

CBCS Scheme

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Third Semester B.Arch. Degree Examination, Dec.2017/Jan.2018 Climatology

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Name the different climatic zones in India and briefly explain. (05 Marks)
b. Describe macro climate and micro climate. (15 Marks)

OR

- 2 a. What are the factors effecting thermal comfort, units of measurements the instruments used to measure? (10 Marks)
b. Describe the following with relevant sketches (10 Marks)
i) Effective Temperature
ii) Connected effective temperature
iii) Bio climatic chart
iv) Tropical summer Index
v) Operative Temperature

Module-2

- 3 a. Write short notes on : (04 Marks)
i) Solar chart (03 Marks)
ii) Solar Azimuth (03 Marks)
iii) Solar Altitude (03 Marks)
b. Discuss the various types of shading devices with sketches. (10 Marks)

OR

- 4 Explain detail the process of heat exchange of buildings with the explanation of all factors. (20 Marks)

Module-3

- 5 a. Define 'u' value of a material (u – thermal resistivity). What is its SI unit? How are u, k (Thermal Conductivity) and R value (Resistivity) related to each other. (10 Marks)
b. Calculate u value of a 23cm thick brick wall with 1.25cm thick cement plaster on both sides.
Given K (brick) = 0.811W/m K
K (cement plaster) = 0.721 W/m K. (10 Marks)

- 6 OR
Calculate 'u' value for the wall shown below.

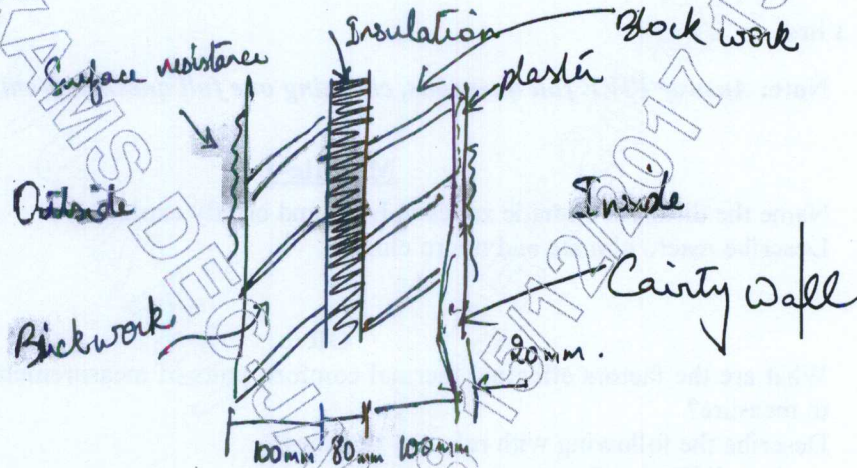


Fig. Q6

Thermal conductivities

Brickwork – 0.84 W/m°C

Insulation – 0.03 W/m°C

Block work – 0.65 W/m°C

Plaster – 0.50 W/m°C

Surface resistance outside $0.055 \text{ m}^2\text{°C/W}$ inside – $0.123 \text{ m}^2\text{°C/W}$

(20 Marks)

Module-4

- 7 a. Illustrate with sketches natural wind flow patterns around buildings when buildings are arranged in rows of in staggering fashion. (10 Marks)
b. Explain the influence on the Indoor air flow pattern by sashes, Canopies of Lowres (controls) (10 Marks)

OR

- 8 a. Describe why conventional tilted Lowres are unsatisfactory on both exclusion of rain and provision of in movement together. (10 Marks)
b. With sketch describe 4 types of Lowres. (10 Marks)

Module-5

- 9 a. Why is it desirable to elongate a day lighted building on east west axis? (12 Marks)
b. Give the building form design guidelines day lighting in warm humid climates. (08 Marks)

OR

- 10 Write five design strategies (with respect to form, layout planning, building construction and architectural design techniques, materials used etc.) for designing and constructing a residence in Chennai. (20 Marks)
