

Total No. of Questions : 6]

SEAT No. :

PE-13227

[Total No. of Pages : 2

[6587]-19501

**First Year M.Arch. (Environmental Architecture)
ENVIRONMENTAL LAW AND LEGISLATIONS
(2019 Pattern) (Semester - I) (2019EA104)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Assume suitable data wherever necessary.*
- 4) *Draw suitable diagram f necessary.*

SECTION - I (35)

Q1) Answer the following- Any one.

[10]

- a) What is the role of International Environmental Laws in shaping National Environmental Law?
- b) Discuss in detail the role of the Forest (Conservation) Act, 1980?

Q2) Answer the following- Any one.

[10]

- a) How does the Constitution of India distribute power between the Central and State Governments?
- b) State the powers of the State Pollution Control Board under the Water (Prevention and Control of Pollution) Act, 1974.

Q3) Answer the following- Any three.

[15]

- a) State the difference between Reserved Forest and Protected Forest?
- b) State the functions of the National Biodiversity Authority.
- c) What is the concept and role of Public Interest Litigations in India?
- d) Since when Noise is considered as an air pollutant? State the permissible limits for noise pollution in different zones?

P.T.O.

SECTION - II (35)

Q4) Answer the following- Any one. [10]

- a) State the key objectives and the scope of the Biological Diversity Act, 2002?
- b) What is the purpose of conducting an Environmental Impact Assessment (EIA) for development projects?

Q5) Answer the following- Any one : [10]

- a) How do CRZ Notifications balance the needs of the coastal communities and economic development with conservation requirements?
- b) How do regulations within the Mahabaleshwar Eco-Sensitive Zone differ from nearby non-designated areas?

Q6) Answer the following- Any three. [15]

- a) How Construction & Demolition Waste (Management and Handling) Rules, 2016 promote segregation, collection and recycling of waste in urban areas?
- b) Explain the significance of wetlands and state the powers of Wetland Conservation Authority.
- c) How does Environment (Protection) Act empower the Central Government?
- d) How do Bio-Medical Waste (M&H) Rules-1998 ensure the safe disposal and management of bio-medical waste?



Total No. of Questions : 6]

SEAT No. :

PE-13228

[Total No. of Pages : 2

[6587]-19502

First Year M.Arch. (Environmental Architecture)
2019EA105 : NATURAL RESOURCE MANAGEMENT
(2019 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Q.1 & 4 are compulsory.
- 2) Supplement your answers with graphs & figures
- 3) Draw diagram whenever necessary.

SECTION - I

Q1) What is Ecology? Explain ecosystem & its various components along with their role. **[10]**

Q2) Answer any One. **[10]**

- a) Life cycle analysis. Give one example of any one product & its impact on ecosystem.
- b) Biogeographic Bones of India.

Q3) Write short notes (any three). **[5 Marchs each]**

- a) Eco. Sensitive sites.
- b) Habitat specialist species.
- c) Biodiversity Hot spots.
- d) Ecological services.
- e) Carrying capacity of a river.

P.T.O.

SECTION - II

Q4) Explain with Diagram 'Nitrogen Nutrient Cycle' and how urbanisation is affecting it. **[10]**

Q5) Answer any one of the two questions : **[10]**

- a) Explain the case of 'Dams on the rivers' and discuss their role in 'River Ecology'.
- b) What according to you are important Environmental features of 'Smart Green City'?

Q6) Write short note (any 3) : **[5 marks each]**

- a) Biodiversity Parks.
- b) Carbon Sinks.
- c) Greenhouse gases.
- d) Rainwater Harvesting.
- e) Oxygen cycle.



Total No. of Questions : 8]

SEAT No. :

PE-13229

[Total No. of Pages : 4

[6587]-19503

**F.Y. M.Arch. (Design & Project Management)
2019DPM104 : ADVANCED BUILDING CONSTRUCTION TECHNOLOGY & STRUCTURAL SYSTEMS
(2019 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Q1 & Q5 is compulsory. Answer any 2 questions from remaining in each section
Neat diagrams must be drawn wherever necessary*
- 2) Figures to the right indicate full marks.*
- 3) Use of non-programmable calculators allowed.*
- 4) Draw proper diagrams wherever necessary.*
- 5) Use only blue pen and black pencil.*

SECTION - I

Q1) Write Explanatory notes with sketches for any of 3 of the following :

[15]

- a) Explain typical cross section detail of waterproofing along with various Water Proofing Systems used in India.
- b) Explain how different geometrical shapes in plan affect the seismic performance of the buildings.
- c) Sketch various types of bracing systems that can be used for tall buildings.
- d) Explain key aspects of concrete technology along with application of special concrete.

Q2) Solve any two of the following :

[10]

- a) Draw any two Precast construction junction details :
 - i) Wall-to-Wall Connections (Vertical/Horizontal)
 - ii) Beam-to-Column Connections
 - iii) Floor-to-Wall/Beam Connections.
- b) What are the basic steps in formwork installation?
- c) Explain with sketch half tunnel formwork showing components.

