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Question Paper Code: 42705A

B.E. / B.Tech. DEGREE EXAMINATION, **NOV 2019**

Second Semester

Computer Science and Engineering

14UME205 – BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE, ECE, EIE, ICE, MECH and IT)

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

- The first reading from a level station is
(a) Fore sight (b) Intermediate sight (c) Back sight (d) Any sight
- Limestone is a _____ rock
(a) Igneous (b) Sedimentary (c) Metamorphic (d) Stratified
- The members which support covering material of a sloping roof are
(a) Rafters (b) Purlins (c) Battens (d) Struts
- Which of the following materials is most elastic
(a) rubber (b) plastic (c) brass (d) steel
- Economiser is used to heat
(a) Air (b) Feed water
(c) Flue gases (d) All of the above
- An impulse turbine is used for
(a) Low head of water (b) High head of water
(c) Medium head of water (d) High discharge

7. The working cycle in case of four stroke IC engine is completed in following number of revolutions of crankshaft.
- (a) $\frac{1}{2}$ (b) 1 (c) 2 (d) 4
8. Which device is the accessory of boiler?
- (a) Steam stop valve (b) Economiser (c) Blow-off cock (d) Fusible plug
9. Which one is not the property of good refrigerant?
- (a) Low freezing point (b) High boiling point
(c) Low viscosity (d) High critical pressure
10. The value of COP in vapour compression cycle is
- (a) Always more than unity (b) Always less than unity
(c) Equal to unity (d) None of the above

PART - B (5 x 2 = 10 Marks)

11. Convert the following WCB to RB: (i) $28^\circ 32'$, (ii) $240^\circ 24'$
12. Define landscaping.
13. What are gas turbines?
14. What is meant by scavenging in two stroke engines?
15. Define “ton of refrigeration”.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Describe a metric chain with a neat sketch. (6)
(ii) The following perpendicular offsets were taken at 10m intervals from a baseline to an irregular boundary.
3.15, 4.30, 8.20, 5.60, 6.85, 7.60, 4.20, 5.60, 4.30.
Calculate the area by Trapezoidal and Simpsons rule. (10)
- Or
- (b) Discuss the properties and types of bricks and cement concrete. (16)
17. (a) (i) Explain various kinds of rubble masonry with neat sketches. (8)
(ii) Write short notes on columns. (8)

Or

- (b) Explain the different types of floors. (16)

18. (a) Draw the layout of a steam power plant, explain its working principle. (16)

Or

(b) Sketch the schematic arrangement of a nuclear power plant and explain its working. (16)

19. (a) (i) Explain the working of four stroke petrol engine with neat sketch. (12)

(ii) Differentiate boiler mountings and accessories. (4)

Or

(b) Explain the working of a four stroke diesel engine with a neat sketch. (16)

20. (a) Explain with a neat sketch the construction and working of vapour compression refrigeration system. (16)

Or

(b) With a neat sketch, explain in detail the working of a window type room air conditioner. (16)
