) Opaque making is a process of _____. 02
   i) Treatment of glass
   ii) Fabrication of glass
   iii) Manufacturing of glass

Q.2 Write short notes on plywood. 07

Q.3 Explain "Types of Paints". 07

Q.4 Write the importance of glass as a building material. 07

Section – B

Q.5 True or False
   i) Plastic are the inorganic Substances. $1\frac{1}{2}$
   ii) PVC stands for Polyvinyl chloride. $1\frac{1}{2}$
   iii) FRP stands for fine Glass Reinforced plastic. $1\frac{1}{2}$
   iv) Photo chromic glass temporarily darkens when exposed to bright light. $1\frac{1}{2}$

Q.6 Explain "Polymerization". 07

Q.7 Write the uses of Plastic in Construction industry. 07

Q.8 Write short note on "Reinforced Plastic". 07

H-5061

Total No. of Printed Pages:03

SUBJECT CODE NO:- H-5061
FACULTY OF SCIENCE AND TECHNOLOGY
S.Y. Arch(CBCS) (Sem-III)
Theory and Design of Structure-II

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.
N.B.:1) Q. No. 1 and Q. No. 5 are compulsory.
2) Attempt any four from remaining questions.

Q.1 Choose correct option for following (Each question 2M) 10

a) What is the bending moment at end supports of simply supported beam?
i) Maximum ii) Minimum iii) Zero iv) Uniform

b) What is the maximum shear force, when a cantilever beam is loaded with ud1 throughout?
i) w*1 ii) w iii) w/1 iv) w+1

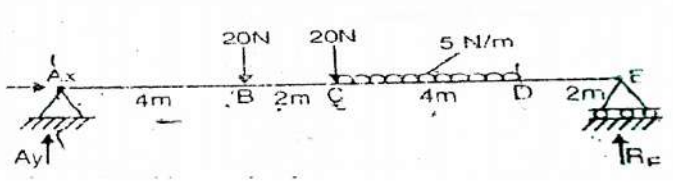
c) Sagging, the bending moment occurs at the ---------- of the beam.
i) At support ii) Mid span iii) Point of contrafleure iv) Point of emergence

d) What is the expression of bending equation?
i) $M/I = \sigma/y = E/R$ ii) $M/R = \sigma/y = E/I$
iii) $M/Y = \sigma/R = E/I$ iv) $M/I = \sigma/R = E/y$

e) Stresses in a beam due to simple bending is,
i) Directly proportional ii) Inversely proportional
iii) Curvilinearly related iv) None of the mentioned

Q.2 Attempt any two

a) A simply supported beam AE of span 12m carries two point loads and a udI as shown in fig. compute support reactions and draw SFD. 08



b) Explain types of supports with neat sketch. 07
c) Section modulus for rectangular section, hollow section and circular section. 07

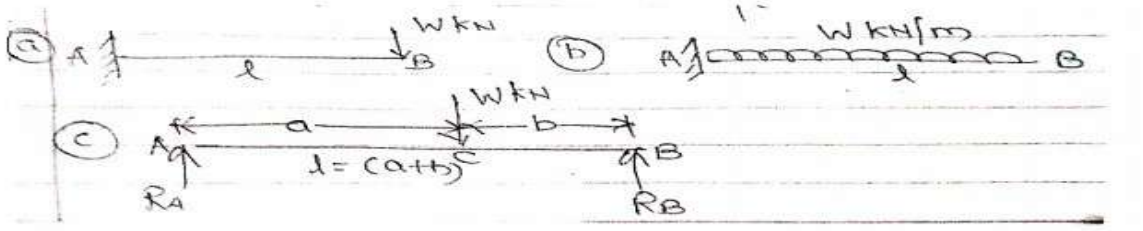
Q.3 Attempt any two

08

a) Explain theory of simple bending. 07

b) Derive flexural formula 07

c) Draw S.F.D and B.M.D for



Q.4 Write short note on any three:-

a) Pure bending 05

b) Shear force and bending moment 05

c) Moment of resistance 05

d) Section modulus 05

Q.5 Choose correct option for following (Each question 2M) 10

a) In simply supported beam deflection is maximum at,
   i) Mid span ii) Support iii) Point of loading iv) Through out

b) Elastic line is also called as,
   i) Deflection curve ii) Plastic curve iii) Linear curve iv) Hookes curve