P.T.O.

Q3) Answer any two of the following :

[10]

- a) Give examples of good and bad practice of tall building design practices for seismic resistance.
- b) What are the key benefits of Precast Construction? Refer Designing with Precast Pre stressed Concrete.
- c) Explain what is the tube system used in tall buildings and give an example of each, tube in tube system and bundled tube system.

Q4) Answer by selecting the correct option of the following :

[10]

- a) Rock Anchoring for basement is used for the following reason
 - i) To counter uplift due to water pressure
 - ii) To distribute the load from the basement
 - iii) To make the base raft of basement thinner
 - iv) To make effective the anchoring of columns to the raft
- b) To achieve economical design of precast members, which of the following is crucial?
 - i) Maximizing cast-in-situ concrete
 - ii) Minimizing the number of joints
 - iii) Maximizing standardization of elements
 - iv) Increasing reinforcement weight
- c) Which of the following is an indirect method of achieving ultra-high strength.
 - i) Polymerisation of Concrete
 - ii) Reactive powder concrete
 - iii) Compaction by pressure
 - iv) Helical binding
- d) OMC test is required for
 - i) Non Cohesive Soils like Sand
 - ii) Low grade concrete
 - iii) Cohesive soils like Clay
 - iv) Lightweight Concrete

- e) Which of the following load combination is not possible?
- i) Dead load + imposed load
 - ii) Dead load + wind load + earthquake load
 - iii) Dead load + imposed load + wind load
 - iv) Dead load + imposed load + earthquake load

SECTION - II

Q5) Answer any 1 of the following : **[15]**

- a) Explain the importance of coordination between Structural system drawings and MEP systems drawings. What is the role of a project manager in this coordination?
- b) Discuss the components considered for life cycle assessment & explain why does reuse and recycling of building materials matter?

Q6) Solve any two of the following : **[10]**

- a) Draw typical cross sectional details of bolted connection between 8 mm thk MS plate and flange of channel.
- b) Compare Bolting and Welding of Structural work mentioning 2 advantages and disadvantages.
- c) Explain Waste Based Recycled Material and Technologies.
- d) List down 3 advantages and 2 Disadvantages of Steelwork construction.

Q7) Solve any two of the following : **[10]**

- a) What are the 3 challenges due to which Performance based design is not in common practice.
- b) What is performance based design? Discuss with an example.
- c) In UPV tests for Concrete show three types of transmissions with proper sketch and explain where they are applicable.

Q8) Answer by selecting the correct option of the following : **[10]**

- a) Which of the following is a key principle of sustainable construction?
 - i) High operational cost
 - ii) Maximum energy consumption
 - iii) Durability and Waste Reduction
 - iv) Increased land take

- b) Which of the following is the correct sequence of stages in the design of prefabricated components?
- i) Service -> Factory handling -> Site erection
 - ii) Factory handling -> Transportation -> On-site erection
 - iii) On-site erection -> Factory handling -> Design
 - iv) Transportation -> Design -> Factory handling
- c) In sustainable building maintenance, what does POE stand for?
- i) Project Operating Expense
 - ii) Primary Operating Efficiency
 - iii) Post-Occupancy Evaluation
 - iv) Passive Operating Environment
- d) In sustainable building maintenance, what does POE stand for?
- i) Burj Khalifa
 - ii) Willis Tower (formerly Sears Tower)
 - iii) Shanghai Tower
 - iv) Empire State Building
- e) The “Re-barring” technique involves:
- i) Removing all old steel
 - ii) Anchoring new steel bars into existing concrete using epoxy adhesives
 - iii) Welding old steel together
 - iv) Galvanizing steel



Total No. of Questions : 6]

SEAT No. :

PE-13230

[Total No. of Pages : 3

[6587]-19504

F.Y. M.Arch. (Design & Project Management)

**2019DPM105 : FUNCTIONAL PERFORMANCE OF
BUILDING SERVICES**

(2019 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *Answer to the two Sections are to be Written in Separate Answer Books.*
- 2) *Figures to the right indicate full marks for that question.*
- 3) *Draw sketches wherever necessary.*
- 4) *Use only non-programmable calculator.*

SECTION - I

Q1) Discuss the factors (any 5, with explanation) impacting selection of envelope system for a mixed-use building having commercial activities in the lower floors and offices in the upper floors. **[11]**

OR

Explain Centralized Air Cooled Air conditioning with sketches. How is it different from Package AC?

Q2) Write Short Notes on 2 (6 marks each) :

[12]

- a) Role of Integrated Building Management System (IBMS) in optimizing energy performance.
- b) Importance of Post Occupancy Evaluation (POE).
- c) Discuss strategies that could be adopted to reduce the energy consumption of Air Conditioning system, for a large Scale commercial complex located in Delhi (any 4 strategies)

P.T.O.

