

KATHMANDU UNIVERSITY  
End Semester Examination [C]  
June/July 2024

Level : B.Sc./B.Tech.  
Year : III  
Time : 2 hrs. 30mins.

Course : ESEE 301  
Semester : I  
F. M. : 55

SECTION "C"  
[3Q × 7 = 21 marks]

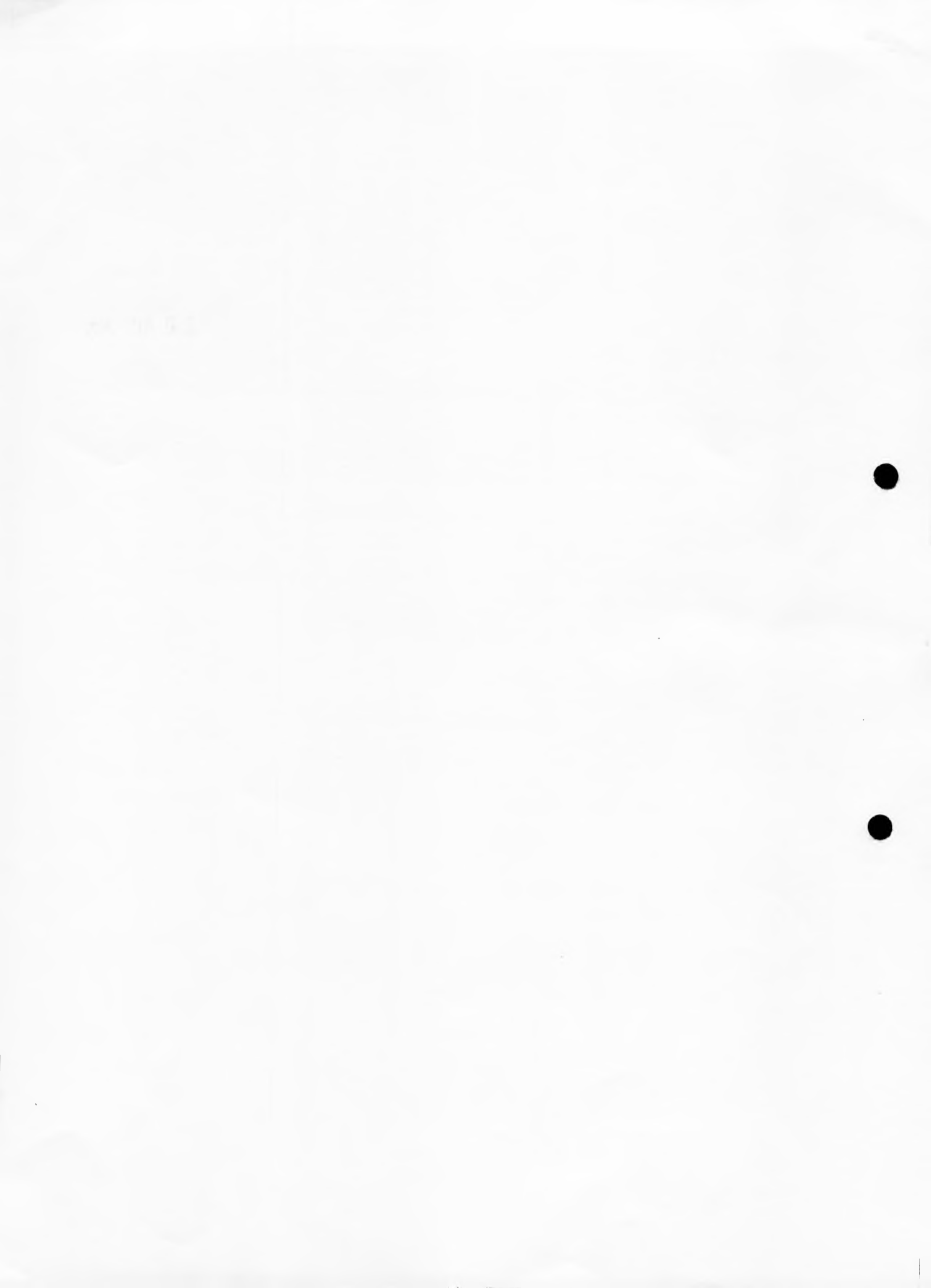
30 JUN 2024

Attempt *ANY THREE* questions.

1. What causes air pressure? Why does air pressure decrease with increasing altitude? What are its most common units?
2. How does summer monsoon differ from winter monsoon? Explain in detail. Why is summer monsoon important for a mountainous country like Nepal?
3. Explain in detail the important factors in production of raindrops in cloud and other factors affecting the raindrops.
4. What climatic information did Koppen use for classifying climates and why? Explain main climatic classification by Koppen.

