Model Question Paper

Engineering Skill Assessment

(Branch-Specific - For Reference)

This **Model Question Paper** is provided to help candidates understand the **assessment structure, scope, and covered branches** under the HRVIEW Engineering Skill Assessment

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Assessment Snapshot

- **Assessment Type:** Model Question Paper
- **Format:** Online | Objective (MCQ)
- **Total Questions:** 20
- **Pass Criteria:** 75%

Engineering Branches Covered

Acoustical Engineering	**Agricultural Engineering**	**Aerospace Engineering**	**Automobile Engineering**
Biomedical Engineering	**Biomechanical Engineering**	**Chemical Engineering**	**Civil Engineering**
Computer Science Engineering	**Construction Engineering**	**Cybersecurity Engineering**	**Data Analyst Engineering**
Electrical Engineering	**Electronics & Communication Engineering**	**Engineering Management**	**Environmental Engineering**
Geotechnical Engineering	**Geomatics Engineering**	**Industrial Engineering**	**Manufacturing Engineering**
Marine Engineering	**Materials Engineering**	**Mechanical Engineering**	**Metallurgical Engineering**
Mechatronics Engineering	**Mining Engineering**	**Nanotechnology Engineering**	**Petroleum Engineering**
Photonics Engineering	**Robotics Engineering**	**Transportation Engineering**	—

Note for Candidates

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Model Question Paper

Acoustical Engineering – MCQs (20 Questions)

1. Sound is a type of:

A. Electromagnetic wave
B. Transverse wave
C. Longitudinal wave
D. Standing wave

✅ **Answer: C**

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2. The unit of sound intensity level is:

A. Hertz
B. Decibel
C. Pascal
D. Watt

✅ **Answer: B**

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3. Frequency of sound is measured in:

A. Decibel
B. Newton
C. Hertz
D. Joule

✅ **Answer: C**

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4. The audible range of human hearing is approximately:

A. 2 Hz – 200 Hz
B. 20 Hz – 20 kHz
C. 200 Hz – 2 kHz
D. 20 kHz – 200 kHz

✅ **Answer: B**

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which material is best for sound absorption?

A. Concrete
B. Glass
C. Foam
D. Steel

✅ **Answer: C**

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6. Reverberation time is defined as:

A. Time taken for sound to travel
B. Time taken for sound to decay by 60 dB
C. Echo delay time
D. Sound reflection time

✅ **Answer: B**

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7. The Sabine formula is used to calculate:

A. Sound pressure
B. Echo
C. Reverberation time
D. Sound frequency

✅ **Answer: C**

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8. Echo occurs when reflected sound reaches the listener after:

A. 0.01 seconds
B. 0.05 seconds
C. 0.1 seconds
D. 0.2 seconds

✅ **Answer: C**

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9. Which device is used to measure sound levels?

Note for Candidates

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A. Oscilloscope
B. Sound Level Meter
C. Voltmeter
D. Frequency Analyzer

✅ **Answer: B**

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10. Noise is defined as:

A. Pleasant sound
B. Musical sound
C. Unwanted sound
D. Loud sound

✅ **Answer: C**

---

11. Sound insulation mainly depends on:

A. Material color
B. Material thickness
C. Material shape
D. Material temperature

✅ **Answer: B**

---

12. Which wave phenomenon causes echo?

A. Refraction
B. Diffraction
C. Reflection
D. Absorption

✅ **Answer: C**

---

13. The speed of sound in air at room temperature is approximately:

A. 150 m/s
B. 250 m/s

C. 343 m/s
D. 500 m/s

✅ Answer: C

---

14. Which factor does NOT affect the speed of sound in air?

A. Temperature
B. Humidity
C. Pressure
D. Frequency

✅ Answer: D

---

15. Which type of noise has a constant frequency?

A. White noise
B. Pink noise
C. Pure tone
D. Random noise

✅ Answer: C

---

16. Absorption coefficient of a perfect absorber is:

A. 0
B. 0.5
C. 1
D. 2

✅ Answer: C

---

17. Which room requires the lowest reverberation time?

A. Auditorium
B. Concert hall
C. Classroom
D. Recording studio

✅ Answer: D

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

18. Which property of sound determines pitch?

A. Amplitude
B. Velocity
C. Frequency
D. Wavelength

✅ **Answer: C**

---

19. Soundproofing mainly aims to:

A. Increase sound reflection
B. Reduce sound transmission
C. Increase sound intensity
D. Improve sound clarity

✅ **Answer: B**

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20. Which of the following is an application of acoustical engineering?

A. Bridge design
B. Room acoustics
C. Power generation
D. Fluid mechanics

✅ **Answer: B**

Model Question Paper

Agricultural Engineering – MCQs (20 Questions)

1. Agricultural engineering mainly applies engineering principles to:

A. Medicine
B. Agriculture and farming systems
C. Mining
D. Textile production

✅ **Answer: B**

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2. Which branch deals with farm machinery and equipment?

A. Soil Engineering
B. Farm Power and Machinery
C. Irrigation Engineering
D. Food Engineering

✅ **Answer: B**

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3. Tractor power is commonly measured in:

A. Watt
B. Joule
C. Horsepower
D. Newton

✅ **Answer: C**

---

4. Which irrigation method is most water-efficient?

A. Flood irrigation
B. Furrow irrigation

Note for Candidates

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C. Sprinkler irrigation
D. Drip irrigation

✅ **Answer: D**

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5. Soil moisture is commonly measured using:

A. Hygrometer
B. Tensiometer
C. Barometer
D. Anemometer

✅ **Answer: B**

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6. The main purpose of tillage is to:

A. Increase soil temperature
B. Control weeds and prepare seedbed
C. Improve rainfall
D. Increase soil salinity

✅ **Answer: B**

---

7. Which machine is used for sowing seeds at uniform depth?

A. Harrow
B. Seed drill
C. Plough
D. Thresher

✅ **Answer: B**

---

8. The process of separating grain from stalk is called:

A. Milling
B. Winnowing
C. Threshing
D. Harvesting

✅ **Answer: C**

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

9. Which energy source is renewable in agriculture?

A. Diesel
B. Coal
C. Solar energy
D. Petrol

✅ **Answer: C**

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10. Sprinkler irrigation is most suitable for:

A. Heavy clay soil
B. Uneven land
C. Flood plains
D. Paddy fields

✅ **Answer: B**

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11. Crop water requirement mainly depends on:

A. Wind speed
B. Soil color
C. Climate and crop type
D. Tractor size

✅ **Answer: C**

---

12. The efficiency of irrigation system is expressed in:

A. Liters
B. Percentage
C. Kilograms
D. Meters

✅ **Answer: B**

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13. Which structure stores irrigation water?