- d) A wall assembly is made of 3 layers i.e. 230mm of brick, 115mm cavity filled with mineral wool and 115mm of AAC masonry. Calculate the overall U-value of the wall assembly, considering the following table

Layers	U Value (W/m ² K)
230mm Brick Masonry	0.3
115mm Mineral Wool	3.3
115mm AAC Masonry	1.1
	R-Value (m ² k/W)
Inside Surface (R _{si})	0.13
Outside Surface (R _{so})	0.04

Q3) Answer any 3 questions (4 marks each) : [12]

- Discuss any 2 factors to be considered while selecting AC system for a luxury Hotel Project.
- Mention and discuss any 2 codes or standards that you'd refer for evaluating design proposal of building envelope.
- Cogeneration systems.
- District cooling.
- Consideration of SHGC and VLT for glazing selection.

SECTION - II

Q4) What is a Net Positive Energy Building? As a design coordinator, discuss any 4 strategies that you'd suggest to reduce the energy demand of a Commercial & Retail Project (eg: Shopping Mall) [11]

OR

As per NBC, calculate the no. of lifts required for a 15-floors high-rise office building having 1000sqm of floor plate. Consider Population (P) at peak hour as per occupancy of 10 per sqm, average passengers carried in car (Q) as 80% of car's maximum capacity, waiting interval (T) as 45 seconds and the targeted handling capacity (H) as 14%. Make suitable assumptions as required.

$$H = \frac{300 \times Q \times N \times 100}{P \times T}$$

Q5) Write Short Notes on any 2 (6 marks each) : [12]

- a) Any 3 provisions for designing and locating UGT and/or OHT of NBC 2016.
- b) Any 2 types of control valves in high-rise water supply system.
- c) What is Building Performance Evaluation (BPE)? Discuss three functional aspects along with their KPIs for evaluating performance of a building.
- d) What are ELV systems? Give examples of any 3 ELV systems as applicable in an institutional building. Draw sketches wherever necessary.

Q6) Answer any 3 (4 marks each) : [12]

- a) Advantages of Busbars over Cables. (any 2)
- b) Any 2 types of Intruder Detection systems.
- c) Importance of connected load and diversity factor in electrical system.
- d) Any 5 standards/codes referred for Electrical systems.
- e) Safety considerations in Escalator.



Total No. of Questions : 4]

SEAT No. :

PE-13231

[Total No. of Pages : 2

[6587]-19505

**F.Y. M. Arch. (Computer Application)
2019CA104 : DIGITAL DESIGN THEORY - I
(2019 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answers to the two sections should be written in separate answer books.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) All questions are compulsory.*
- 4) Figures to the right indicate full marks.*

SECTION - I

Q1) Answer Any THREE questions from the following : [3 × 5 = 15]

- a) Discuss in detail the digital process of design.
- b) Write a note on 'Parametric explosion' of the late 2000's.
- c) Write a short note Free form Curves.
- d) Write a short note on Swarmism.
- e) Explain 1 projects that can be termed as early digital explorations in Architecture.

Q2) Write short notes on Any TWO from the following with neat sketches wherever necessary : [2 × 10 = 20]

- a) Who can be called as Proto Parametricism in architecture? What is their contribution to today's parametric design process?
- b) What is cybernetics and how is it related to architecture? Explain with examples.
- c) How has digital fabrication changed the design and construction industry?
- d) What is biomimicry? Explain its influence on Design.

P.T.O.

SECTION - II

Q3) Answer Any THREE questions from the following : **[3 × 5 = 15]**

- a) Write a short note Zaha Hadid.
- b) What is collaborative practice? Explain its importance in today's world.
- c) Write a short note Guggenheim museum, Bilbao.
- d) Discuss in detail the digital process of design.
- e) What is digital fabrication?

Q4) Write short notes on Any TWO from the following with neat sketches wherever necessary : **[2 × 10 = 20]**

- a) According to your understanding, what is 'Discrete' in architecture?
- b) How and where are robots used in the construction industry?
- c) What are bubbles and what is foam? How and where are bubble structures used in architecture/design/product design?
- d) What were the key developments in digital thinking within construction and design industry?



Total No. of Questions : 4]

SEAT No. :

PE-13232

[Total No. of Pages : 2

[6587]-19506

**F.Y. M. Arch. (Computer Applications)
2019CA105 : AUTOMATED DESIGN
(2019 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Neat diagrams must be drawn wherever necessary.*
- 3) Answers to the two sections should be written in separate books.*
- 4) Figures to the right indicate full marks.*

SECTION - I

Q1) Answer Any Three out of Five questions from the following : [3 × 5 = 15]

- a) What is IPO model ? Mention 2 types of loops. Explain the Help of suitable diagram.
- b) What is Automation? Mention advantages of Automation.
- c) What is stepper motor? Where is it uses?
- d) List any 10 sensors.
- e) Draw circuit symbols of cell, Earth ground, LED, Diode, Resister.

