**Reg. No. \_\_\_\_\_\_\_\_**

**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination - June 2011**

**Subject Title: BASIC MECHANICAL ENGINEERING Time: 3 hours**

**Subject Code: 09ME101 Maximum Marks: 100**

#### **Answer ALL questions**

**PART – A (10 x 1 = 10 MARKS)**

1. State the function of fusible plug in a boiler.

2. Petrol engine is also known as \_\_\_\_\_\_\_\_\_ engine.

3. Name any two materials used as moderator in nuclear power plant.

4. Name the working fluid used in Ocean Thermal Energy Conversion power plant.

5. Define stress.

6. Name any two drafting software used in Computer Aided Design.

7. The mechanical working of metals above the \_\_\_\_\_\_\_\_\_ temperature is called ‘hot working’.

8. What is a pattern?

9. What is tapping?

10. The principal alloying elements in brass are \_\_\_\_\_\_\_\_\_ and\_\_\_\_\_\_\_\_\_.

**PART – B (5 x 3 = 15 MARKS)**

11. Explain the term: ‘Scavenging’.

12. State the functions of surge tank in a hydroelectric power plant.

13. What are the steps involved in CAD process?

14. List the advantages of casting process.

15. List the important properties of non ferrous metals and alloys.

**PART – C (5 x 15 = 75 MARKS)**

16. Draw a neat sketch of a Babcock and Wilcox boiler and discuss its working and salient features.

(OR)

17. With neat sketches explain the working of two stroke petrol engine.

18. With a neat sketch, explain the working principle and components of a nuclear power plant.

(OR)

19. Sketch and explain the essential features and working of Geothermal power plant. List the advantages and disadvantages.

20. a. Draw and explain the Stress-Strain curve of a ductile material. (9)

b. A mild steel rod of 15 mm diameter and 250 mm long elongates 0.075 mm under an axial pull of 12 kN. Determine Young’s modulus of the material. (6)

(OR)

21. Explain the features, advantages and disadvantages of AutoCAD software.

22. Explain the constructional features of a Cupola furnace with a neat sketch. Discuss the different heating zones of the furnace during operation.

(OR)

[P.T.O]

23. Discuss the principle of operation of gas welding equipment with the aid of a neat sketch. Also explain the three types of flames.

24. With neat sketches explain the various operations performed in a lathe.

(OR)

25. Briefly explain the important types of alloy steels and discuss the effects of different alloying elements in steel.