Note for Candidates

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A. Canal
B. Reservoir
C. Pump
D. Filter

✅ **Answer: B**

---

14. The purpose of drainage in agriculture is to:

A. Increase soil nutrients
B. Remove excess water from soil
C. Improve crop color
D. Increase soil temperature

✅ **Answer: B**

---

15. Which post-harvest process reduces grain moisture?

A. Milling
B. Drying
C. Storage
D. Packaging

✅ **Answer: B**

---

16. Farm mechanization mainly aims to:

A. Increase labor cost
B. Reduce crop yield
C. Increase productivity and efficiency
D. Reduce farm size

✅ **Answer: C**

---

17. Which instrument measures wind speed for agricultural planning?

A. Anemometer
B. Thermometer

C. Hygrometer
D. Barometer

✅ Answer: A

---

18. Precision farming primarily uses:

A. Manual labor
B. Traditional tools
C. GPS and sensors
D. Animal power

✅ Answer: C

---

19. Which soil type has the highest water holding capacity?

A. Sandy soil
B. Loamy soil
C. Clay soil
D. Gravel soil

✅ Answer: C

---

20. Agricultural engineering helps farmers mainly by:

A. Increasing land cost
B. Improving crop yield and resource use
C. Reducing rainfall
D. Eliminating irrigation

✅ Answer: B

Model Question Paper

Aerospace Engineering – MCQs (20 Questions)

1. Aerospace engineering primarily deals with:

A. Ships and submarines
B. Automobiles and trains
C. Aircraft and spacecraft
D. Power plants

✅ **Answer:** C

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2. Which of the following is a major branch of aerospace engineering?

A. Structural engineering
B. Aeronautical engineering
C. Marine engineering
D. Mining engineering

✅ **Answer:** B

---

3. The force that opposes the motion of an aircraft is called:

A. Lift
B. Thrust
C. Drag
D. Weight

✅ **Answer:** C

---

4. Lift in an aircraft is mainly generated due to:

A. Gravity
B. Pressure difference over the wings
C. Engine power
D. Aircraft weight

✅ **Answer:** B

Note for Candidates

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5. Which law explains the principle of lift?

A. Newton’s First Law
B. Newton’s Second Law
C. Bernoulli’s Principle
D. Pascal’s Law

✅ **Answer:** C

---

6. The part of an aircraft that provides thrust is:

A. Wing
B. Fuselage
C. Tail
D. Engine

✅ **Answer:** D

---

7. What is the standard unit of thrust?

A. Joule
B. Watt
C. Newton
D. Pascal

✅ **Answer:** C

---

8. Which component stabilizes the aircraft during flight?

A. Wing
B. Fuselage
C. Empennage (tail assembly)
D. Landing gear

✅ **Answer:** C

---

9. The speed of sound at sea level is approximately:

A. 250 m/s
B. 300 m/s

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C. 343 m/s
D. 400 m/s

✅ **Answer:** C

---

10. An aircraft flying faster than the speed of sound is called:

A. Subsonic
B. Transonic
C. Supersonic
D. Hypersonic

✅ **Answer:** C

---

11. Which material is commonly used in aircraft structures due to its light weight?

A. Copper
B. Aluminum alloys
C. Cast iron
D. Concrete

✅ **Answer:** B

---

12. The study of airflow around aircraft is known as:

A. Thermodynamics
B. Aerodynamics
C. Kinematics
D. Acoustics

✅ **Answer:** B

---

13. What is the primary function of a rocket nozzle?

A. Increase fuel flow
B. Reduce noise
C. Increase thrust efficiency
D. Cool the engine

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which fuel is commonly used in jet engines?

A. Petrol
B. Diesel
C. Aviation turbine fuel
D. Coal

✅ **Answer:** C

---

15. The region where airspeed transitions from subsonic to supersonic is called:

A. Supersonic
B. Hypersonic
C. Transonic
D. Subsonic

✅ **Answer:** C

---

16. Which force keeps an aircraft in the air?

A. Thrust
B. Drag
C. Lift
D. Weight

✅ **Answer:** C

---

17. The control surface used to roll an aircraft is:

A. Rudder
B. Elevator
C. Aileron
D. Flap

✅ **Answer:** C

---

18. Spacecraft operate primarily in:

Note for Candidates

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A. Atmosphere
B. Vacuum
C. Water
D. Underground

✅ **Answer:** B

---

19. Which orbit is commonly used for communication satellites?

A. Polar orbit
B. Low Earth orbit
C. Geostationary orbit
D. Elliptical orbit

✅ **Answer:** C

---

20. Aerospace engineering applications include:

A. Bridge construction
B. Aircraft and satellite design
C. Agricultural tools
D. Mining equipment

✅ **Answer:** B

Model Question Paper

Automobile Engineering – MCQs (20 Questions)

1. Automobile engineering mainly deals with:

A. Aircraft design
B. Vehicle design, manufacturing, and maintenance
C. Ship construction
D. Power plant engineering

✅ **Answer:** B

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2. The main function of the clutch in a vehicle is to:

A. Increase speed
B. Change direction
C. Connect and disconnect engine power to transmission
D. Reduce fuel consumption

✅ **Answer:** C

---

3. Which engine operates on the principle of spark ignition?

A. Diesel engine
B. Petrol engine
C. Steam engine
D. Gas turbine

✅ **Answer:** B

---

4. The function of a gearbox is to:

A. Cool the engine
B. Change engine speed and torque
C. Reduce vibration
D. Supply fuel

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which component reduces shock from road irregularities?

