

Enrollment No.....



Faculty of Engineering
End Sem (Even) Examination May-2019
OE00037 Green Building Technologies

Programme: B.Tech.

Branch/Specialisation: All

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. If air speed is less than 0.1 m/s, Operative Temp. is **1**
 (a) $(t_r + (t_a \times \sqrt{10V}))/ (1 + \sqrt{10V})$
 (b) $(t_r + t_a)/2$
 (c) $(t_r - (t_a \times \sqrt{10V}))/ (1 + \sqrt{10V})$
 (d) $(t_r - t_a)/2$
- ii. Unit of measurement of illuminance is **1**
 (a) Lumens (b) Lumens / m
 (c) Lux/m² (d) Lumens/m²
- iii. Relative humidity in cities are _____ than surroundings **1**
 (a) Higher (b) Lower (c) Equal (d) We can't say
- iv. Wind speeds are _____ in cities than the countryside **1**
 (a) Higher (b) Lower (c) Equal (d) We can't say
- v. Cross ventilation is not suited for buildings that are – **1**
 (a) Narrow
 (b) On exposed site
 (c) Too deep
 (d) Provided with a regular distribution of openings.
- vi. Which is not desiccant material? **1**
 (a) Silica gel (b) Activated alumina
 (c) Iron oxide (d) Lithium chloride
- vii. Which of the following is not an inert material? **1**
 (a) Excavated rocks (b) Bamboo
 (c) Soil materials (d) Sand
- viii. Building with windows facing _____ or _____ provide good access to illumination and effortless shading. **1**
 (a) East; west (b) North; south
 (c) South; west (d) South; east

- ix. Following ingredient of concrete has highest embodied energy **1**
 (a) Cement (b) Sand (c) Aggregate (d) Water
- x. Construction waste is – **1**
 (a) Biodegradable (c) Organic waste
 (c) Manageable (d) Packing material

- Q.2 Attempt any two:
 i. What is Reverberation? How sound can be absorbed in a hall? **5**
 ii. Enlist any four Green Building Rating system in the world and Explain Indian rating system GRIHA in detail. **5**
 iii. How Indoor air pollution affects health? **5**
- Q.3 Attempt any two:
 i. Write a note on climate zone in India, and also describe factors which affect climate. **5**
 ii. What do you understand by microclimate? How we can improve microclimate conditions? **5**
 iii. Explain solar water heating system in brief. **5**
- Q.4 Attempt any two:
 i. Explain any one Passive Downdraft Evaporative Cooling device with diagram. **5**
 ii. What is desiccant cooling system? Explain in detail. **5**
 iii. Explain vertical earth coupling with diagram. **5**
- Q.5 Attempt any two:
 i. What do you understand by native landscaping? **5**
 ii. How can you conserve water? **5**
 iii. Write advantages and disadvantages of double glazed window. **5**
- Q.6 Attempt any two:
 i. Explain environmental implications of building material production. **5**
 ii. Write a detailed note on embodied energy. **5**
 iii. How can we reduce waste during construction? **5**

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Marking Scheme
OE00037 Green Building Technologies

Q.1	i.	If air speed is less than 0.1 m/s, Operative Temp. is (a) $(t_r + (t_a \times \sqrt{10V}))/ (1 + \sqrt{10V})$	1
	ii.	Unit of measurement of illuminance is (d) Lumens/m ²	1
	iii.	Relative humidity in cities are _____ than surroundings (b) Lower	1
	iv.	Wind speeds are _____ in cities than the countryside (b) Lower	1
	v.	Cross ventilation is not suited for buildings that are – (c) Too deep	1
	vi.	Which is not desiccant material? (c) Iron oxide	1
	vii.	Which of the following is not an inert material? (b) Bamboo	1
	viii.	Building with windows facing _____ or _____ provide good access to illumination and effortless shading. (b) North; south	1
	ix.	Following ingredient of concrete has highest embodied energy (a) Cement	1
	x.	Construction waste is – (c) Manageable	1

Q.2	Attempt any two:		
	i.	Reverberation Sound absorption	5
	ii.	Any four Green Building Rating system Indian rating system GRIHA	5
	iii.	Indoor air pollution affects health?	5

Q.3	Attempt any two:		
	i.	Climate zone in India Factors which affect climate	5
	ii.	Microclimate Improvement in microclimate conditions	5
	iii.	Solar water heating system	5
		Diagram	
		Working	

Q.4	Attempt any two:		
	i.	Any one Passive Downdraft Evaporative Cooling device Diagram. Working	5
	ii.	Desiccant cooling system Desiccant material Explanation	5
	iii.	Vertical earth coupling Diagram. Working	5

Q.5	Attempt any two:		
	i.	Native landscaping	5
	ii.	How can you conserve water? 10 points 0.5 mark for each	5
	iii.	Double glazed window. advantages disadvantages	5

Q.6	Attempt any two:		
	i.	Environmental implications of building material production.	5
	ii.	Embodied energy.	5

iii.	How can we reduce waste during construction?	5
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