MODEL PAPER – FORMATIVE ASSESSMENT-1
C23-EE-405
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-405: GENERAL MECHANICAL ENGINEERING

Time: 90 Minutes Total marks: 40

PART-A **(1X4) + (4X3) = 16 M**

Instructions:
i. Answer all five questions.
ii. First question carries four marks and remaining each question carries three marks.
iii. Answers should be brief and straight to the point and shall not exceed five simplesentences

1. a) Define Poisson's ratio
   b) state function of spark plug.
   c) Write Torsion Equation
   d) Define Young's Modulus CO1, CO2
2. Write any the relations between Elastic constants (E, G and K) CO1
3. Classify the shafts. CO2
4. Mention the main components of IC Engine CO3
5. Define Yield stress. CO1

PART-B **(3X8) = 24 M**

Instructions:
i. Answer all three questions.
ii. Each question carries eight marks.
iii. The answers should be comprehensive and the criteria for valuation are the content butnot the length of the answer.

6. (a) Draw the Stress –Strain diagram for a typical Ductile and brittle material and locate the Salient points on it. CO1

(or)

(b) A steel bar 350 mm long is 20 mm in diameter for 200 mm of length and 15 mm diameter for the remainder. If the tensile load of 20kN is applied on a bar, calculate the total elongation of the rod. Take $E=2*10^5$ N/mm^2 CO1

7. (a) Write the procedural steps involved in design of a shaft CO2

(OR)

(b)) Find the diameter of solid circular shaft required to transmit 750 KW at 250 rpm. It specified that the maximum shear stress must not exceed 50 N/mm^2 and the angle of twist must not exceed 2 degree in a length of 2 m. Take G = $0.8x10^5$ N/mm^2. CO2

8. (a) Explain the working of four stroke Diesel Engine. CO3

(OR)

(b) Explain about Functions of main components of an IC Engine CO3

MODEL PAPER – FORMATIVE ASSESSMENT-2
C23-EE-405
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-405: GENERAL MECHANICAL ENGINEERING

Time: 90 Minutes Total marks: 40

PART-A **(1X4) + (4X3) = 16 M**

Instructions:
i. Answer all five questions.
ii. First question carries four marks and remaining each question carries three marks.
iii. Answers should be brief and straight to the point and shall not exceed five simplesentences

1 (a) Priming is done for Reciprocating pump (True/False)
(b) Direction of flow in Kaplan Turbine is (Tangential flow/ Axial flow)
(c) Super Heater is a Boiler ------ (Accessories/ Mountings)
(d) State the function of Blow Off cock. CO4, C05

2. Write any three differences between Fire tube and water tube Boilers CO4
3. Explain working of Fusible Plug and Air pre heater. CO4
4. Difference between reciprocating pump and Centrifugal Pump. CO5
5. Explain working of Jet Pump. CO5

PART-B **3X8 = 24 M**

Instructions:
i. Answer all three questions.
ii. Each question carries eight marks.
iii. The answers should be comprehensive and the criteria for valuation are the content butnot the length of the answer.

6. (a) Explain working of DE- LAVAL Turbine with neat sketch
(or)
(b) Describe the working of Lamont high pressure boiler with a neat sketch. CO4

7. (a) Explain working principle of Pelton wheel with neat sketch?
(or)
(b) Explain working principle of Kaplan Turbine with neat sketch? CO4

8. (a) Explain working Single acting reciprocating pump with neat sketch CO5
(or)
(b) Explain working of submersible pump with neat sketch CO5

C23-EE-405

SUMMATIVE ASSESSMENT
BOARD DIPLOMA EXAMINATION, (C-23)
MODEL QUESTION PAPER
DEEE - FOURTH SEMESTER EXAMINATION
GENERAL MECHANICAL ENGINEERING

Time: 3 hours **Total Marks : 80**

PART-A **10 X 3 =30M**

Instructions:

(i) Answer all questions.
(ii) Each question carries three marks.
(iii) Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Define the terms (a) linear Strain, (b) lateral Strain
2. Define factor of safety
3. State the functions of shaft
4. Find the power transmitted by a 75 mm diameter shaft rotating at 140 RPM , if the maximum shear stress is 60 N/mm^2.
5. List out the various components of an I.C.Engines.
6. State any three differences between 2-stroke and 4-stroke engines.
7. Classify steam turbine.
8. List various Boiler Mountings and Accessories
9. List out different types of hydraulic turbines.
10. Differentiate between Pelton turbine and Kaplan turbine.

PART-B **5 X10 = 50M**

Instructions:

(i) Answer any five questions.
(ii) Each question carries Ten marks.
(iii) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. A cylindrical bar is of 25 mm diameter and 1·25 m long. The linear strain is 4 times the lateral strain. Calculate the shear modulus and bulk modulus if the bar is elongated by 0·06 mm under an axial load of 50 kN.
12. Find the diameter of solid shaft required to transmit 750 kW power at 250 RPM. The maximum allowable shear stress is not exceeded 50 N/mm2 and twist is not exceeded 2^0in a length of 2m. Take Modulus of rigidity $G=0.8X10^5 N/mm^2$.
13. Explain the functions of main components of IC Engine.
14. Elucidate the working principle of 4-stroke petrol engine.
15. Explain various popular boiler accessories.
16. Describe the working of Francis turbine.
17. Explain the working of single stage centrifugal pump.
18. Describe the working of submersible pump.