Q2) Answer any TWO out of Three questions from the following : [2 × 10 = 20]

- a) How to Read colour bands on resistor. Explain in Detail.
- b) What is UNO, Leonardo, Mega, Nano? What power sources are recommended for them. For any 1 board explain what type of current voltage range and current range should be uses?
- c) Explain the following Voltmeter, Ammeter, Ohmmeter draw circuit diagram to show. How to connect each in a circuit; What is multi meter?

P.T.O.

SECTION - II

Q3) Answer Any Three out of Five questions from the following :[3 × 5 = 15]

- a) Answer the following :
 - i) Ohm is unit of _____?
 - ii) Farad is unit of _____ ?
 - iii) State the unit of intensity of sound.
 - iv) State the unit of potential Difference.
 - v) State the unit of power.
- b) Short note on : Capacitor, LED.
- c) Short note on : Potentiometer, Diode.
- d) Define Signal. Explain types of signal sketch if required.
- e) Consider 4 batteries of 1.5v and 500mA each; Describe what Happens when the batteries are connected in parallel connections with help of diagram.

Q4) Write short notes on any Two out of Three from the following :

[2 × 10 = 20]

- a) Short note on : Fast LED, Flex sensor, Arduino UNO.
- b) What is pulse width modulation? Why is it used to control brightness of LED.
- c) Short note on : Neopixel Library, Ultrasound sensor, Arduino mega.



Total No. of Questions : 4]

SEAT No. :

PE-13233

[Total No. of Pages : 2

[6587]-19507

First Year M.Arch. (Architectural Conservation)

MATERIAL CULTURE STUDIES

(2019 Pattern) (Semester - I) (2019Ac104)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Draw sketches wherever necessary.*
- 3) *Figure to the right of each question indicates full marks.*
- 4) *Assume suitable data if necessary.*

SECTION - I

Q1) Answer the following (Any TWO out of three) :

[20]

- a) Assess the role of material culture in reconstructing the history of a civilization.
- b) Write a note on the beginnings and development of archaeology in India.
- c) How does the study of material culture reveal technological advancements in ancient civilizations?

Q2) Answer the following (Any THREE out of five) :

[15]

- a) Difference between tangible and intangible aspects of material culture.
- b) Role of archives and field surveys in studying material culture.
- c) Importance of anthropology in interpreting material culture and archaeology.
- d) Examples of material culture revealing social inequality.
- e) Impact of technological advancements on material culture.

P.T.O.

SECTION - II

Q3) Answer the following (Any TWO out of three) : [20]

- a) Explain the role of museology in the preservation of material culture. What are the challenges involved in preserving artefacts?
- b) How do interdisciplinary approaches enhance the study of material culture?
- c) Explain the relationship between the built environment (architecture) and material culture in historical societies.

Q4) Answer the following (Any THREE out of five) : [15]

- a) Define museology. Highlight its importance using a visit to a museum as a reference.
- b) Types of conservation techniques for preserving artefacts.
- c) Example of a historical site that showcases the role of technology in material culture.
- d) Impact of economic factors on material culture in history.
- e) Role of fieldwork in archaeological research.



Total No. of Questions : 4]

SEAT No. :

PE-13234

[Total No. of Pages : 2

[6587]-19508
First Year M.Arch. (Architectural Conservation)
PLANNING THEORY
(2019 Pattern) (Semester - I) (2019AC105)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) All questions are compulsory.*
- 2) Draw sketches wherever necessary.*
- 3) Use a separate answer book for each section.*
- 4) Figure to the right of each question indicates full marks.*
- 5) Assume suitable data if necessary.*

SECTION - I

Q1) Answer the following (Any TWO out of three) : **[20]**

- a) Describe the evolution of urban form and features of city planning through different historical periods
- b) Explain with examples Land Acquisition and TDR(Transferable Development Rights) in accordance with MRTP Act.
- c) Explain Kevin Lynch Theory with examples.

Q2) Answer the following (Any THREE out of five) : **[15]**

- a) Explain Diversion theory in accordance with MRTP.
- b) Explain with neat sketches any two characteristics of Greek cities.
- c) What are the differences between Macro and Meso regions? Give examples.
- d) Explain Urban Agglomeration (UA), Urban Outgrowth (UO) and Peri-urban areas with examples.
- e) Explain Town Planning Scheme in accordance to MRTP Act 1966.

P.T.O.

SECTION - II

Q3) Answer the following (Any TWO out of three) : [20]

- a) Discuss the planning and architectural characteristics of old POL housing in Ahmedabad. Examine its heritage value and analyse the challenges and strategies for conservation in the context of urban redevelopment.
- b) Explain the general process of studying existing housing areas and how it helps access their condition, issues and potentials.
- c) Discuss minimum three common issues faced by housing areas in developing or expanding cities and suggest sustainable and inclusive ways to improve and manage them.