A. Brake
B. Suspension system
C. Clutch
D. Differential

✅ **Answer:** B

---

6. The unit of engine power is:

A. Newton
B. Watt
C. Horsepower
D. Both B and C

✅ **Answer:** D

---

7. Which system is responsible for stopping the vehicle?

A. Steering system
B. Suspension system
C. Braking system
D. Cooling system

✅ **Answer:** C

---

8. Which brake is commonly used in modern cars?

A. Drum brake only
B. Disc brake only
C. Disc brake (front) and drum brake (rear)
D. Air brake

✅ **Answer:** C

---

9. The purpose of the radiator is to:

A. Increase engine power
B. Reduce engine noise

Note for Candidates

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C. Cool the engine
D. Lubricate engine parts

✅ **Answer:** C

---

10. Which fuel is used in a compression ignition engine?

A. Petrol
B. Diesel
C. LPG
D. CNG

✅ **Answer:** B

---

11. The differential in a vehicle is used to:

A. Increase speed
B. Allow wheels to rotate at different speeds
C. Change gears
D. Improve braking

✅ **Answer:** B

---

12. Which component supplies fuel to the engine?

A. Alternator
B. Fuel pump
C. Battery
D. Radiator

✅ **Answer:** B

---

13. The steering system is mainly used to:

A. Control speed
B. Stop the vehicle
C. Change direction
D. Support vehicle weight

✅ **Answer:** C

Note for Candidates

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14. Which type of transmission uses no gears?

A. Manual transmission
B. Automatic transmission
C. Continuously Variable Transmission (CVT)
D. Semi-automatic transmission

✅ **Answer:** C

---

15. Exhaust gases are reduced using:

A. Silencer
B. Muffler
C. Catalytic converter
D. Radiator

✅ **Answer:** C

---

16. Which part stores electrical energy in a vehicle?

A. Alternator
B. Starter motor
C. Battery
D. Spark plug

✅ **Answer:** C

---

17. The function of a spark plug is to:

A. Inject fuel
B. Ignite air–fuel mixture
C. Cool the engine
D. Reduce emissions

✅ **Answer:** B

---

18. ABS in automobiles stands for:

Note for Candidates

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A. Advanced Braking System
B. Anti-lock Braking System
C. Automatic Brake System
D. Applied Brake System

✅ **Answer:** B

---

19. Which system reduces engine friction?

A. Cooling system
B. Lubrication system
C. Fuel system
D. Steering system

✅ **Answer:** B

---

20. Automobile engineering aims to improve:

A. Vehicle safety and efficiency
B. Road construction
C. Aircraft performance
D. Agricultural output

✅ **Answer:** A

Model Question Paper

Biomedical Engineering – MCQs (20 Questions)

1. Biomedical engineering is the application of engineering principles to:

A. Agriculture
B. Medicine and healthcare
C. Construction
D. Mining

✅ **Answer:** B

---

2. Which field combines biology and engineering?

A. Mechanical engineering
B. Electrical engineering
C. Biomedical engineering
D. Civil engineering

✅ **Answer:** C

---

3. An ECG machine is used to measure:

A. Brain activity
B. Muscle movement
C. Heart's electrical activity
D. Blood pressure

✅ **Answer:** C

---

4. Which device is used to monitor brain signals?

A. ECG
B. EEG
C. EMG
D. CT scan

✅ **Answer:** B

---

5. The unit used to measure electrical resistance in medical devices is:

Note for Candidates

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A. Volt
B. Ampere
C. Ohm
D. Watt

✅ **Answer:** C

---

6. Which imaging technique uses X-rays?

A. MRI
B. Ultrasound
C. CT scan
D. PET scan

✅ **Answer:** C

---

7. MRI works on the principle of:

A. Sound waves
B. Nuclear magnetic resonance
C. X-ray absorption
D. Light reflection

✅ **Answer:** B

---

8. Which material is commonly used for artificial joints?

A. Wood
B. Titanium
C. Rubber
D. Glass

✅ **Answer:** B

---

9. A pacemaker is used to:

A. Measure blood pressure
B. Control heart rhythm

C. Improve lung capacity
D. Monitor glucose

✅ **Answer:** B

---

10. Which sensor is used to measure body temperature?

A. Pressure sensor
B. Optical sensor
C. Thermistor
D. Accelerometer

✅ **Answer:** C

---

11. Biomedical signals are generally:

A. High-frequency
B. Low-frequency
C. Constant
D. Noise-free

✅ **Answer:** B

---

12. Which device assists patients with hearing loss?

A. Pacemaker
B. Hearing aid
C. Ventilator
D. Defibrillator

✅ **Answer:** B

---

13. Defibrillators are used to:

A. Measure oxygen level
B. Deliver electric shock to restore heart rhythm
C. Monitor pulse rate
D. Control blood sugar

✅ **Answer:** B

Note for Candidates

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14. The study of replacement of damaged body parts is called:

A. Biomechanics
B. Biomaterials
C. Prosthetics
D. Genetics

✅ **Answer:** C

---

15. Which gas is commonly used in anesthesia?

A. Oxygen
B. Nitrous oxide
C. Carbon dioxide
D. Nitrogen

✅ **Answer:** B

---

16. Blood pressure is measured using:

A. Thermometer
B. Sphygmomanometer
C. Spirometer
D. Glucometer

✅ **Answer:** B

---

17. Ultrasound imaging uses:

A. X-rays
B. Radio waves
C. Sound waves
D. Infrared rays

✅ **Answer:** C

---

18. Which discipline focuses on the mechanical behavior of biological tissues?

Note for Candidates

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A. Bioinformatics
B. Biomechanics
C. Biochemistry
D. Biotechnology

✅ **Answer:** B

---

19. The main purpose of biomedical instrumentation is to:

A. Manufacture drugs
B. Diagnose and monitor patients
C. Perform surgeries
D. Replace doctors

✅ **Answer:** B

---

20. Biomedical engineering contributes mainly to:

A. Industrial automation
B. Healthcare technology improvement
C. Power generation
D. Construction industry

✅ **Answer:** B

Model Question Paper

Biomechanical Engineering – MCQs (20 Questions)

1. Biomechanical engineering primarily studies:

A. Chemical reactions in the body
B. Mechanical behavior of biological systems
C. Electrical signals in nerves
D. Drug formulation

✅ **Answer:** B

---

2. Biomechanics is mainly based on principles of:

A. Thermodynamics
B. Fluid mechanics and solid mechanics
C. Optics
D. Nuclear physics

✅ **Answer:** B

---

3. Which area studies forces acting on bones and muscles?

A. Bioinformatics
B. Kinesiology
C. Genetics
D. Pharmacology

✅ **Answer:** B

---

4. The unit of stress in biomechanics is:

A. Newton
B. Joule
C. Pascal
D. Watt

✅ **Answer:** C

Note for Candidates

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5. Which tissue primarily resists tensile forces?