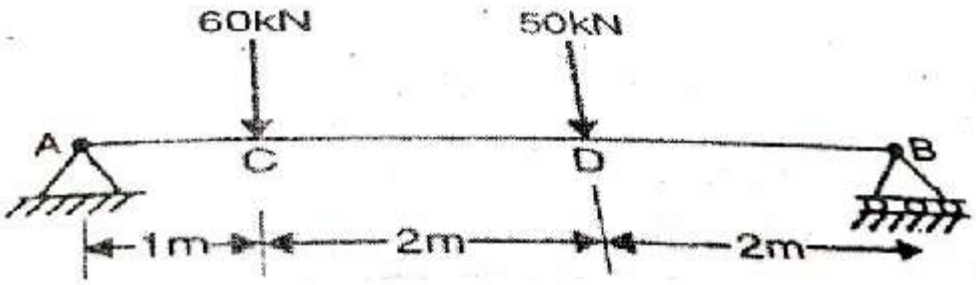
c) A column that fails due to direct stress is called----------.
   i) Short column ii) Long column iii) Medium column iv) Slender column

d) The direct stress included in a long column is ---------- an compared to bending stress.
   i) More ii) Less iii) Same iv) Negligible

e) The slenderness ratio is the ratio of
   i) Length of column to least radius of gyration
   ii) Moment of inertia to area of cross section
   iii) Area of cross section to moment of inertia
   iv) Least radius of gyration to length of the column

Q.6 A beam simply supported at ends A and B is loaded with two points loads 60KN and 50KN at a distance 1m and 3m respectively from A. Determine the position and magnitude of the maximum 15

deflection. Take E= 200Gpa, I=8500 $\times 10^4 mm^4$.



Q.7 Attempt any two.

a) Explain relation between bending moment, slop and deflection. 08
b) Write down support condition for simply supported beam and fixed beam 07
c) Write down assumption made in Euler's theory. 07

Q.8 Write short note on any three

05
a) Effective length of column 05
b) Statically indeterminate beam 05
c) Short column 05
d) Limitations of Euler's theory.

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5062
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-III)
History of Architecture-II

[Time:Three Hours] **[Max.Marks:80]**

Please check whether you have got the right question paper.

N.B
1. Q.No.1 from section Aand Q.No.5 from section B are compulsory.
2. Out of the remaining three questions, solve any two questions from each section.
3. Figures to the right indicate full marks.

Section A

Q.1 State weather the following statements are true or false. 10

a) The main central courtyard of a masque is called shan
b) The tomb of Sultan Ghari was built by Ala-ud-din Khilji
c) Adhai din kaJhonpra masque was built by Qutb-Ud-din Aibak
d) Alai Minar is an un finished minor in the Qutbmaque complex
e) The khirki masque was built during the lodhi period
f) The tomb of SikandarLodhi is octagonal in plan.
g) Attal masjid is a good example of the provincial architecture of jaunpur.
h) The tomb of hashang shah is located in Bijapur.
i) The teen darawaja is a good example of the provincial architecture in Gujarat.
j) GolGumbaz is a beautiful masque in Bijapur.

Q.2 Describe with sketches the architectural features and planning of the Khirki Masque 15

Q.3 Describe with sketches the architectural features and planning of IbrahamRauza at Bijapur. 15

Q.4 Explain with neat sketches the Quwwatul-Islam masque and its different stage of development. 15

Section B

Q.5 State weather the following statements are true or false. 10

a) Humayun's tomb is made out of white marble
b) The Red fart at Agra was built by Akbar the great
c) The BullandDarwaza is the entrance gate to Akbar's tomb.
d) Salimchistis tomb is located within the Jama Masque at fatehpurSikri
e) The tomb of Itmad-ud-daula was built during the region of Shahjahan
f) The Red fort at Delhi was built by Shahjahan
g) The TajMahal was built during the reign of Akbar
h) The TajMahal is flanked by a Masque on its western side

i) Mughal Architecture is well known for its artistic sculptures of people
j) Bibi-KaMaqbara was built during the region at Aurangzeb

Q.6 Describe with sketches the architectural features and planning of Humayun's tomb. 15

Q.7 Describe with sketches the architectural features and planning of Red fort at Delhi 15

Q.8 How emperor Shahjanan's buildings differ from the architectural of his ancestors with the help of suitable examples. 15

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5063
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-III)
Environmental Science & Services - I

[Time: Three Hours] **[Max. Marks: 80]**

Please check whether you have got the right question paper.