Q4) Answer the following (Any THREE out of five) : [15]

- a) How can community participation enhance the success of housing conservation projects?
- b) Describe 'Gentrification' and its impact on traditional neighbourhoods and housing conservation.
- c) What are the defining characteristics of traditional housing typologies in urban settlements?
- d) What are the major threats to historic housing clusters in rapidly urbanising cities?
- e) Explain traditional Chettinad Housing planning with the help of sketches.



Total No. of Questions : 6]

SEAT No. :

[Total No. of Pages : 2

PE13235

[6587]-19509

F.Y.M.Architecture (Urban Design)

2019 UD 104 : HISTORY OF URBAN FORM AND SPACE

(2019 Pattern) (Semester-I) (Theory)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Support your answers with neatly drawn diagrams and sketches wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Answers to the two sections should be written in separate answer books.*

SECTION-I

Q1) Write short notes. (Any 3) [15]

- a) Layout and urban form of any religious city with illustrative diagrams.
- b) Planning of any one historic city.
- c) Jaipur as a historic city.
- d) Natural and man-made factors affecting urban form.
- e) Characteristics of Medieval cities.

Q2) Explain the following in detail. (Any 1) [10]

- a) Discuss the key features of Roman urban planning and explain how they influenced the development of cities.
- b) Explain the differences between religious cities and cities built for administration or trade by discussing different aspects like planning, layout, functions, etc.

Q3) Answer the following. (Any 2) [10]

- a) Discuss the factors that lead to the emergence of the Renaissance and its impact on city planning and society in general.
- b) Describe how public buildings and spaces shaped the urban form and social life of classical cities.
- c) Explain why Indus Valley cities are considered exemplary examples of prehistoric Urban Design.

P.T.O.

SECTION-II

Q4) Answer the following. (Any 2) **[20]**

- a) Explain in detail the planning approach and urban form characteristics of an industrial city from the Industrial Revolution period.
- b) Write and explain the evolution of your own town, supported by relevant drawings and diagrams, to explain the patterns of growth and decay (if any) and their corresponding events.
- c) Explain the key characteristics of post-industrial cities and discuss how they differ from industrial cities.

Q5) Answer the following in short. (Any 2) **[10]**

- a) Discuss the role of cultural identity in post-colonial Urban Design.
- b) How did Haussmann transform the city of Paris? What elements of the built environment introduced by him remain relevant today?
- c) Explain the City Beautiful Movement and discuss how it influenced the formation of New Delhi.
- d) Discuss some contemporary approaches to urban renewal and revitalisation with examples.

Q6) Answer the following. (Any 5) **[5]**

Match the following correctly:

- | | |
|----------------------------|---|
| a) City as a Machine | i) Emphasises the importance of green spaces and self-sufficient communities |
| b) City as an Organism | ii) Promoted decentralised, low-density development with individual plots and automobiles |
| c) Form Follows Function | iii) Critiques traditional urban planning's hierarchical structures |
| d) A City is Not a Tree | iv) Prioritizes functionality and efficiency in design |
| e) Garden City Concept | v) Views the city as a complex, interconnected system |
| f) City Beautiful Movement | vi) Sees the city as a rational, efficient system |
| g) Broad acre City | vii) Advocated Grand Boulevards, monumental architecture and civic aesthetics |



Total No. of Questions : 6]

SEAT No. :

PE13236

[Total No. of Pages : 2

[6587]-19510

First Year M. Architecture (Urban Design)

2019UD105 : URBAN DESIGN METHODOLOGIES

(2019 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Support your answers with neatly drawn diagrams and sketches wherever necessary.*
- 3) Figures to the right indicate full marks.*
- 4) Answers to the two sections should be written in separate answer books.*

SECTION-I

Q1) Write short notes.(Any 3)

[15]

- a) Eyes on the Street
- b) Principle of Responsive Order
- c) Politics as a determinant of urban form
- d) Multiple Nuclei Model
- e) Surveys in Urban Design

Q2) Explain the following in detail. (Any 1)

[10]

- a) Differentiate the concept of neighbourhood by Kevin Lynch v/s Jane Jacobs.
- b) Define Urban Morphology and explain the following concepts with Diagrams: Urban Region, Urban Block, Urban Cluster. Unit.

Q3) Answer the following. (Any 2)

[10]

- a) Explain the multiple nuclei model of cities by Harris & Ullman.
- b) What are the five elements of mental mapping as defined by Kevin Lynch.
- c) What are the various mapping methods used for analysis of an Urban Fabric? Describe any two methods in detail.

P.T.O.

SECTION-II

Q4) Answer the following. (Any 2) **[20]**

- a) How does the physical/cultural/natural context determine the typology of urban form? Explain with relevant examples from Jaipur/Jodhpur.
- b) Using plan and sectional diagrams, explain how layering methods help in understanding complex urban areas. Illustrate how multiple layers can be read together to reveal relationships and conflicts within the urban fabric.
- c) Explain any narrative theory which discusses analysis of streets and public spaces.

