M. Arch Environmental Architecture (First Year) Semester: II

Subject: Sustainable Development and Planning | Subject Code: 20PEA0203A

Month and Year: June 2022 | Marks: 100 Marks

Time: - 3 Hours

Answer any 5 questions:

I. Discuss about 2 acts each of Social, Economic and Environmental aspects from Sustainable Development in India document released by MoEF and Government of India. (20 marks)

II. What are the existing and emerging challenges faced by our country in terms of a holistic sustainable development? (20 marks)

III. Water, land, food and energy security. Discuss in detail how this can be achieved at policy and implementation level. (20 marks)

IV. Infrastructure is understood as a series of systems that function in synergy, directly linked to urban planning. Decode in different points the key infrastructure systems of Energy, Landscape, Transportation, Waste, Water, Information and Food, to explore their synergies through land use planning, engineering, economics and policy. (20 marks)

V. Describe in words how an ideal sustainable city should look like. Hint: throw light on the image of the city, demographics, economical and industrial activities, resource management, clean energy, etc. (20 marks)

VI. Short notes on any 5: (4x5=20 marks)

a. Neighbourhood planning principles
b. Housing shortage
c. Urban design
d. Planned cities
e. Urban heat island
f. Transit oriented development
g. Sector based urban planning

MGM UNIVERSITY
Department of Architecture
S.Y. M. Arch. (Env.) - End Semester Examination 2021

Program: M. Arch (Env.) **Semester: III**
Course Code: 20PEA0306A **Name of the Course: EIA AND ENVIRONMENTAL MANAGEMENT**
Marks: 80 **Time: 3 Hr**

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Instructions:

1. Illustrate your answers with neat sketches, diagram etc. wherever necessary.
2. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

Q. No.1:- A . Fill in the blanks (2 marks each, all compulsory)

I. The EIA report should have --- No. of Chapters.

II. --- Chapter of EIA report doesn't include any information about the project.

III. As per EIA notification Sector 8 (Construction) projects would never fall under --- category.

IV. CPCB standard for daytime noise level is --- for a residential area.

V. As per CPCB norms the baseline monitoring should be carried out for ---

Q. No.1:- B. True or False (2 marks each, all compulsory)

I. EIA report should include a Detailed Project Report prepared for the project.

II. Land use Analysis is not necessary for Sector 8 (Construction) projects.

III. Providing capital expenditure costs for mitigation measures is sufficient in the EIA report.

IV. At least 5 samples of water are essential to establish the baseline.

V. Public Hearing is not required for Construction Projects

Q. No. 2:- Answer the following questions (15 Marks Each, any four)

I. Explain why cost-benefit analysis may not be required for Sector 8 (Construction) projects?(15 Marks)

II. Describe the contents of the Environmental Management Plan chapter.(15 Marks)

III. Explain the importance of Analysis of Alternatives in EIA report. (15 Marks)

IV. If a study area shows a low literacy level and a high number of marginally employed workers, how would you this information in preparing Environmental Management Plan. (15 Marks)

V. Describe major air pollutants generated by Sector 8 (Construction) projects and mitigation measures for them. (15 Marks)

VI. How Sector 8(Construction) projects can affect turbidity, BOD, and Total Suspended Solids in surface water? What are the likely mitigation measures? ?(15 Marks)

MGM UNIVERSITY
N-6 CIDCO, AURANGABAD
End Semester Examination 2021

Branch: M. Arch (ENV)
Sem. :- III
Subject:- Environmental Law and Legislation
Subject Code: - 20PEA0304A
Marks: 100
Date: - 22 December, 2021

Time: - 3 Hrs.

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Instructions: - 1. Question No. 1 is compulsory

2. Answer any FOUR out of the remaining.

Q. No.1:-

I. Which section of the Air Act 1981 deals with the Constitution of State Boards? (4 Marks)

a. Section 7 b. Section 4

c. Section 5 d. Section 9

II.Section 10 of Air (Prevention & Control of Pollution) Act 1981 deals with _____? (4 Marks)

a. Central Pollution Control Board b. Power to give directions

c. Meeting of Board d. Reports of analysis

III.Which section of the Environment (Protection) Act, 1986 deals with the persons handling hazardous substances to comply with procedural safeguard? (4 Marks)

a. Section 12 b. Section 9 c. Section 14 d. Section 20

IV.Who among the following reserves the right to initiate the Constitutional Amendment ? (4 Marks)

a. Supreme Court of India b. Parliament of India

c. President of India d. Union council of ministers

V. In which section of the Water (Prevention and Control of Pollution) Act, 1974 definition of 'Pollution' is provided? (4 Marks)

a. Section 3 b. Section 4 c. Section 5 d. Section 2

Q. No. 2:- What is the significance of Directive Principles of State Policy ? 20 Marks

Q. No. 3:- Write a note on Preamble of the Constitution of India. 20 Marks

Q. No. 4:- Provide the Constitution of State Board under the Water (Prevention and Control of Pollution Act) 20 Marks

Q. No. 5:- Explain in detail the Power to give directions as provided under Section 18 of the Air (Prevention and Control of Pollution Act). 20 Marks

