



B.E DEGREE EXAMINATIONS: MAY 2017

(Regulation 2015)

Fourth Semester

CIVIL ENGINEERING

U15CET401: Building Services

COURSE OUTCOMES

- CO1:** Plan for essential services for the building.
CO2: Choose appropriate equipment for buildings.
CO3: Implement wiring systems and prepare the plan for electrical wiring for buildings.
CO4: Plan for lighting facilities in the building.
CO5: Choose suitable air conditioning system for the building.
CO6: Choose fire safety systems for various types of buildings.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Matching type item with multiple choice code

CO5 [K₁]

List I		List II	
A. Freon 12		i. Centrifugal Systems	
B. Freon 22		ii. Low temperature cold Storage	
C. Freon 11		iii. Window type A/C Unit	
D. Ammonia		iv. Ice Plants	

- | | A | B | C | D |
|----|-----|-----|----|-----|
| a) | iii | ii | i | iv |
| b) | iii | i | ii | iv |
| c) | i | ii | iv | iii |
| d) | i | iii | iv | iii |

2. The transformation ratio for step up transformer is CO3 [K₁]
 a) $K > 1$ b) $K < 1$
 c) $K = 1$ d) $K \geq 1$
3. The selection of refrigerant for a vapour compression system depends on CO5 [K₂]
 1. Toxicity 2.Environmental effect
 3. Saturation Pressure- temperature relationship
 a) 1,2 b) 2,3
 c) 1,3 d) 1,2,3
4. The slope of stairs in Escalators is CO1 [K₁]
 a) 15° b) 30°
 c) 45° d) 60°
5. Assertion (A): Tungsten is used as a filament in Artificial light sources CO4 [K₂]
 Reason (R): It has low melting point and high rate of evaporation
 a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true
6. When three primary additive colours are combined in equal proportions ,they produced CO4 [K₁]
 a) Yellow Light b) Cyan Light
 c) Magenta Light d) White Light
7. A layout of gas turbine power plant is in the order of CO1 [K₁]
 LPC 2.HPT 3.HPC 4.LPT
 a) 2-3-4-1 b) 1-3-2-4
 c) 3-4-2-1 d) 4-1-3-2
8. Fire Lighting is otherwise called as CO6 [K₁]
 a) Emergency Lighting b) Escape Lighting
 c) Fusible Lighting d) Emergency and Escape Lighting
9. Assertion (A): The load bearing walls of masonry should be thicker in section CO6 [K₂]
 Reason (R): To resist fire for longer time and act as vertical barriers to the passage of heat and fire
 a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true

10. For Controlling 3 Phase power with 3 wire system, the clad switch used is CO3 [K₁]
- a) DPIC b) TPIC
c) TPNIC d) ICS

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. Differentiate Fire tube Boiler with Water tube Boiler. CO1 [K₂]
12. Classify vibrators used for compacting the concrete. CO2 [K₁]
13. List the applications of transformers? CO3 [K₁]
14. Enumerate the reasons for using single phase supply in residential buildings and three phase supply in Industrial Buildings. CO3 [K₂]
15. What are the factors affecting visual tasks? CO4 [K₂]
16. Compare M.S.C.P and M.H.S.C.P CO4 [K₂]
17. What is the use of Cooling towers? CO5 [K₂]
18. List the advantages of vapour refrigeration systems. CO5 [K₁]
19. Define Automatic Sprinklers. CO6 [K₁]
20. Name the types of sprinkler heads. CO6 [K₁]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. List out the various recommendations of National Building Code with respect to fire safety. CO6 [K₁]
22. Compare and Contrast a Cochran boiler and Wilcox Boiler CO1 [K₂]
23. Identify and Explain various possibilities of fire hazards in current type of buildings and how will you protect them from Disaster. CO6 [K₂]
24. Classify Wiring system. Explain in detail with neat sketches. CO3 [K₁]

25. A Single phase transformer of rated capacity 50 kVA has 400 turns on the primary winding and 200 turns on the secondary winding. The primary is connected to 2500V, 50 HZ AC supply. Calculate the following: CO3 [K₃]
Voltage across the secondary winding
The current passing through both the windings.
The maximum flux value.
26. Explain lighting Strategies and also explain the requirement of lighting for various Buildings. CO4 [K₂]
27. Explain the Principle, Construction and Working of a refrigeration system. CO5 [K₁]
