

MECHANICAL ENGINEERING (626)

Sample Question Paper

Class XII - 2018-19

Time: 3 Hours

Max. Marks: 60

General Instructions:

1. Question paper is divided into two sections: Section-A and Section- B.
2. **Section–A:**
 - i. Multiple choice question/Fill in the blanks/Direct Questions of 1 mark each. Answer any 10 questions out of the given 12 questions.
 - ii. Very Short Answer of 2 marks each. Answer any 5 questions from the given 7 questions.
 - iii. Short Answer of 3 marks each. Answer any 5 questions from the given 7 questions.
3. **Section–B:** Long/Essay type questions of 5 marks each. Answer any 5 questions from the given 7 questions.
4. All questions of a particular section must be attempted in the correct order.
5. Please check that this question paper contains 33 questions out of which 25 questions are to be attempted.
6. The maximum time allowed is 3 hrs.

SECTION –A

Answer any 10 questions out of the given 12 questions-(1 Mark Each)

Choose the correct answer

- Q1 In a four stroke engine number of power stroke in two rotation of crank shaft is
- a) One
 - b) Two
 - c) Three
 - d) Four
- Q2 The friction disk is positioned between the flywheel and _____.
- a) Engine
 - b) Crankshaft
 - c) Pressure plate
 - d) Differential
- Q3 Distance travelled by the piston in moving from T.D.C. to the B.D.C is called
- a) Stroke.
 - b) Bore.
 - c) Clearance volume.

- d) Displacement Volume.
- Q4 The velocity ratio of two pulleys connected by an open belt or crossed belt is
- a) directly proportional to their diameters.
 - b) inversely proportional to their diameters.
 - c) directly proportional to the square of their diameters.
 - d) inversely proportional to the square of their diameters.
- Q5 When two pulleys of different diameters are connected by means of an open belt drive, then the angle of contact taken into consideration should be of the
- a) larger pulley.
 - b) smaller pulley.
 - c) average of two pulleys.
 - d) none of the mentioned.
- Q6 Which gear train is used for higher velocity ratios in a small space?
- a) Simple gear train
 - b) Compound gear train
 - c) Reverted gear train
 - d) Epicyclic gear train
- Q7 The function of the following fitting is to extinguish boiler furnace fire in case of water level falling below safe level:
- a) Feed check valve
 - b) Blow off cock
 - c) Safety valve
 - d) Fusible plug
- Q8 Which of the following as referred to steam boiler is defined as mounting?
- a) Safety valve
 - b) Economizer
 - c) Air pre heater
 - d) Feed Pump
- Q9 What is the function of Blow down valve of a boiler?
- a) To remove sludge
 - b) To build sediments
 - c) To remove Flue gas
 - d) To remove ash
- Q10 Which of the following is an impulse turbine?
- a) Pelton turbine
 - b) Francis turbine
 - c) Kaplan turbine
 - d) Propeller turbine
- Q11 Kaplan turbine is:

- a) A high head mixed flow turbine
 - b) A low head axial flow turbine
 - c) An outward flow reaction turbine
 - d) An impulse inward flow turbine
- Q12 _____ restricts the crane from tipping
- a) Gear
 - b) Indicator
 - c) Counterweights
 - d) Boom

Very Short Questions: (2 marks each).

Answer any 5 questions out of the given 7 questions:

- Q13 Explain slip in belt drive.
- Q14 Write about the use of a flywheel
- Q15 Give the location of safety valve on a boiler.
- Q16 Write about boiler mountings.
- Q17 Give the function of nozzle in a turbine
- Q18 Explain Swept volume
- Q19 Define stroke length.

Short Questions: (3 marks each).

Answer any 5 questions out of the given 7 questions:

- Q20 Write the merits of chain drive over belt drive.
- Q21 Give the classification of pulleys
- Q22 Explain air cooling system of I.C. engines
- Q23 Give the application of I.C. engines.
- Q24 Explain the working principle of a water turbine.
- Q25 Explain, with the help of a neat sketch, the importance of superheater in a boiler.
- Q26 Write the uses of bulldozer

SECTION –B

Long/Essay type questions (5 marks each).

Answer any 5 questions out of the given 7 questions:

- Q27 Describe simple chain drive with sketch. Compare a chain drive with a gear drive.
- Q28 With the help of a neat sketch, explain the working of the Cochran boiler.
- Q29 With the help of a neat sketch, explain the working of a four-stroke diesel engine.
- Q30 Give the difference between Impulse and Reaction turbines.
- Q31 With the help of a neat sketch, explain the working of a Hydraulic jack.
- Q32 With the help of a neat sketch, explain the working of a Kaplan turbine.
- Q33 Describe the working of a two-stroke petrol engine