Q. No.6:- What are the powers of the Central Government under Section 3 of the Environment (Protection) Act 1986 ? 20 Marks

Q. No. 7:- Explain in detail functions and powers of the National Monuments Authority constituted under the Ancient Monuments And Archaeological Sites And Remains Act? 20 Marks

Second Term Exam A. Y. 2021 – 2022 (Jun – Jul 22)
Programme Name : M. Arch. (Environmental Architecture) 2nd Sem Exam

Course Code: 20PEA0206 | Name of the course: Research Methodology
Max Marks: 50 | Duration: 2 hrs

Instructions:
(a) Write your answers clearly and legibly.
(b) Statistical test values and table values are provided in the question paper itself. There is no need for any other document for statistical values.
(c) Write precise and to-the-point answers.
(d) Use illustrations and flowcharts where required.

Q.1	Answer any two questions: f. Write a short note on the criteria of good research. g. Write a short note on literature review. h. What are different techniques involved in defining a research problem?	5 5 5
Q.2	Read the following passage and answer any one from the set: **Architecture and the Environmental Impact of Artificial Complexity** There is an astonishing degree of complexity, order, and beauty in the natural world. Even so, and especially within the realm of living things, nothing is more complex than it needs to be to sustain its existence. Every aspect of the system serves a purpose. If it does not, the unneeded component eventually ceases to exist in future generations. Even with these constraints of resource and energy efficiency, we find boundless beauty and harmony in the natural world. Contrast nature's "just the right amount of complexity" to the way many architects design buildings today. While nature is only as complex as it needs to be, architects and designers add excessive and inessential complexity to their buildings and landscapes when none is warranted. Contemporary architecture is riddled with artificial complexity, resulting in buildings that strain the environment, deplete resources, and compromise the most basic function of sheltering inhabitants from the elements. Buildings that contort, pop up and down, are split in the middle, and engage in all other manners of geometric gymnastics have very little—and, often, nothing—to do with the function, economy, or beauty of the building. Despite that, this type of complexity has long been seen as the designer's prerogative, a creative and ego-driven self-expression that has been championed by most architecture schools and romantic notions of what it means to be an architect. Let me be clear: Complexity itself is not the problem; rather, it is the irrational and arbitrary forms that complicate structure and compromise building integrity that I am calling into question. While artificial complexity may be more visible in modern buildings, traditional architecture is not immune to its influence; "McMansions" and "McMain Streets" are traditional expressions of artificial complexity, with their mountain-range roofs and overly repetitive facade articulations. But artificial complexity is not limited to the work of starchitects—it pervades even the humblest of buildings, from warehouses to affordable housing. Landscape architecture suffers from the same obsession. Contemporary open spaces are often designed with excessive planters, berms, walls, and other features that clutter the landscape and impinge on the user's experience. It is not enough to provide a beautiful, shaded, open space with seating that accommodates a variety of activities and freedom of movement. As with the architect, the landscape architect must make an artistic statement. Contemporary architecture wears its complexity on its sleeve. This is in stark contrast to today's high-tech devices, which are incredibly complex on the inside and convey a sense of utter simplicity on the outside. If the iPhone were designed the way many architects design buildings today, it would be burdened with extra switches, knobs, illuminated buttons, and perhaps a few jagged edges, just for style. This term, artificial complexity, has not been widely used in the context of architecture. However, the architect and urbanist Leon Krier has frequently illustrated the phenomenon permeating the design of buildings, landscapes, and cities. His diagrams expose the absurdity of so much contrived complexity vs. the rational form of Krier's classically inspired architecture and urbanism. Mathematician Nikos Salingaros has written extensively about complexity in architecture, using the terms disorganized, random, and invented complexity. And	

Christopher Alexander spent a lifetime trying to teach us the Nature of Order, how to apply universal principles of design to create more beautiful and harmonious places. My objective here is to expand on this dialog and focus attention on the negative consequences of not following more natural processes of design.

The most egregious sin of artificial complexity is the environmental toll it exacts. Structural complexity—where the form of the building is manipulated to create dynamic shapes in roofs, walls, and projections that defy rational explanation—requires tons of extra materials: steel, concrete, wood, glass, and more. Asymmetrically loaded beams, overextended cantilevered slabs, and other structural contortions exact a cost in natural resources and energy used for extraction, fabrication, and installation. By contrast, the most efficient, and thus environmentally sustainable, structural systems are repetitive members that are symmetrical in section: the simple post and beam, the arch, the barrel vault, the truss.

Like structural complexity, volumetric complexity also wastes resources, creating nonstructural volumes and shapes that have no bearing on the use, or even the beauty, of the building. In an era of concern about climate change, shouldn't we be conceptualizing buildings at the earliest stages of design to be resource and energy-efficient?

I posit that the primary enabler of artificial complexity was—and remains—cheap fossil fuels, which have lowered the relative cost of the extraction, fabrication, and transportation of building materials. This enables architects to waste resources on structural gymnastics; mechanized labor and materials are relatively cheap. No wonder the architecture of the pre-industrial world seems more organic and harmonious. It had to be resource- and energy-efficient in the same way that nature must be. It was only the civic buildings—pyramids, temples, cathedrals, palaces—that had access to excess material and energy in the form of human labor, and thus the luxury of scale and complexity.