A. Bone
B. Cartilage
C. Tendon
D. Blood

✅ **Answer:** C

---

6. The study of human motion is called:

A. Ergonomics
B. Kinematics
C. Dynamics
D. Kinesiology

✅ **Answer:** D

---

7. Which joint allows movement in only one plane?

A. Ball-and-socket joint
B. Pivot joint
C. Hinge joint
D. Saddle joint

✅ **Answer:** C

---

8. The mechanical property that describes resistance to deformation is:

A. Density
B. Elasticity
C. Viscosity
D. Porosity

✅ **Answer:** B

---

9. Which material is commonly used in orthopedic implants?

A. Aluminum
B. Titanium alloys

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C. Plastic
D. Copper

✅ **Answer:** B

---

10. Gait analysis is used to study:

A. Heart rhythm
B. Walking pattern
C. Brain activity
D. Muscle strength

✅ **Answer:** B

---

11. Which type of load acts along the length of a bone?

A. Bending
B. Torsion
C. Axial
D. Shear

✅ **Answer:** C

---

12. The viscoelastic behavior of tissues means they show:

A. Only elastic behavior
B. Only viscous behavior
C. Both elastic and viscous behavior
D. No deformation

✅ **Answer:** C

---

13. Which biological fluid is commonly studied in fluid biomechanics?

A. Saliva
B. Blood
C. Sweat
D. Urine

✅ **Answer:** B

Note for Candidates

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14. The Reynolds number in biomechanics is used to:

A. Measure bone density
B. Analyze blood flow characteristics
C. Measure muscle force
D. Analyze nerve signals

✅ **Answer:** B

---

15. Which device supports or corrects musculoskeletal function?

A. Prosthesis
B. Orthosis
C. Pacemaker
D. Ventilator

✅ **Answer:** B

---

16. Bone primarily experiences which type of stress?

A. Tensile only
B. Compressive only
C. Combination of stresses
D. No stress

✅ **Answer:** C

---

17. Ergonomics mainly focuses on:

A. Improving machine speed
B. Designing systems to fit human use
C. Treating injuries
D. Manufacturing implants

✅ **Answer:** B

---

18. Which imaging technique is commonly used to analyze bone structure?

Note for Candidates

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A. Ultrasound
B. X-ray
C. EEG
D. ECG

✅ **Answer:** B

---

19. Muscle force generation is mainly due to:

A. Electrical resistance
B. Sliding filament mechanism
C. Bone compression
D. Blood flow

✅ **Answer:** B

---

20. Biomechanical engineering applications include:

A. Drug synthesis
B. Prosthetics and rehabilitation devices
C. Power transmission
D. Mining equipment

✅ **Answer:** B

Model Question Paper

Chemical Engineering – MCQs (20 Questions)

1. Chemical engineering mainly deals with:

A. Mechanical systems
B. Chemical processes and plant design
C. Electrical circuits
D. Structural design

✅ **Answer:** B

---

2. The unit operation that separates components based on volatility is:

A. Absorption
B. Distillation
C. Filtration
D. Crystallization

✅ **Answer:** B

---

3. Which law is used in material balance calculations?

A. Newton's law
B. Conservation of mass
C. Boyle's law
D. Faraday's law

✅ **Answer:** B

---

4. The SI unit of pressure is:

A. Bar
B. Atmosphere
C. Pascal
D. Torr

✅ **Answer:** C

Note for Candidates

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5. Which equipment is used for heat transfer?

A. Reactor
B. Heat exchanger
C. Distillation column
D. Absorber

✅ **Answer:** B

---

6. The process of converting raw materials into useful products is called:

A. Refining
B. Manufacturing
C. Chemical processing
D. Mixing

✅ **Answer:** C

---

7. Which type of reactor operates at steady state?

A. Batch reactor
B. Semi-batch reactor
C. Continuous stirred tank reactor
D. Plug flow reactor

✅ **Answer:** C

---

8. The rate of a chemical reaction is affected by:

A. Temperature
B. Concentration
C. Catalyst
D. All of the above

✅ **Answer:** D

---

9. Which unit operation removes suspended solids from a fluid?

A. Distillation
B. Evaporation

Note for Candidates

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C. Filtration
D. Absorption

✅ **Answer:** C

---

10. The primary function of a catalyst is to:

A. Increase reaction temperature
B. Increase reaction rate
C. Change equilibrium
D. Increase product quantity

✅ **Answer:** B

---

11. The Reynolds number is used to predict:

A. Heat transfer rate
B. Mass transfer rate
C. Flow regime
D. Reaction kinetics

✅ **Answer:** C

---

12. Which property measures resistance to flow?

A. Density
B. Viscosity
C. Pressure
D. Surface tension

✅ **Answer:** B

---

13. The unit of heat transfer coefficient is:

A. $W/m^2 \cdot K$
B. J/kg
C. N/m^2
D. kg/m^3

✅ **Answer:** A

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which separation process uses a semi-permeable membrane?