Q5) Answer the following in short. (Any 2) **[10]**

- a) Explain documentation & the need for documentation.
- b) What are the different layers of physical mapping that you will use for analysis of an urban area in a core city?
- c) What is Classification of Urban Design Guidelines based upon implementation strategies.
- d) Design a survey for a cognitive map to be prepared for demarcating safe & unsafe routes and areas for women within a neighbourhood.

Q6) Answer the following. (Any 5) **[5]**

- a) Fine grained i) exterior face of a building which is the architectural front.
- b) Course grained ii) arrangement/pattern of the buildings and streets in the built form.
- c) Urban Streets iii) they are situated on streets and also are centres of activity.
- d) Urban Grain iv) have large blocks and buildings and little architectural variety.
- e) Facade v) large number of different buildings and closely spaced streets.
- f) Urban nodes vi) movement corridors which form the structure of the town.



Total No. of Questions :10]

SEAT No. :

PE13237

[Total No. of Pages : 2

[6587]-19511

M.Arch. (Construction Management)
2019CM 104 : BUILDING CONSTRUCTION
TECHNOLOGY & SERVICES
(2019 Pattern) (Semester-I)

Time : 2 ½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8 and Q9 or Q10.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) a) State the importance of geotechnical investigation. **[5]**

b) Explain Tremie method along with sketch. **[5]**

OR

Q2) a) Explain the effect of aggression soil conditions in foundation system. **[5]**

b) Explain step by step process of erection of steel structure. **[5]**

Q3) a) State the disadvantages of steel structure construction? **[5]**

b) Write short note on aesthetic concrete. **[5]**

OR

Q4) a) Write short note on under water construction. **[5]**

b) Write short note on fabrication and erection of steel structure. **[5]**

Q5) a) Explain water distribution network system. **[9]**

b) Write note STP along with sketch. **[9]**

OR

Q6) a) Explain the working of solar water system. **[9]**

b) Write note on hot water supply system. **[9]**

P.T.O.

- Q7)** a) Explain active firefighting system. [8]
b) Explain risk control measures in firefighting system. [8]

OR

- Q8)** a) Explain importance of evacuation map in commercial building. [8]
b) Explain the importance of firefighting system in high rise residential building. [8]
- Q9)** a) Explain the AMC for Plumbing system. [8]
b) Explain the routine maintenance of building services in detail. [8]

OR

- Q10)a)** Write note on retrofitting Vs new construction, its advantages and disadvantages. [8]
b) Explain the importance of operations and maintenance of hospital building. [8]



Total No. of Questions : 4]

SEAT No. :

PE13238

[Total No. of Pages : 2

[6587]-19512

First Year M.Arch. (Construction Management)

**2019-CM-105 : CONTRACT MANAGEMENT AND BUILDING
CONSTRUCTION LAWS
(2019 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Answer to the questions in Section I and Section II to be written in separate answer sheets.*
- 3) *Figures(in bracket) in the right indicate full marks.*

SECTION-I

Q1) Answer in detail (Any one)

[15]

- a) Explain with an example: Valid, Void and Voidable Contract under the Indian Contract Act, 1872. And Differentiate between Agreement and Contract with suitable examples from construction projects.

OR

- b) Describe the tendering process from issuing a Notice Inviting Tender (NIT) to awarding the contract in brief steps. Differentiate between technical bid and financial bid.

Q2) Write short note (Any four)

[4×5=20]

- a) What is contract planning?
- b) Explain any two methods of subcontracting
- c) What is contract close-out?
- d) Define Defect Liability Period (DLP)
- e) Explain the Land Acquisition Act.
- f) Easement Act.explain

P.T.O.

SECTION-II

Q3) Answer in brief (Any one)

[15]

- a) Explain the major provisions of the Land Acquisition Act (LARR Act 2013) and highlight how it differs from the Land Acquisition Act of 1894. What is the Gunthewari Act in Maharashtra? Explain its purpose, eligibility, regularization process and impact on urban development.

OR

- b) Discuss the structure and key provisions of the National Building Code (NBC) 2016 with reference to safety, planning and construction practices. Explain the role of Zilla Parishad in planning, implementing and monitoring rural housing programs.

Q4) Write short note (Any four)

[4×5=20]

- a) Explain RERA
- b) Explain EIA process
- c) Explain Stages of Completion Certificate
- d) State norms to be followed for Fire safety explain.
- e) What are different property Acts?
- f) Explain key provisions of the Industrial Disputes Act.



