

Department of Architecture
NIT Hamirpur (HP) 177005
End Term Examination
ARD-415 Energy Efficient Architecture
B.Arch. 4th year 7th semester

Dated: 11.12.2020

Time: 2h

Max. Marks: 50

Instructions:

1. The question paper is given below and is posted on classroom as assignment just before the start of exam.
2. The answers will have to be written in plain A4 sheets preferably or on any other available sheets.
3. On the top of first page of answer sheet write :Name, Roll No. Subject Name, Subject Code, Programme, Semester, Department, Date of exam, Number of pages.
4. At the bottom of each sheet of answer booklet, the candidate is required to put his/her Signature with date.
5. After the exam, scan /take photo using camera and upload the clicked answer sheets on google classroom within 15 minutes after the completion of exam. Alternatively, the candidate may send back the same on email id aniket@nith.ac.in within 15 minutes after the completion of exam.
6. Please keep in mind that after 15 minutes of completion of exam, the candidate may not be able to submit on classroom. Also the email sent afterwards will not be accepted.
7. Delay in submission would lead to rejection of answer booklet.
8. The student need to save pdf of their answer sheet by the name "rollnosubjectcode.pdf" and upload the same on the classroom. It shall be one file and no pdf files for separate pages will be entertained.
9. It is the responsibility of the candidate to ensure adequate internet connectivity and shall keep on their mic and video during the period of exam. Candidate to ensure the same beforehand.
10. Candidates are required to sit in a calm and quiet area so as to avoid background noise.

All questions are mandatory. Assume missing data suitably.

Q1. A three storey shopping mall building is proposed to be located at Delhi is of size 80m x 30m and is oriented facing north south. It has windows of length 50m each on north and south facade and 20m each on east and west facade. Floor to floor height is 4m, sill height is 0.8m and window height is 2.5m.

A. Given details of proposed building to make its building envelope ECBC Compliant as per perspective Compliance of ECBC 2017. **(20)**

B. Provide a ECBC Compliance to the above building using Trade-Off method when roof insulation of desired thickness is not available. Assume missing data suitably.

(14)

Q2. Make a suitable choice to purchase a LED TV from the given options. State your reason for such a selection. The energy price is Rs. 5/unit and the TV will run for 8 hours each day. **(8)**

Type	Capital cost	Wattage
No star	20,000	55W
1 star	21,500	50W
2 star	22,500	45W
3 star	23,500	40W
4 star	24,300	35W
5 star	25,200	30W

Q3. Discuss the importance of energy efficiency in Architecture. Explain the various measures taken to achieve the same through a suitable case study. **(8)**