A. Distillation
B. Filtration
C. Reverse osmosis
D. Evaporation

✅ **Answer:** C

---

15. The pH scale measures:

A. Temperature
B. Acidity or alkalinity
C. Pressure
D. Salinity

✅ **Answer:** B

---

16. Which process increases the concentration of a solution by removing solvent?

A. Filtration
B. Evaporation
C. Absorption
D. Mixing

✅ **Answer:** B

---

17. Which diagram shows material and energy flow in a plant?

A. Layout diagram
B. Process flow diagram
C. Circuit diagram
D. Structural diagram

✅ **Answer:** B

---

18. Which industry heavily relies on chemical engineering principles?

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A. Textile
B. Pharmaceutical
C. Petrochemical
D. All of the above

✅ **Answer:** D

---

19. The purpose of a distillation column is to:

A. Heat fluids
B. Separate liquid mixtures
C. Mix chemicals
D. Store products

✅ **Answer:** B

---

20. Chemical engineering aims to:

A. Reduce reaction rates
B. Optimize processes safely and economically
C. Eliminate chemical use
D. Focus only on laboratory work

✅ **Answer:** B

Model Question Paper

Civil Engineering – MCQs (20 Questions)

1. Civil engineering mainly deals with:

A. Machine design
B. Infrastructure planning and construction
C. Electrical power generation
D. Software development

✅ **Answer:** B

---

2. Which material is most commonly used in reinforced concrete?

A. Aluminum
B. Timber
C. Steel
D. Plastic

✅ **Answer:** C

---

3. The primary binding material in cement concrete is:

A. Sand
B. Aggregate
C. Cement
D. Water

✅ **Answer:** C

---

4. The unit of stress is:

A. Newton
B. Joule
C. Pascal
D. Watt

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which test determines the compressive strength of concrete?

A. Slump test
B. Tensile test
C. Compression test
D. Flexural test

✅ **Answer:** C

---

6. Which structure transfers load from superstructure to soil?

A. Beam
B. Column
C. Foundation
D. Slab

✅ **Answer:** C

---

7. The slump test is used to measure:

A. Strength of concrete
B. Workability of concrete
C. Density of concrete
D. Durability of concrete

✅ **Answer:** B

---

8. Which survey instrument is used to measure horizontal and vertical angles?

A. Chain
B. Compass
C. Theodolite
D. Dumpy level

✅ **Answer:** C

---

9. The purpose of curing concrete is to:

A. Increase setting time
B. Prevent cracking and gain strength

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Improve appearance
D. Reduce cost

✅ **Answer:** B

---

10. Which type of load acts permanently on a structure?

A. Live load
B. Wind load
C. Dead load
D. Seismic load

✅ **Answer:** C

---

11. The bearing capacity of soil depends on:

A. Soil type and moisture
B. Color of soil
C. Depth of foundation only
D. Temperature

✅ **Answer:** A

---

12. Which brick bond is most commonly used in construction?

A. Flemish bond
B. English bond
C. Header bond
D. Stretcher bond

✅ **Answer:** B

---

13. Which structure controls the flow of water in rivers?

A. Bridge
B. Dam
C. Tunnel
D. Canal

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. The unit weight of concrete is approximately:

A. 12 kN/m³
B. 18 kN/m³
C. 24 kN/m³
D. 30 kN/m³

✅ **Answer:** C

---

15. Which test determines soil shear strength?

A. Atterberg limits test
B. Direct shear test
C. Permeability test
D. Compaction test

✅ **Answer:** B

---

16. The purpose of reinforcement in concrete is to resist:

A. Compression only
B. Tension only
C. Both compression and tension
D. Shear only

✅ **Answer:** B

---

17. Which pavement type uses cement concrete?

A. Flexible pavement
B. Rigid pavement
C. Gravel road
D. Earthen road

✅ **Answer:** B

---

18. The process of measuring land is called:

A. Mapping
B. Surveying
C. Levelling
D. Plotting

✅ **Answer:** B

---

19. Which factor mainly affects concrete durability?

A. Color
B. Exposure conditions
C. Shape of structure
D. Cost

✅ **Answer:** B

---

20. Civil engineering aims to:

A. Build only buildings
B. Develop safe, sustainable infrastructure
C. Focus only on design
D. Eliminate manual labor

✅ **Answer:** B

Model Question Paper

Computer Science Engineering – MCQs (20 Questions)

1. Computer Science Engineering mainly deals with:

A. Electrical machines
B. Software and hardware systems
C. Civil structures
D. Chemical processes

✅ **Answer:** B

---

2. Which data structure follows the LIFO principle?

A. Queue
B. Stack
C. Array
D. Linked list

✅ **Answer:** B

---

3. The brain of the computer is:

A. RAM
B. Hard disk
C. CPU
D. Motherboard

✅ **Answer:** C

---

4. Which programming language is object-oriented?

A. C
B. Python
C. Assembly
D. SQL

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. The time complexity of binary search is:

A. O(n)
B. $O(n^2)$
C. O(log n)
D. O(1)

✅ **Answer:** C

---

6. Which memory is volatile?

A. ROM
B. Hard disk
C. Cache
D. RAM

✅ **Answer:** D

---

7. A collection of related data items is called:

A. Algorithm
B. Variable
C. Data structure
D. Program

✅ **Answer:** C

---

8. Which operating system is open-source?

A. Windows
B. macOS
C. Linux
D. DOS

✅ **Answer:** C

---

9. The full form of SQL is:

A. Structured Query Language
B. Simple Query Language

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Standard Query Logic
D. Sequential Query Language

✅ **Answer:** A

---

10. Which device is used to input data into a computer?

A. Monitor
B. Printer
C. Keyboard
D. Speaker

✅ **Answer:** C

---

11. Which algorithm is used for sorting?

A. BFS
B. DFS
C. Merge sort
D. Dijkstra

✅ **Answer:** C

---

12. The process of finding and fixing errors in a program is called:

A. Compiling
B. Debugging
C. Executing
D. Interpreting

✅ **Answer:** B

---

13. Which network topology uses a central hub?

A. Ring
B. Bus
C. Star
D. Mesh

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. What does HTTP stand for?

A. Hyper Text Transfer Protocol
B. High Text Transfer Program
C. Hyper Transfer Text Process
D. Host Text Transfer Protocol

✅ **Answer:** A

---

15. Which database is a NoSQL database?

A. MySQL
B. Oracle
C. MongoDB
D. PostgreSQL

✅ **Answer:** C

---

16. Which of the following is NOT an operating system?

A. Linux
B. Windows
C. UNIX
D. Oracle

✅ **Answer:** D

---

17. The smallest unit of data in a computer is:

A. Byte
B. Bit
C. Nibble
D. Word

✅ **Answer:** B

---

18. Which language is mainly used for web page structure?

A. CSS
B. JavaScript
C. HTML
D. PHP

✅ **Answer:** C

---

19. Which type of software is used to control hardware?

A. Application software
B. Utility software
C. System software
D. Programming software

✅ **Answer:** C

---

20. Computer Science Engineering aims to:

A. Build roads
B. Design efficient computing solutions
C. Manufacture machines
D. Study chemical reactions

✅ **Answer:** B

Model Question Paper

Construction Engineering – MCQs (20 Questions)