Total No. of Questions : 6]

SEAT No. :

PE13239

[Total No. of Pages : 2

[6587]-19513

First Year M.Arch. (Digital Architecture)

2019 DA 104 : DIGITAL ARCHITECTURE PROCESS

THEORIES AND HISTORY - I

(2019 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt all the questions from Section-A and Section-B.*
- 2) Exercise choice in Que. no. 2 (Section-A) & Que. no. 6 (Section-B).*
- 3) Support your answers with sketches wherever necessary.*

SECTION - A

Q1) Explain the contribution of Frei Otto to the development of grid shell construction by explaining any one project that illustrates form finding and experimental methods of his grid shell construction. **[15]**

Q2) Describe the development of Felix Candela shells wrt the specific construction technique used by him to construct his experimental shells. **[10]**

OR

How has the construction of shell and membrane structures has changed in the presence of digital mediums explain with reference to any one project. **[10]**

Q3) Explain how the realization of Jhon Utzons Sydney opera house was a collaborative effort and how did it initiate the involvement of computational processes in architectural design and construction. **[10]**

P.T.O.

SECTION - B

Q4) Explain any one project that was constructed in the first part of 21st century (After the year 2000) that truly manifested the digital mediums in its design and construction. **[15]**

Q5) Describe the historical premise in which Archigram movement took birth and explain their pro consumerists and experimental goals via one example. **[10]**

Q6) Explain the contribution of architect Frank O Gehry to the development of Digital Fabrication and prototyping of complex surfaces. **[10]**

OR

Explain the term Blobitecture, explain any one project that explains this phase in the evolution of Digital architecture. **[10]**



Total No. of Questions : 6]

SEAT No. :

PE13240

[Total No. of Pages : 2

[6587]-19514

First Year M.Arch. (Digital Architecture)

2019DA105 : DIGITAL FABRICATION-I

(2019 Pattern) (Semester - I)

Time : 2½Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

SECTION-I

(35 marks)

Q1) Answer any ONE out of the Two

[15]

- a) Describe following processes with necessary diagrams:
 - i) FDM
 - ii) SLA
 - iii) SLS
 - iv) Binder jetting
 - v) Poly Jet/ Multi Jet
- b) Discuss architectural applications of large-scale 3D printing.

Q2) Answer any ONE out of the Two

[10]

- a) Describe additive manufacturing process & two advantages of this process.
- b) Explain in detail the process of Laser Cutting in Digital Architecture.

Q3) Answer any ONE out of the Two

[10]

- a) Compare FDM and SLA processes with respect to material, accuracy and surface finish.
- b) Describe Sheet Metal Fabrication.

P.T.O.

SECTION-II

(35 marks)

Q4) Describe the role of material optimization in digitally fabricated structures.[15]

Q5) Answer any ONE out of the Two [10]

- a) Describe the methods of “Sectioning” & “Tessellating” in Digital Architecture with proper examples.
- b) Explain the role of kerf in laser-cut sheet fabrication.

Q6) Answer any TWO out of the Three [10]

- a) Explain Contour Crafting.
- b) What is digital Fabrication?
- c) Explain the powder-based process of additive fabrication.



Total No. of Questions : 6]

SEAT No. :

PE13241

[Total No. of Pages : 3

[6587]-19515

F.Y. M. Architecture (LA)

2019 LA 104 : GEOLOGY & SOILS

(2019 Pattern) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Answers to Section-I and Section-II should be written in two separate answer sheets.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Figures to the right indicate full marks.*
- 5) *Assume suitable data if necessary.*

SECTION - I

Q1) Answer in detail. (Any 1) [10]

- a) Describe the origin and internal structure of the Earth. Explain the characteristics of the crust, mantle, and core, highlighting their relevance in understanding landscape processes.

OR

- b) Explain the classification of rocks. Describe the formation, characteristics, and landscape significance of igneous, sedimentary, and metamorphic rocks with suitable examples.

Q2) Answer the following. (Any 4) [20]

- a) Explain earthquakes, their causes, and effects. Highlight the seismic zones of India.
- b) Describe volcanoes, their types, and associated landforms.
- c) Explain structural geological features such as dip, strike, folds, faults, and joints, and their importance in landscape interpretation.
- d) Explain the principles of stratigraphy and their application in understanding geological history.
- e) Write a short note on isostasy and crustal deformation.

P.T.O.

Q3) Multiple choice questions:

[5]

- a) The study of rocks is known as:
 - i) Petrology
 - ii) Pedology
 - iii) Seismology
 - iv) Mineralogy
- b) The process for breaking rocks into smaller fragments without chemical change is:
 - i) Oxidation
 - ii) Hydrolysis
 - iii) Physical weathering
 - iv) Carbonation
- c) Basalt is an example of a:
 - i) Sedimentary rock
 - ii) Igneous rock
 - iii) Metamorphic rock
 - iv) Organic rock
- d) The ability of soil to transmit water is called:
 - i) Porosity
 - ii) Plasticity
 - iii) Permeability
 - iv) Cohesion
- e) The scale used to measure earthquake magnitude is:
 - i) Richter scale
 - ii) Beaufort scale
 - iii) Mohs scale
 - iv) Celsius scale

SECTION - II

Q4) Answer in detail. (Any 1)

[10]

- a) Explain the process of soil genesis and mention the main factors responsible for soil formation with examples.

