KATHMANDU UNIVERSITY
End Semester Examination
July/August 2024

Level : B.E.
Year : II
Time : 2 hrs. 30mins.

29 JUL 2024

Course : ARCH 201
Semester : I
F. M. : 40

Students are encouraged to support their answers with necessary figures, illustration and drawings.

SECTION "B"

[5Q. × 3 = 15 marks]

Attempt *ANY FIVE* questions.

1. What is urban heat island profile?
2. What is the difference between wet bulb and dew point temperatures?
3. What are the advantages and disadvantages of renewable and non-renewable energy?
4. How is microbiological parameter of potable water determined?
5. State briefly the composition of solid waste in Nepal and Bangladesh.
6. What are the different factors affecting corrosion?
7. Describe the principles of green building?

SECTION "C"

[5Q. × 5 = 25 marks]

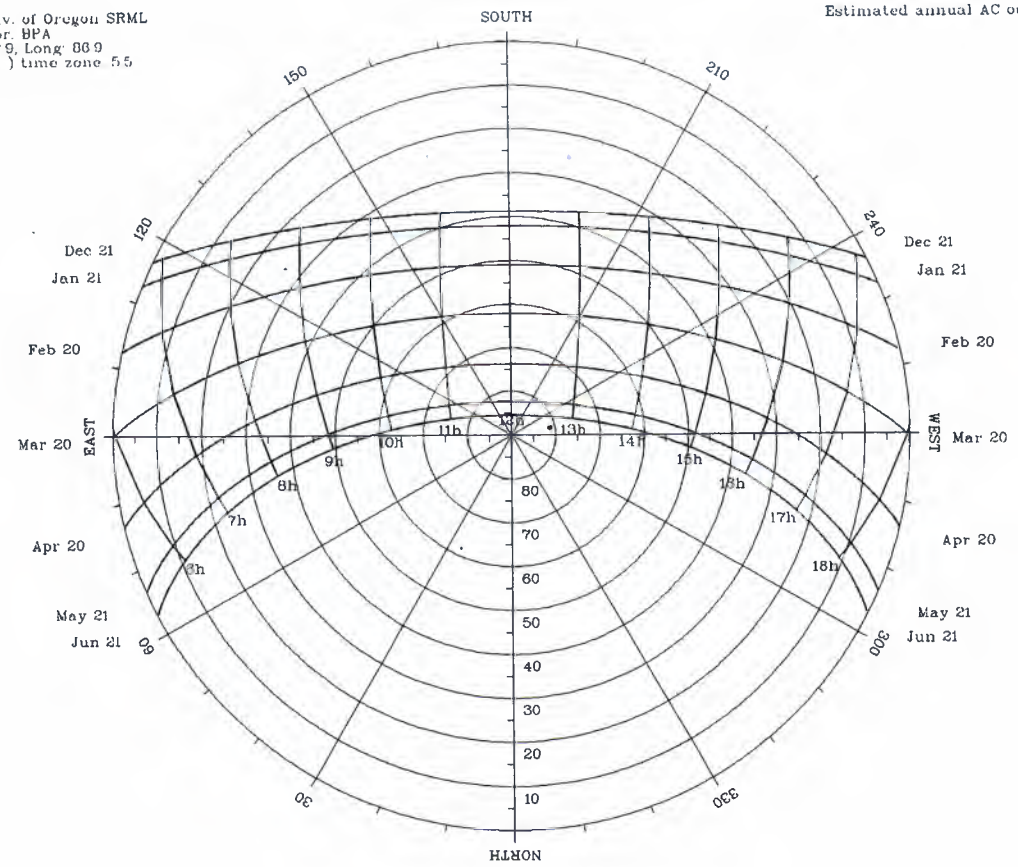
Attempt *ANY FIVE* questions. **(Q.N. 8 is compulsory).**

8. What is solar chart used for? Design a horizontal shading device to fully shade a window of 2.5 m height on Jan 21 at 2 PM, if the window is facing south-west. Use the solar chart given below. [1+4]
9. Describe briefly the different types of renewable energy?
10. What are the various steps of municipal water treatment?
11. Using sketches, describe how domestic waste water is removed by sewage system.
12. How can corrosion be prevented?
13. What were the passive design techniques employed in the vernacular architecture that you studied and how were they integrated into the design?

P.T.O.

(c) Univ. of Oregon SRML
Sponsor: BPA
Lat: 27.9, Long: 86.9
(Solar) time zone: 5.5

Estimated annual AC output.



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End Semester Examination
July/August 2024

Marks Scored:

Level : B.E.
Year : II

Course : ARCH 201
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date : 29 JUL 2024

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate option from each set of choices

1. Climate in a region is a _____ of the prevailing conditions of temperature, air pressure, humidity, rainfall, sunshine etc.
   a. composite b. composition c. amalgamation d. mix

2. _____ is the rate at which radiant energy leaves a surface.
   a. Radiance b. Radiosity c. Beam radiation d. Solar irradiance

3. Warm temperate zone lines in between _____ m.
   a. 3600 – 4400 b. 2400 – 3600 c. 1200 - 2400 d. 500 - 1200

4. Coal was used for heating around _____ AD.
   a. 1400 b. 1500 c. 1600 d. 1700

5. The energy crisis of February 2022 led to increase in oil price, this has also occurred in
   a. 1979-1980 b. 1970-1980 c. 1960-1980 d. 1975-1980

6. Building use energy in _____ stages of its life cycle.
   a. early b. late c. useful d. all

7. ____ % of human adult body is water.
   a. 40 b. 50 c. 60 d. 70

8. Hard water contains
   a. white lime b. calcium and lime
   c. calcium and magnesium d. magnesium and lime

9. According to WHO, between _____ litres of water per person per day is needed
   a. 20 – 45 b. 40 – 90 c. 50 – 100 d. 65 – 300

10. Benefit of waste management is:
    a. protect environment b. pollution increase
    c. energy consumption d. creates employment

11. Detention time in free water surface type is …….. days.
    a. 1 – 4 b. 5 – 14 c. 15 – 24 d. 25 – 30

12. What binds with metal molecules to form corrosion?
a. oxygen b. water c. hydroxide d. sulphate

13. Corrosion due to tensile stress on metal is known as _____
a. Embrittlement b. Galvanic corrosion
c. Pitting d. Crevice corrosion

14. Zero energy buildings are first and foremost, _____ energy buildings.
a. nearly-zero b. net-zero c. nearly net-zero d. very low

15. What is critical for successful sustainable design?
a. Passive design b. Integrated design
c. Overall design d. Energy efficient design

Fill in the blanks with appropriate answer.

16. Urban climate is any set of climatic conditions that prevails in a large _____ area.

17. We receive both light and heat from the _____

18. Non-biodegradable waste cannot be _____

19. Corrosion is the _____ reverse process of metallurgy.

20. Minimizing energy consumption and promoting human health should be the _____ principle of sustainable design.