SECTION "D"

5. Differentiate between *ANY FOUR* [4 Q. × 4 = 16]
  - a. Low cloud and middle cloud
  - b. Continental Polar Air mass and Maritime Polar air Mass
  - c. Tornado and water spout
  - d. Tropical Monsoon Climate and Tropical Dry and Wet Climate
6. Write short notes on *ANY FOUR* [4 Q. × 3 = 12]
  - a. High cloud
  - b. Trewartha's climate classification
  - c. Tropical wet climate (Ar)
  - d. Mountain and Valley Breezes
  - e. Winter rain in Nepal
7. Give reasons why [2 Q. × 3 = 6]
  - a. Temperature at the earth's surface is a function of latitude and altitude.
  - b. Western Nepal receives less rainfall than eastern Nepal.



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Marks Scored:

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Registration No.:

Date **3:0 JUN 2024**

SECTION "A"

[20Q. × 0.5 = 10 marks]

Mark [X] the most appropriate option from the given choices.

1. When the position of Earth is closure to the Sun, it is known as  
[ ] Perihelion      [ ] Aphelion      [ ] Equinox      [ ] Solstice
2. Prime Meridian is known for  
[ ] 0 degree latitude [ ] 0 degree longitude [ ] 90 degree latitude [ ] 90 degree longitude
3. Laps rate is the rate at which air temperature  
[ ] increases with increasing elevation  
[ ] decreases with increasing elevation  
[ ] decreases with decreasing elevation  
[ ] remains constant throughout the atmosphere
4. It is agreed that atmospheric layer Stratosphere is warmed due to presence of a gas called  
[ ] Carbon dioxide [ ] Ozone [ ] Methane [ ] Oxygen
5. Which of the following gas is a greenhouse gas  
[ ] Methane [ ] Hydrogen [ ] Helium [ ] Oxygen
6. Hail is associated only with  
[ ] Stratus cloud [ ] Cirrus cloud  
[ ] Nimbostratus [ ] Cumulonimbus Cloud
7. Jet stream is associated with  
[ ] Mesopause [ ] Stratopause [ ] Tropopause [ ] Monsoon trough
8. Water droplets freely suspended in the atmosphere having temperature below zero but, not freezing is known as  
[ ] cooled [ ] super cooled [ ] frost [ ] dew
9. Raindrops falling from sky but, not reaching to the ground is known as  
[ ] freezing rain [ ] freezing drizzle [ ] virga [ ] glaze
10. Visible light of the solar radiation from blue to red lies in the range between the wave length  
[ ] 0.4 – 0.7 micron [ ] 4 – 100 micron [ ] 100 – 400 micron [ ] 300 – 400 micron

11. Terrestrial radiation is the radiation emitted by  
 Earth                       Sun                       Moon                       unknown planet
12. Wind shear condition prevails in the atmosphere when  
 wind speed is constant  
 wind speed and direction vary significantly  
 wind direction is constant  
 wind is calm
13. Monsoon onsets in Nepal from  
 North West               South East               North                       West
14. The thermometer that has a small dumbbell-shaped glass index marker in the tube is a:  
 bimetallic thermometer                       maximum thermometer  
 minimum thermometer                       electric thermometer
15. When two air masses come together but neither displaces the other, the boundary between them is referred to as  
 Occluded front     cold front               warm front               Stationary front
16. An object that absorbs all radiation falling on it, at all wavelengths, is called  
 black body               white body               red body               opaque
17. The process of decaying a front is known as  
 frontogenesis               frontolysis               synopsis                       analysis
18. The precipitation with greatest size (diameter) is  
 the snow pellet     the snow grain               a hailstone                       sleet
19. Geostrophic wind is a wind that blows in a straight line when forces acting on it such as  
 pressure gradient force and Coriolis forces are equal  
 pressure gradient force is greater than Coriolis force  
 pressure gradient force is less than Coriolis force  
 frictional force is equal to Coriolis force.
20. Hygrometer is an instrument that measures  
 rain                       pressure                       humidity                       sunshine intensity

SECTION "B"

[10 Q. × 1 = 10 marks]

Define in one sentence:

21. Haze

22. Sea Breeze
23. Fog
24. Ceilometer
25. Inter Tropical Convergence Zone
26. Low cloud
27. Cyclone
28. Vapor pressure
29. Isobar
30. Valley breeze