N. B
1. Q. No. 1 from section A & Q. No. 5 from section B are compulsory.
2. Attempt any two questions out of the remaining three questions from each section.
3. Figures indicated to the right indicate full marks.

Section A

Q.1 Explain weather the following statements are true or false. 10

a) Septic tank is a device used to collect rain water.
b) Rainwater harvesting can be carried out on roof tops of houses.
c) Water closets have traps to produce self-cleaning velocity in pipes.
d) Hardness of water is caused by the calcareous impurities in water.
e) 'S' Trap is used in water closet.

Q.2 Draw neat sketches and explain the rainwater harvesting system for a single story bungalow. 15

Q.3 Explain with neat sketches the different steps involved in the purification of water in a water treatment plant. 15

Q.4 Explain the hydro cycle in nature; also explain with neat sketches the different types of water sources. 15

Section B

Q.5 Explain weather the following statements are true or false. 10

a) Wet waste is a term used for in-organic waste produced.
b) Anti siphonage pipes can be found in house drainage system.
c) Dry and wet waste should be properly mixed during composting.
d) The pipe used the carry away solid wastes from toilets are called grey water pipes
e) Bio digesters are devices used for processing chemical wastes.

Q.6 What do you understand about "Dry Refuse" and "Wet Refuse"? Explain the different methods of collection and disposal of Dry and Wet refuse. 15

Q.7 Write a brief note on the principals of house drainage. Also explain the essential qualities of a good "Trap" 15

Q.8 Explain in detail the primary and secondary treatment of sewage disposal. 15

Total No. of Printed Pages:2

SUBJECT CODE NO:- H-5064
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-IV)
Architectural Building Construction-IV

[Time: Four Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Answer any two questions from each section.
ii) Answers to Sec 'A' must be solved on drawing sheets only. Answers to Sec B can be solved on answer sheets.
iii) Assume suitable data wherever necessary and mention it clearly.
iv) Figures to the right indicate full marks.

Section – A

Q.1 A 4-storeyed R.C.C. framed building is to be constructed on a plot where hard strata is available at about 1.60 Mt. below ground level.

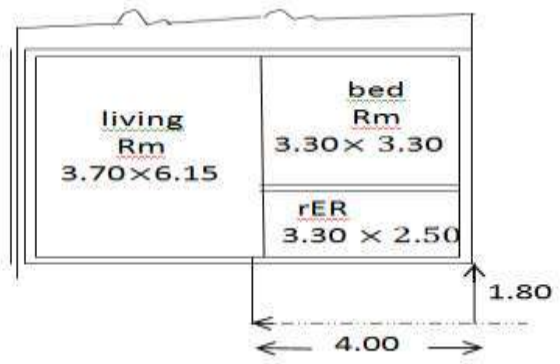
The size of a r.c.c. column in the said building is 230×600mm with a footing size of 1700×1700. The height of plinth is 600mm above ground level.

i) Draw plan of column with footing showing the general arrangement of reinforcement. (scale 1:10) 08

ii) Draw section of r.c.c. column & footing upto plinth level showing general arrangement of reinforcement. (1:10) 12

iii) Draw isometric view of r.c.c. column, footing, plinth beams. Choose appropriate scale. 10

Q.2 A R.C.C. canopy is to be provided for a verandah of a bungalow (as shown) in the figure. The bungalow is a load bearing structure with 350 mm brick walls in superstructure. The foundation is in uncoursed rubble stone Masonry. The height of the bungalow is 3.50 mts. upto the top of slab from the top of flooring. The height of plinth is 600 mm above ground level.



i) Draw elevation and section of Cantilever and simply supported beams Showing the general arrangements of Reinforcements. 12
a) elevation of beams (1:20)

b) Cross Section of beams (1:10)

ii) Draw plan of canopy showing the General arrangements of reinforcements (Scale 1:20) Cross section of canopy Slab (Scale 1:10) 12

iii) Aerial view of R.C.C. canopy. (appropriate scale) 06

Q.3 a) Draw neat sketches of any FOUR of the following 30

a) Precast concrete piles.
b) Combined rectangular fooling with reinforcement.
c) Reinforcement details of a spine beam staircase.
d) R.C.C. chajja for a window 600 mm wide with reinforcement details.
e) Coffered slab
f) Precast R.R.C. Beam.