It would be interesting, but nearly impossible, to try and calculate the billions of dollars this unneeded complexity adds to schools, hospitals, offices, even self-storage buildings. These costs get passed on to consumers and taxpayers. As the late John Silber argued in Architecture of the Absurd: How "Genius" Disfigured a Practical Art, higher-education institutions are one of the most prodigious addicts of artificial complexity, using it to gain attention among their peer institutions and to feed the egos of major donors.

The economic costs do not end with the building's construction. So much gratuitous shape-making, especially in the building envelope, leads to inevitable maintenance problems. Every juxtaposition of unlike materials, every projection from walls and roof, every structural contortion creates weak points prone to moisture penetration, freeze-thaw cycles, and decay. This contrasts with traditional forms of facade articulation, which minimized the number of exterior materials and which were detailed to shed water off the roof and walls.

While the roots of artificial complexity go back eons, it seems to have emerged on a broad scale with the Industrial Revolution and the harnessing of fossil fuels. What started in the 19th century was fully embraced in the 20th as more resources were available to expend on extraneous materials and building components. This does not mean that industrialization caused artificial complexity, but it did enable it. Cheap fossil fuel, notions about the role of the architect as artist and hero, the suburbanization of the city, and an appeal to our innate desire for novelty, all amplified the preponderance of artificial complexity.

In more recent times, artificial complexity is used as a substitute for the absence of naturally occurring urban complexity. The traditional urban streetscape was composed of multiple increments of smaller buildings side by side. Each building was relatively simple, but together they created an intricate composition. Today, most new buildings in the U.S. stand isolated in a sea of asphalt (or, at best, an artificial landscape), begging for attention from speeding motorists.

Buildings of civic importance—museums, city halls, theaters, libraries, churches, and privately owned buildings that function as civic landmarks—merit more ambitious architecture and may justify the environmental and economic costs that come with artificial complexity. In pre-industrial towns and cities, the cathedral utilized towers, spires, and soaring roofs to inspire believers and exalt a higher power. In the 19th and early 20th centuries, courthouses and city halls were typically the finest and most complex buildings in the town center, signifying their importance and establishing the rule of law. In more recent times, museums are designed with bold architecture to garner recognition, promote an artistic mission, and create civic pride. For these reasons, proponents of form-based-codes, a type of zoning code that emphasizes urban form overuse, have typically exempted civic buildings from stringent design standards to enable greater architectural expression and to allow these buildings to stand out among the others.

	While the freedom to make a statement may be warranted for some civic buildings, many architects still insist on taking artificial complexity to extremes, resulting in buildings that bust budgets and cost more to maintain and repair, putting an undue burden on future stewards of the institution. Buildings that make up the urban fabric of the city—houses and shops, offices and hotels, libraries and museums—can be designed with a natural level of complexity that is appropriate for their function, context, and climate. In most cases, this means simple massing that incorporates simple roofs (that do not leak), rational and environmentally efficient structural systems, and well-designed facades with attention to detail and construction. By creating simple building forms, architects can give more attention to refining details and using higher quality materials. Natural complexity does not equate to minimalism, which seeks to strip all detail and decorative flourish from the building form. Minimalism turns the complexity dial all the way to the other extreme, resulting in artificial simplicity. As Alexander explained, the layering of details from the scale of the facade to the scale of the doorknob emulates the natural complexity of the universe (from galaxy to atom) which constantly reveals itself at each scale. Urban design can also play a role in the pursuit of natural complexity. By focusing on incremental development patterns, as opposed to megaprojects, there will be less pressure on each individual building to embody complexity. The complexity will emerge from the assemblage of individual buildings—along a street, surrounding a park—combined with the layering of other components that make up the built environment. If architects and designers are going to take climate change seriously, we need to think honestly about our role in propagating consumption-heavy buildings. Sustainability starts with the question of whether to build. Once the decision is made to proceed, we should give deeper consideration to the environmental impact that our design choices impose on the planet. When you think about the places that you have visited and loved, it's worth remembering that nearly all of them are assemblages of simply formed, rationally structured, and finely detailed buildings. These are the places that have endured for decades, if not centuries. Answer any one from the following sets SET A: (a) What is the gap in the research being addressed in the article. (b) Which kind of article is it: research, general interest or any other type? (c) What are the different methods that have been discussed in the article? (d) Is there any contrast in the observations made in the different locations? (e) What are the future scopes which have been addressed in the article? SET B: (e) Identify Primary and Secondary Data in the article. (f) What are the sources of data collection? (g) Which kind of experiment is required for the type of research described in the article? (h) Write a short summary (about 100 words) of this article.	4 4 4 4 4 5 5 5 5
Q.3	Answer any four questions: a. What is a cumulative probability distribution? Explain. b. Explain Chi-square test. When and where is it used? c. Explain the z-test d. Explain the process of conducting one-way ANOVA. e. Explain the process of conducting two-way ANOVA.	5 5 5 5