1. Construction engineering mainly deals with:

A. Software development
B. Planning, execution, and management of construction projects
C. Chemical processing
D. Electrical power generation

✅ **Answer:** B

---

2. The main objective of construction management is to:

A. Increase project cost
B. Complete projects on time, within budget, and with quality
C. Reduce labor productivity
D. Avoid planning

✅ **Answer:** B

---

3. Which document defines scope, cost, and time of a project?

A. Tender document
B. Project report
C. Contract agreement
D. Bill of quantities

✅ **Answer:** C

---

4. CPM stands for:

A. Construction Planning Method
B. Critical Path Method
C. Cost Planning Model
D. Concrete Placement Method

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. The critical path in a project represents:

A. Shortest path
B. Longest duration path
C. Cheapest path
D. Safest path

✅ **Answer:** B

---

6. Which chart is commonly used for project scheduling?

A. Pie chart
B. Bar chart (Gantt chart)
C. Flow chart
D. Line chart

✅ **Answer:** B

---

7. Which contract type involves payment based on measured quantities?

A. Lump sum contract
B. Cost-plus contract
C. Item rate contract
D. Turnkey contract

✅ **Answer:** C

---

8. The process of estimating quantities of materials is called:

A. Valuation
B. Surveying
C. Quantity take-off
D. Tendering

✅ **Answer:** C

---

9. Safety management at construction sites mainly aims to:

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Increase working hours
B. Reduce accidents and hazards
C. Increase project duration
D. Reduce labor strength

✅ **Answer:** B

---

10. Which equipment is commonly used for lifting heavy materials?

A. Bulldozer
B. Crane
C. Excavator
D. Compactor

✅ **Answer:** B

---

11. Quality control in construction ensures:

A. Faster construction
B. Compliance with standards and specifications
C. Reduced manpower
D. Lower design accuracy

✅ **Answer:** B

---

12. Which factor does NOT affect construction productivity?

A. Weather conditions
B. Labor skills
C. Material availability
D. Paint color

✅ **Answer:** D

---

13. The process of inviting bids for a project is called:

A. Contracting
B. Tendering

C. Scheduling
D. Valuation

✅ **Answer:** B

---

14. Which document shows cost breakup of construction work?

A. Drawing
B. Specification
C. Bill of Quantities (BOQ)
D. Site plan

✅ **Answer:** C

---

15. A turnkey project means:

A. Client executes project
B. Contractor completes design and construction
C. Only design is provided
D. Only supervision is done

✅ **Answer:** B

---

16. The main responsibility of a site engineer is to:

A. Design structures
B. Supervise construction activities
C. Approve budgets
D. Prepare tenders only

✅ **Answer:** B

---

17. Which planning technique uses networks?

A. Bar chart
B. PERT
C. Histogram
D. Pie chart

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

18. The equipment used for earth excavation is:

A. Mixer
B. Crane
C. Excavator
D. Roller

✅ **Answer:** C

---

19. Construction engineering primarily focuses on:

A. Theory only
B. Practical implementation of designs
C. Manufacturing
D. Chemical testing

✅ **Answer:** B

---

20. Construction engineering aims to:

A. Increase construction time
B. Ensure safe, economical, and quality construction
C. Reduce infrastructure development
D. Eliminate planning

✅ **Answer:** B

Model Question Paper

Cybersecurity Engineering – MCQs (20 Questions)

1. Cybersecurity engineering mainly focuses on:

A. Software development
B. Protecting systems, networks, and data
C. Hardware manufacturing
D. Database design only

✅ **Answer:** B

---

2. Which of the following is a common cyber threat?

A. Compiler
B. Malware
C. Firewall
D. Encryption

✅ **Answer:** B

---

3. Malware that replicates itself without user action is called:

A. Trojan
B. Worm
C. Spyware
D. Adware

✅ **Answer:** B

---

4. The primary purpose of a firewall is to:

A. Store data
B. Monitor employee performance
C. Block unauthorized network access
D. Speed up internet

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which attack tricks users into revealing sensitive information?

A. DDoS
B. Phishing
C. Brute force
D. Spoofing

✅ **Answer:** B

---

6. Encryption is used to:

A. Destroy data
B. Compress data
C. Protect data confidentiality
D. Increase data size

✅ **Answer:** C

---

7. Which of the following is an example of strong authentication?

A. Username only
B. Password only
C. Two-factor authentication
D. IP address

✅ **Answer:** C

---

8. Which protocol provides secure web communication?

A. HTTP
B. FTP
C. HTTPS
D. SMTP

✅ **Answer:** C

---

9. The CIA triad in cybersecurity stands for:

A. Control, Inspect, Authorize
B. Confidentiality, Integrity, Availability

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Cyber, Internet, Access
D. Compute, Inspect, Analyze

✅ **Answer:** B

---

10. Which type of attack floods a system with traffic?

A. Phishing
B. SQL injection
C. Denial-of-Service (DoS)
D. Man-in-the-middle

✅ **Answer:** C

---

11. Which tool is used to detect intrusions?

A. IDS
B. Router
C. Switch
D. Modem

✅ **Answer:** A

---

12. A Trojan horse is:

A. A virus that spreads automatically
B. A legitimate-looking malicious program
C. A hardware fault
D. A firewall rule

✅ **Answer:** B

---

13. Which practice ensures minimum access rights?

A. Open access policy
B. Least privilege principle
C. Shared credentials
D. Default access

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which attack exploits database vulnerabilities?

