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**Reg. No. :**

**Question Paper Code: 52078**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Second Semester

Mechanical Engineering

15UME208 - BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE and EIE branches)

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. In the cement the compound quickest to react with water, is

(a) Tricalcium aluminate (b) Tetra-calcium alumino-ferrite (c) Tricalcium silicate (d) Dicalcium silicate

2. Sand stone is

(a) Sedimentary rock (b) Metamorphic rock

(c) Igneous rock (d) Volcanic rock

3. The foundations are placed below ground level to increase

(a) Strength (b) Workability (c) Stability of structure (d) All the above

4. Pile based on material is

(a) anchor pile (b) friction pile (c) end bearing pile (d) timber pile

5. The efficiency of the gas power plant is

(a) 45% (b) 40% (c) 35% (d) 30%

6. In a reciprocating pump, air vessels are used to

(a) Reduce the flow (b) Increase the delivery head (c) Reduce the acceleration head (d) Increase the flow

7. The working cycle in case of four stroke engine is completed in following number of

revolutions of crank shaft

(a) 1/2 (b) 1 (c) 2 (d) 4

#### 8. The power developed by a diesel engie is not increased by

(a) higher compression ratio (b) fine atomisation of fuel (c) excess supply of air (c) suppling air at increased pressure

9. A vapour absorption refrigerator uses \_\_\_\_\_\_\_\_\_\_ as a refrigerant.

(a) Water (b) Ammonia (c) Freon (d) Aqua-ammonia

10. One ton of refrigeration implies that the machine has a refrigerating effect

(a) 210 KJ/sec (b) 210 KJ/min (c) 210 KJ/hr (d) 210 KJ/day

PART - B (5 x 2 = 10 Marks)

11. What are the consitutent materials of bricks?

12. Define deep foundation.

13. What is the function of Moderator?

14. What is meant by scavenging in two-stroke engines?

15. Mention any three desirable properties of good refrigerant.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) With a neat diagram explain Prismatic compass. (10)

(ii) The following perpendicular offsets were taken at 10 meter intervals from a survey line to an irregular boundary line. 3.15m, 4.3m, 8.2m, 5.6m, 6.85m, 7.6m, 4.2m, 5.6m, 4.3m. Calculate the area enclosed between the survey line, the irregular boundary line, and first and last offsets, by the application of (i) Average ordinate rule (ii) Trapezoidal rule and (iii) Simpson’s rule. (6)

Or

(b) What are the different types of steel? Explain the properties and uses. (16)

17. (a) Discuss différent types of foundation with the help of neat sketches. (16)

Or

(b) Draw a typical vertical section of a wall through openings, and show various important elements of construction. (16)

18. (a) Draw the layout of a Diesel Power Plant. State the subsystems and components of the plant and explain each one of them briefly. Also state the advantages and disadvantages of diesel power plant. (16)

Or

(b) With the help of a neat sketch explain the working of Centrifugal Pump. (16)

19. (a) Describe the principal parts and functions of a Four Stroke Petrol engine with neat sketch. (16)

Or

(b) (i) With a neat sketch explain about Cochran boiler. (8)

(ii) Write a short note on fusible plug and spring loaded safety value. (8)

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

conditioner. (16)

Or

(b) Explain the working principle of window air conditioner with a neat sketch. (16)