Section – B

Q.4 Describe the process of concreting of R.C.C. slab on the ground floor of a R.C.C. framed structure 10

Q.5 What is the proportion of concrete used for R.C.C. framed structure and describe the method of measuring the different ingredients in such a concrete. 10

Q.6 What is the necessity of curing of concrete and what are the normal period of curing. 10

Total No. of Printed Pages:2

SUBJECT CODE NO:- H- 5065
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-IV)
Building Materials-IV

[Time: Two Hours] **[Max.Marks:40]**

Please check whether you have got the right question paper.

N.B
1) Q. No.1 from sec A and Q.no.5 from sec .B are compulsory out of the remaining three questions from each section solve any two
2) Figures to the right indicate full marks

Section – A

Q.1 Tick the correct option √ answer any Three 06

a) Stainless steel is part of ------ metal.
i) Ferrous ii) Non ferrous iii) none of these

b) Cast iron is used in -------
i) R.C.C work ii) for pipes iii) for Furniture works

c) The melting temperature of cast iron is
i) 800°C ii) 1250°C iii) 600°C

d) Wrought iron is used in Building construction in the form of
i) Reinforcement ii) Roofing iii) ornamental iron work

e) The specific gravity of Mild steel
i) 6.00 ii) 7.00 iii) 7.80

Q.2 What are different forms (market) of steel & describe any Two 07

Q.3 Describe the properties of cast iron 07

Q.4 Describe the measures adapted to prevent corrosion of ferrous metals. 07

Section – B

Q.5 Answer any 3 from the following 06

a) Aluminum is a bad conductor of heat and electricity
i) True ii) false

b) Aluminum is extracted from Bauxite ores
i) True ii) False

c) Aluminum is used as a catalytic agent in the manufacture of steel
   i) True ii) false

d) Copper is a good conductor of heat and electricity
   i) True ii) false

e) Aluminum fixtures are used for false ceiling framing
   i) True ii) false

Q.6 Mention the uses of non – ferrous metals in Building construction 07

Q.7 What is an alloy describe various steel alloys. 07

Q.8 State the properties of aluminum and copper 07

Total No. of Printed Pages:3

SUBJECT CODE NO:- H-5066
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-IV)
Theory and Design of Structure-III

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Question No. 1 & Question No. 5 are compulsory.
ii) Solve any two from remaining questions from each section.
iii) Use of IS 456-2000 is allowed.
iv) Use of Non-programmable calculator is allowed.

Section – A

Q.1 Select the appropriate answer from the following (any five): 10

i) The unit weigth of reinforced concrete, as specified by IS456:2000 is:
a) 23 kN/m^3
b) 24 kN/m^3
c) 25 kN/m^3
d) 20 kN/m^3

ii) Concrete is very weak in resisting:
a) Tension b) Compression c) Both (a) & (b) d) None of the these

iii) Reinforced concrete sections in which the limiting stain in concrete is reached earlier than the yield strain of steel are called:
a) under reinforced sections
b) over reinforced sections
c) balanced sections
d) None of these

iv) A singly reinforced section is a section where steel reinforcement is provided on:
a) Tensile Side
b) Compression Side
c) Both at Compression & Tensile sides
d) At Neutral Axis

v) The limiting value of depth of neutral axis ($X_{u.lim}$ /d) for mild type of steel (Fe250) is:
a) 0.46
b) 0.53
c) 0.48
d) 0.42

vi) The main reinforcement is provided on which face of a singly R/F cantilever beam:
a) Top face
b) Bottom face
c) Both Top & Bottom face
d) Either Top & Bottom face

Q.2 A hall has clear dimension 3m × 8m, with wall thickness of 230mm, the live load on the slab is 3KN/m^2 and a finishing load of 1 kN/m^2 may be assumed. Using M20 grade concrete and Fe415 grade steel, design the slab. 15

Q.3 Design a rectangular beam of section 230mm X 600mm of effective span 6m. Effective cover for reinforcement should be kept as 35mm. Imposed load on the beam is 35kN/m. Use M20 concrete and Fe415 steel. 15

Q.4 Write short notes on any three of the following: 15

i) State the assumptions in limit state of collapse in flexure
ii) Explain what do you mean by characteristic strength of concrete.
iii) Write a short note on modes of failure of RCC structures.
iv) Write in brief about, Factor of safety, Compressive force &Tensile force.