A. Phishing
B. SQL injection
C. Brute force
D. Spoofing

✅ **Answer:** B

---

15. Antivirus software primarily:

A. Increases network speed
B. Detects and removes malware
C. Encrypts data
D. Controls firewalls

✅ **Answer:** B

---

16. Which technology secures wireless networks?

A. FTP
B. WPA2/WPA3
C. SMTP
D. POP3

✅ **Answer:** B

---

17. A digital certificate is used to:

A. Store passwords
B. Verify identity and enable encryption
C. Increase bandwidth
D. Backup data

✅ **Answer:** B

---

18. Which attack involves intercepting communication?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. DoS
B. Phishing
C. Man-in-the-middle
D. Ransomware

✅ **Answer:** C

---

19. Ransomware primarily:

A. Steals hardware
B. Encrypts data and demands payment
C. Monitors user activity
D. Improves security

✅ **Answer:** B

---

20. Cybersecurity engineering aims to:

A. Eliminate internet usage
B. Protect digital assets and ensure system trust
C. Increase software complexity
D. Replace IT teams

✅ **Answer:** B

Model Question Paper

Data Analyst Engineering – MCQs (20 Questions)

1. Data Analyst Engineering mainly focuses on:

A. Hardware maintenance
B. Collecting, analyzing, and interpreting data
C. Network security
D. Software testing

✅ **Answer:** B

---

2. Which tool is commonly used for data analysis?

A. MS Word
B. Excel
C. Photoshop
D. AutoCAD

✅ **Answer:** B

---

3. Structured data is best stored in:

A. Text files
B. Relational databases
C. Images
D. Videos

✅ **Answer:** B

---

4. Which language is widely used for data analysis?

A. HTML
B. Python
C. C++
D. Java

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. The process of cleaning data is called:

A. Data mining
B. Data preprocessing
C. Data modeling
D. Data warehousing

✅ **Answer:** B

---

6. Which measure represents the average of a dataset?

A. Median
B. Mode
C. Mean
D. Range

✅ **Answer:** C

---

7. Which chart is best for comparing categories?

A. Line chart
B. Pie chart
C. Bar chart
D. Scatter plot

✅ **Answer:** C

---

8. SQL is mainly used for:

A. Designing websites
B. Querying databases
C. Image processing
D. Game development

✅ **Answer:** B

---

9. What does ETL stand for?

A. Extract, Transform, Load
B. Encode, Transfer, Link

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Evaluate, Test, Learn
D. Execute, Track, Log

✅ **Answer:** A

---

10. Which database is commonly used for big data?

A. MS Access
B. MySQL
C. Hadoop
D. Oracle

✅ **Answer:** C

---

11. The purpose of data visualization is to:

A. Store data
B. Hide patterns
C. Communicate insights clearly
D. Increase data size

✅ **Answer:** C

---

12. Which Python library is used for data manipulation?

A. NumPy
B. Pandas
C. Matplotlib
D. TensorFlow

✅ **Answer:** B

---

13. Which statistical measure shows data spread?

A. Mean
B. Median
C. Standard deviation
D. Mode

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

---

14. Which type of data is categorical?

A. Height
B. Weight
C. Age
D. Gender

✅ **Answer:** D

---

15. A dashboard is used to:

A. Write code
B. Present key metrics visually
C. Store raw data
D. Clean data

✅ **Answer:** B

---

16. Which tool is used for data visualization?

A. Tableau
B. Notepad
C. Compiler
D. Antivirus

✅ **Answer:** A

---

17. Missing values in a dataset can be handled by:

A. Ignoring dataset
B. Deleting or imputing values
C. Increasing sample size
D. Adding noise

✅ **Answer:** B

---

18. Which analysis predicts future trends?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Descriptive analysis
B. Diagnostic analysis
C. Predictive analysis
D. Prescriptive analysis

✅ **Answer:** C

---

19. Big data is characterized by:

A. One dimension
B. 3Vs – Volume, Velocity, Variety
C. Small datasets
D. Simple structure

✅ **Answer:** B

---

20. Data Analyst Engineering aims to:

A. Eliminate data
B. Support decision-making using data insights
C. Replace management
D. Focus only on statistics

✅ **Answer:** B

Model Question Paper

Electrical Engineering – MCQs (20 Questions)

1. Electrical engineering mainly deals with:

A. Chemical processes
B. Electrical power and machines
C. Software systems
D. Structural design

✅ **Answer:** B

---

2. The SI unit of electric current is:

A. Volt
B. Ohm
C. Ampere
D. Watt

✅ **Answer:** C

---

3. Ohm's Law is expressed as:

A. $P = VI$
B. $V = IR$
C. $E = mc^2$
D. $F = ma$

✅ **Answer:** B

---

4. The device used to measure electric current is:

A. Voltmeter
B. Ammeter
C. Wattmeter
D. Galvanometer

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which material is a good conductor of electricity?

A. Rubber
B. Glass
C. Copper
D. Plastic

✅ **Answer:** C

---

6. The unit of electrical resistance is:

A. Volt
B. Ampere
C. Ohm
D. Farad

✅ **Answer:** C

---

7. Which device converts mechanical energy into electrical energy?

A. Motor
B. Generator
C. Transformer
D. Rectifier

✅ **Answer:** B

---

8. The function of a transformer is to:

A. Store energy
B. Convert AC to DC
C. Step up or step down voltage
D. Generate electricity

✅ **Answer:** C

---

9. Power in an electrical circuit is given by:

A. $P = IR$
B. $P = V^2R$

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. P = VI
D. P = I/R

✅ **Answer:** C

---

10. Which motor is commonly used in household appliances?

A. DC shunt motor
B. Induction motor
C. Synchronous motor
D. Stepper motor

✅ **Answer:** B

---

11. The frequency of AC supply in India is:

A. 40 Hz
B. 50 Hz
C. 60 Hz
D. 100 Hz

✅ **Answer:** B

---

12. Which device protects circuits from overload?

A. Switch
B. Fuse
C. Capacitor
D. Inductor

✅ **Answer:** B

---

13. The purpose of earthing is to:

A. Increase voltage
B. Reduce current
C. Protect from electric shock
D. Improve efficiency

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which instrument measures electrical power?

