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Question Paper Code : 27272

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Second Semester

Electrical and Electronics Engineering

GE 6251 – BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the principle of surveying.
2. Classify the cement concrete according to IS: 456-2000.
3. Define bearing capacity of soil.
4. What is bond in masonry?
5. Distinguish between external forces and internal forces.
6. What are the main components of Nuclear power plant?
7. Classify the internal combustion (I.C) engine.
8. Write down any two differences between 2-stroke and 4-stroke cycle engines.
9. What is capacity of refrigerator?
10. Write any two advantages of split type room air conditioner.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Classify the surveying based upon the objective of survey. (4)
- (ii) The following are the observed fore bearing of the traverse sides: AB, $70^{\circ} 30'$; BC, $140^{\circ} 15'$; CD, $260^{\circ} 15'$; and DE, $335^{\circ} 30'$. Find their back bearings. (4 × 3 =12)

Or

- (b) (i) Write any four qualities of bricks. (4)
- (ii) What is cement concrete? And what are their uses and properties. (12)

12. (a) (i) What are the requirements of good foundation? (4)
(ii) Compare the brick masonry with stone masonry. (12)
Or
- (b) (i) What are the components of a bridge? (4)
(ii) State the various points to be considered for the selection of a site for a dam. (12)
13. (a) Explain with a sketch the working of thermal power plant. (16)
Or
- (b) Explain with a sketch the working of Diesel power plant. (16)
14. (a) Explain with a sketch the working principle of four-stroke cycle diesel engine. (16)
Or
- (b) Explain with a sketch (draw only the first stage) the operation of two-stroke petrol engine. (16)
15. (a) Draw the layout of a vapour absorption refrigeration system and briefly explain the working principle. (16)
Or
- (b) With a neat diagram explain the working of window air conditioner. (16)
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Question Paper Code : 77160

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Second Semester

Electrical and Electronics Engineering

GE 6251 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the types of surveying?
2. Write any four types of cement.
3. What is Safe Bearing Capacity (SBC) of soil?
4. Write the relation between stress and strain and show the notations used.
5. Classify the power plants.
6. Write the working principle of centrifugal pumps.
7. What are the types of heat engines and define about any one type?
8. Write down any two prime requirements of a boiler.
9. What is capacity of refrigerator?
10. Define air conditioning.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the principles of surveying? (6)
(ii) Explain with a sketch the 'rise and fall method' of leveling. (10)

Or

- (b) (i) What are the qualities of stones? (6)
(ii) What is cement concrete and what are the tests carried out in cement concrete? (10)
12. (a) What are the types of foundation? Write down the requirements of good foundation.

Or

- (b) (i) Compare the brick masonry with stone masonry. (10)
(ii) Define stress and strain. (6)
13. (a) Write in detail the working principle of thermal power plants and also give their advantages.

Or

- (b) What are the advantages of nuclear power plants? Write down the applications of diesel power plants.
14. (a) Classify the I.C. Engines. With a neat sketch show the parts of I.C. engines.

Or

- (b) Explain with a sketch the various stages involved in the four stroke cycle diesel engine.
15. (a) State the principle of refrigeration. Write down the properties of an ideal refrigerant.

Or

- (b) Classify the air-conditioning systems and explain them briefly.

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Question Paper Code : 81039

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Second Semester

Electrical and Electronics Engineering

GE 6251 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between Open traverse and Closed traverse survey.
2. Define Magnetic bearing.
3. Why is Steel a good reinforcing agent in RCC? Give two reasons.
4. What is the use of an Abutment?
5. Mention two disadvantages of Gas turbines.
6. What is the use of a Blow off valve in a boiler?
7. What is the use of a Flywheel in an IC Engine?
8. Mention two advantages of a Tidal power plant.
9. Write any two types of refrigerants
10. Mention two differences between vapour compression and absorption refrigeration systems.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Differentiate between Prismatic and Surveyor compass. (8)
 - (ii) Explain the various characteristic features of contours with sketches. (8)
- Or
- (b) (i) Explain the various steps in the manufacturing of bricks. (8)
 - (ii) With a neat sketch, indicate the parts of a Dumpy level. (8)

12. (a) With neat sketches, explain the different types of Shallow foundations used in building constructions. (16)

Or

- (b) With neat sketches, explain the different types of Bonds used in brick work. (16)
13. (a) (i) With a neat sketch explain the working principle of a Pressurized water reactor. (8)
- (ii) With a neat sketch explain the working principle of a Single stage impulse turbine. (8)

Or

- (b) (i) With a neat sketch explain the working principle of a Centrifugal Pump. (8)
- (ii) With a neat sketch explain the working principle of a Double acting Pump. (8)
14. (a) (i) With a neat sketch explain the working principle of a Four stroke petrol engine. (12)
- (ii) Mention four differences between 2 stroke and 4 stroke engines. (4)

Or

- (b) (i) Sketch and explain the principle of a Magneto Ignition system. (12)
- (ii) What are the requirements of a good lubricating oil. (4)
15. (a) (i) How does a Vapour compression refrigeration system work? Explain with a sketch. (10)
- (ii) Mention the advantages of a Thermo electric cooling system. (6)

Or

- (b) (i) With a neat sketch, list the various parts of a Split type air conditioner. (8)
- (ii) How does a Vapour absorption refrigeration system work? Explain with a sketch. (8)
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Question Paper Code : 97231

B.E./B.Tech. DEGREE EXAMINATION, DECEMBER 2015/JANUARY 2016 .

Second Semester

Electrical and Electronics Engineering

GE 6251 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electronics and Instrumentation Engineering, Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is bulking of sand and how it can be determined?
2. List the various uses of surveying.
3. State the advantages and disadvantages of the flat roofs.
4. Enlist the different types of flooring.
5. Name the common fuel gases.
6. What is meant by pumped storage system?
7. Define engine capacity and compression ratio.
8. Differentiate boiler mountings and accessories.
9. Define Ton of refrigeration.
10. Why evaporator is placed in the top portion of the refrigerator?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the steps involved in the manufacture of bricks with relevant sketches.

Or

- (b) (i) Differentiate between surveying and leveling. (10)
(ii) What are the precautions to be taken in distance measurement? (6)
12. (a) State in brief the different types of plasters adopted for finishing wall surfaces and also explain the various defects evolved in plastering.

Or

- (b) (i) List the requirement of good foundation. (6)
(ii) Explain the major components of column forms. (10)
13. (a) Explain the working principle of a diesel power plant, its advantages and disadvantages with neat sketch.

Or

- (b) Explain the working of a centrifugal pump and its components in detail.
14. (a) (i) Compare two stroke and four stroke engines. (8)
(ii) Differentiate S.I. engines and C.I. Engines. (8)

Or

- (b) Explain the working of Cochran boiler and its components with neat sketch.
15. (a) Sketch the layout of a domestic refrigerator and explain the working of it by mentioning the salient parts.

Or

- (b) Explain the working principle of vapour compression and vapour absorption refrigeration systems with neat sketch.
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