Section - B

Q.5 Select the appropriate answer from the following (any five): 10

i) In a Reinforceconcrete T-beam (in which the flange is in compression). The position of neutral axis will
   a) be within the flange
   b) be within the web
   c) at the junction of flange and web
   d) Depend on the thickness of flange in relation to total depth and percentage of reinforcement.

ii) Beam sections of reinforced concrete designed in accordance with limit state design approach, as compared to section designed by working stress method for the same conditions of load and span and the same width, usually have
   a) a larger depth and smaller amount of reinforcement
   b) the same depth and same reinforcement
   c) smaller depth and more reinforcement
   d) same depth as that of deep beam

iii) The reinforcement in reinforced concrete shall have concrete cover, the thickness of such cover shall be not less than
   a) 25 mm
   b) the diameter of bar
   c) both (a) & (b)
   d) none of these

iv) In case of two-way slab, deflection of the slab is
   a) primarily a function of long span
   b) primarily a function of short span
   c) independent of the span, long or short
   d) mostly long span but sometimes short span

v) Under-reinforced concrete flexural members
   a) are deeper
   b) can undergo larger deflection
   c) both (a) & (b)

d) none of these

vi) Doubly reinforced beams are recommended when
a) depth of the beam is restricted
b) breadth of the beam is restricted
c) both depth and breadth are restricted
d) shear is high

Q.6 Design the reinforcement for a short axially loaded square column of size 400mm X 400mm to support a load of 1000 kN. Use M20 concrete and Fe415 steel. 15

Q.7 Design a square footing for a short axially loaded column of size $450mm \times 450mm$ carrying 1200kN load. Use M20 concrete and Fe415 steel. SBC of soil is $400kN/m^2$. Sketch the details of reinforcement. 15

Q.8 Write short note on any three of the following: 15

i) Important point to be considered while designing structural member
ii) Singly & doubly reinforced section.
iii) Types of Slabs
iv) Working Stress Method

Total No. of Printed Pages:1

SUBJECT CODE NO:- H-5067
FACULTY OF SCIENCE AND TECHNOLOGY
S. Y. Arch (CBCS) (Sem-IV)
History of Architecture-III

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: i) Q. No.1 from section A and Q.No.5 from section B are compulsory.
ii) Attempt any two questions from the remaining questions in each questions.
iii) Answer to the two sections must be written on the same answer book.

Section – A

Q.1 State whether the following statements are true or false: 10

1. Romanesque architecture draws inspiration from the earlier Roman architecture.
2. Chevete is a small chapels built on the eastern end or the apse end of the church.
3. The Pisa cathedral complex is located in northern France
4. Romanesque architecture is known for its bright interiors and large and beautiful window openings.
5. Durham Cathedral is a very good example of British gothic architecture.

Q.2 What are the typical architectural characteristics of Italian Romanesque architecture? Explain with suitable examples and sketches. 15

Q.3 Describe the architectural characteristics and features of Abbey Aux Home, France with neat sketches. 15

Q.4 Describe the architectural characteristics and feature of Notre-Dame-Cathedral at Paris with neat sketches. 15

Section - B

Q.5 State whether the following statements are true or false: 10

1. Gothic architecture originates from a place in Europe today known as Italy.
2. Flying buttresses is a structural element extensively used in gothic style of architecture.
3. The art of producing drawings using principals of perspective came about during the Renaissance period.
4. The Florence Cathedral dome was designed by Andrea Palladio.
5. Concepts such as the Vitruvian main influenced building design in the renaissance period.

Q.6 Describe the architectural characteristics and features of British gothic style with suitable examples and neat sketches. 15

Q.7 Give a note on the contribution of Italian architects of the renaissance period, with the help of relevant sketches. 15

Q.8 Describe the architectural characteristics and features of St. Peter's Basilica with neat sketches. 15