OR

- b) Describe the morphological characteristics used in soil classification and explain how they help classify soils and assess their suitability for landscape development.

Q5) Write short notes. (Any 4)

[20]

- a) Soil Mapping
- b) Soil Degradation in Urban Areas
- c) Physical Properties of Soil
- d) Biological and Mineralogical Properties of Soil
- e) Survey of Major Indian Soil Types

Q6) Multiple choice questions:

[5]

- a) Soil is made up of 5% _____.
 - i) Organic matter
 - ii) Air
 - iii) Mineral matter
 - iv) All of the above
- b) Which of these is a layer in the soil morphology?
 - i) p
 - ii) z
 - iii) E
 - iv) S
- c) Layers of soil are called as _____.
 - i) Horizon
 - ii) Strata
 - iii) Plate
 - iv) None of the above
- d) Which of the these have a greater particle size?
 - i) Sand
 - ii) Soil
 - iii) Clay
 - iv) Silt
- e) Which of the these have a smallest particle size?
 - i) Sand
 - ii) Soil
 - iii) Clay
 - iv) Silt



Total No. of Questions : 6]

SEAT No. :

PE13242

[Total No. of Pages : 3

[6587]-19516

First Year M.Architecture (Landscape)

**2019 LA105 : GEOMORPHOLOGY & HYDROLOGY
(2019 Pattern) (Semester - I)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Answers to Section I and Section II should be written in two separate answer sheets.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Assume suitable data if necessary.*

SECTION-I

Q1) Answer in detail (Any 1)

[10]

- a) Describe in brief what is climatic geomorphology and morphogenic regions. Additionally, highlight Peltier's classification of morphogenic regions and explain its key features.

OR

- b) Explain in detail about Exogenic processes.

Q2) Answer the following (Any 4)

[20]

- a) Explain pseudo-volcanic features with examples, highlighting the processes that lead to their formation and how they differ from true volcanic landforms.
- b) Describe the Fluvial landform and the landforms created by Fluvial erosion and deposition, providing relevant examples.
- c) How are Aeolian landforms formed and describe the features formed by erosion and deposition in such landforms.
- d) What are coastal landforms? Define and explain the types of erosional landforms found in coastal regions.
- e) Explain Karst topography in detail.

P.T.O.

Q3) Multiple Choice Questions.

[5]

- a) The study of landforms and the processes that shape them is called:
 - i) Pedology
 - ii) Geomorphology
 - iii) Hydrology
 - iv) Climatology
- b) A river's meander is primarily formed due to:
 - i) Wind erosion
 - ii) Lateral erosion
 - iii) Glacial abrasion
 - iv) Volcanic activity
- c) Karst topography develops mainly in:
 - i) Granite
 - ii) Basalt
 - iii) Limestone
 - iv) Sandstone
- d) The process responsible for the formation of sand dunes is:
 - i) Fluvial action
 - ii) Aeolian action
 - iii) Glacial action
 - iv) Tectonic uplift
- e) A V-shaped valley is typically formed by:
 - i) Glaciers
 - ii) Rivers
 - iii) Wind
 - iv) Waves

SECTION-II

Q4) Answer in detail (Any 1)

[10]

- a) What is the difference between groundwater and an aquifer? Additionally, explain the different types of geological formations that store water.
- OR
- b) Describe groundwater management practices. Explain major sources of groundwater pollution and methods for its control.

Q5) Write Short Notes (Any 4)

[20]

- a) Monsoon system of India.
- b) Surface water sources in the hydrological cycle.
- c) Role of drainage basins in water management.
- d) Rain water harvesting techniques.
- e) Channel flow vs. sheet flow.

Q6) Multiple Choice Questions.

[5]

- a) A _____ is an area of land that is either covered by water or saturated with water.
- | | |
|--------------|-----------------------|
| i) Wetland | ii) Pond |
| iii) Estuary | iv) None of the above |
- b) Groundwater is contained and flows through bodies of rock and sediment called _____ .
- | | |
|------------|-----------------------|
| i) Aquifer | ii) Wetland |
| iii) Creek | iv) None of the above |
- c) River System is divided into three parts, Head, Plain and _____ .
- | | |
|----------|-----------------------|
| i) Mouth | ii) Terminal |
| iii) End | iv) None of the above |
- d) Streams that flow upon Floodplains move in sweeping bends are called _____ .
- | | |
|--------------|-----------------------|
| i) Meanders | ii) Yazhoo |
| iii) Estuary | iv) None of the above |
- e) An aquifer sandwiched between two impermeable beds is called _____ water table.
- | | |
|-----------------|-------------------|
| i) Confined | ii) Unconfined |
| iii) Impervious | iv) None of these |

