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63/2 (SEM-1) GGY 102

2021

(held in 2022)

GEOGRAPHY

(Theory Paper)

Paper Code : GGY-102

(Climatology)

Full Marks – 80

Time – Three hours

**The figures in the margin indicate full marks
for the questions.**

1. Multiple choice type questions (*all* compulsory) :
1×6=6

**(i) The concentration of ozone is mainly found
between 15 and 35 km above the earth's
surface. Because**

**(a) oxygen molecules break-up at altitudes
above 30 km**

(b) the gas is comparatively lighter

(c) of turbulent mixing

(d) All of the above

[Turn over

- (ii). Mesosphere is characterised by decrease in temperature to a minimum of about -135°C because
- (a) earth radiation is more near the surface
 - (b) the molecules absorb much of the radiation
 - (c) gas molecules disintegrate and energy is escaped to the outer space.
 - (d) None of the above
- (iii) The amount of energy received at the top of the atmosphere is affected by
- (a) solar output
 - (b) the sun-earth distance
 - (c) the altitude of the sun
 - (d) All of the above
- (iv) The equator is an area where low pressure occurs regularly. It is because
- (a) equator receives relatively more solar energy
 - (b) pressure and density of gas vary inversely with temperature

- (c) there is less air near the surface, with a consequent decrease in surface pressure
 - (d) All of the above
- (v) The group of clouds characterized by ice crystal is called
- (a) cirriform
 - (b) cumuliform
 - (c) stratiform
 - (d) None of the above.

2. Very short type questions (*all compulsory*) :
2×5=10

- (i) Why there is general decrease of temperature with height in troposphere ?
- (ii) What is condensation nuclei ?
- (iii) What do you mean by relative humidity ?
- (iv) What do you mean by adiabatic temperature change ?
- (v) Write some characteristics of temperate cyclone.

3. Short answer type questions (any six): $5 \times 6 = 30$

- (i) Describe any theory of precipitation.
- (ii) Explain in short about formation of El-Nino.
- (iii) How land surface affect the surface receipt of solar radiation ?
- (iv) Briefly. explain the thermal concept of monsoon.
- (v) Explain the process of formation of geotrophic wind.
- (vi) Explain the dynamics underlying jet stream.
- (vii) Explain with diagram about the upper level constant pressure surface.
- (viii) Write a short note on characteristics of lower altitude clouds.
- (ix) Explain the process of formation of subtropical high pressure belt.

4. Descriptive type questions (answer any two):
 $10 \times 2 = 20$

- (i) Explain in detail the factors affecting the incoming solar radiation and heat budget of the earth surface.

(ii) Describe in detail the various forms of precipitation.

(iii) Discuss the Kopper's dimate classification scheme and also discuss its limitations.

5. Advance answer type questions (any one)

$14 \times 1 = 14$

(i) Explain the world pattern of ocean current with suitable diagram. How do they influence regional climates, fishing and navigation ?

$7 + 7 = 14$

(ii) Explain in detail the mechanisms in maintaining the general circulation of the atmosphere with appropriate diagram.