A. Voltmeter
B. Ammeter
C. Wattmeter
D. Energy meter

✅ **Answer:** C

---

15. A capacitor stores energy in the form of:

A. Heat
B. Magnetic field
C. Electric field
D. Chemical energy

✅ **Answer:** C

---

16. The unit of electrical energy is:

A. Watt
B. Joule
C. Volt
D. Ampere

✅ **Answer:** B

---

17. Which type of current changes direction periodically?

A. DC
B. AC
C. Pulsed DC
D. Static current

✅ **Answer:** B

---

18. Which law relates induced EMF to change in magnetic flux?

A. Ohm’s Law
B. Kirchhoff’s Law
C. Faraday’s Law
D. Lenz’s Law

✅ **Answer:** C

---

19. The device used to convert AC to DC is:

A. Inverter
B. Rectifier
C. Transformer
D. Alternator

✅ **Answer:** B

---

20. Electrical engineering aims to:

A. Design safe and efficient electrical systems
B. Manufacture chemicals
C. Build roads
D. Write software only

✅ **Answer:** A

Model Question Paper

Electronics & Communication Engineering – MCQs (20 Questions)

1. Electronics & Communication Engineering mainly deals with:

A. Power generation
B. Electronic devices and communication systems
C. Structural design
D. Chemical processing

✅ **Answer:** B

---

2. The basic electronic component used to control current is:

A. Capacitor
B. Inductor
C. Resistor
D. Transformer

✅ **Answer:** C

---

3. Which semiconductor device is used for amplification?

A. Diode
B. Transistor
C. Resistor
D. Capacitor

✅ **Answer:** B

---

4. The unit of frequency is:

A. Volt
B. Ampere
C. Hertz
D. Ohm

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which material is commonly used as a semiconductor?

A. Copper
B. Aluminum
C. Silicon
D. Iron

✅ **Answer:** C

---

6. A diode allows current to flow:

A. In both directions
B. In one direction only
C. Only in AC
D. Only in DC

✅ **Answer:** B

---

7. The function of a capacitor is to:

A. Store electrical energy
B. Store magnetic energy
C. Generate power
D. Control voltage only

✅ **Answer:** A

---

8. Which modulation technique varies amplitude?

A. FM
B. PM
C. AM
D. PCM

✅ **Answer:** C

---

9. The bandwidth of a signal represents:

A. Signal strength
B. Range of frequencies

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Noise level
D. Data size

✅ **Answer:** B

---

10. Which device converts analog signals to digital?

A. DAC
B. ADC
C. Modulator
D. Amplifier

✅ **Answer:** B

---

11. The basic building block of digital circuits is:

A. Transistor
B. Logic gate
C. Capacitor
D. Inductor

✅ **Answer:** B

---

12. Which logic gate outputs HIGH only when all inputs are HIGH?

A. OR
B. NAND
C. AND
D. NOR

✅ **Answer:** C

---

13. Which wave travels fastest?

A. Sound wave
B. Electrical signal in wire
C. Light wave
D. Mechanical wave

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. The unit of gain is:

A. Watt
B. Volt
C. Decibel
D. Ampere

✅ **Answer:** C

---

15. Which antenna is commonly used in TV reception?

A. Parabolic antenna
B. Loop antenna
C. Yagi antenna
D. Horn antenna

✅ **Answer:** C

---

16. Noise in communication systems mainly affects:

A. Power supply
B. Signal quality
C. Antenna size
D. Frequency range

✅ **Answer:** B

---

17. Which communication is used in mobile phones?

A. Wired communication
B. Optical communication
C. Wireless communication
D. Satellite only

✅ **Answer:** C

---

18. The full form of IC is:

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Integrated Circuit
B. Internal Connection
C. Interface Controller
D. Input Circuit

✅ **Answer:** A

---

19. Which multiplexing technique uses time slots?

A. FDM
B. WDM
C. TDM
D. CDM

✅ **Answer:** C

---

20. Electronics & Communication Engineering aims to:

A. Improve signal transmission and electronic systems
B. Build bridges
C. Generate electricity only
D. Manufacture chemicals

✅ **Answer:** A

Model Question Paper

Engineering Management – MCQs (20 Questions)

1. Engineering management mainly combines:

A. Engineering and law
B. Engineering and management principles
C. Engineering and medicine
D. Engineering and architecture

✅ **Answer:** B

---

2. The primary role of an engineering manager is to:

A. Perform technical work only
B. Manage people, projects, and resources
C. Design machines only
D. Write software only

✅ **Answer:** B

---

3. Which management function involves setting goals?

A. Organizing
B. Staffing
C. Planning
D. Controlling

✅ **Answer:** C

---

4. The process of assigning tasks and responsibilities is called:

A. Planning
B. Organizing
C. Directing
D. Controlling

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which tool is used for project scheduling?

A. Balance sheet
B. Gantt chart
C. Flow diagram
D. Pie chart

✅ **Answer:** B

---

6. The critical path in a project determines:

A. Total cost
B. Minimum project duration
C. Maximum profit
D. Quality standards

✅ **Answer:** B

---

7. Which leadership style involves employee participation?

A. Autocratic
B. Democratic
C. Laissez-faire
D. Bureaucratic

✅ **Answer:** B

---

8. KPI stands for:

A. Key Performance Indicator
B. Known Project Index
C. Key Process Input
D. Knowledge Performance Indicator

✅ **Answer:** A

---

9. Which factor is most important for team motivation?

A. Strict supervision
B. Clear goals and recognition

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Long working hours
D. Job insecurity

✅ **Answer:** B

---

10. Risk management primarily aims to:

A. Eliminate all risks
B. Identify and reduce project risks
C. Increase uncertainty
D. Avoid planning

✅ **Answer:** B

---

11. Which cost includes raw materials and labor?

A. Fixed cost
B. Variable cost
C. Sunk cost
D. Opportunity cost

✅ **Answer:** B

---

12. SWOT analysis evaluates:

A. Skills, Work, Output, Time
B. Strengths, Weaknesses, Opportunities, Threats
C. Strategy, Workload, Organization, Targets
D. System, Workflow, Output, Tools

✅ **Answer:** B

---

13. Quality management focuses on:

A. Reducing labor
B. Meeting customer requirements
C. Increasing cost
D. Eliminating standards

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which technique improves continuous improvement?

A. CPM
B. PERT
C. Six Sigma
D. Histogram

✅ **Answer:** C

---

15. The main objective of inventory management is to:

A. Increase storage cost
B. Ensure optimal stock levels
C. Eliminate warehouses
D. Increase purchase quantity

✅ **Answer:** B

---

16. Which communication is most effective in management?

A. One-way communication
B. Two-way communication
C. Written communication only
D. Informal communication only

✅ **Answer:** B

---

17. Decision-making in management should be:

A. Emotional
B. Random
C. Data-driven
D. Avoided

✅ **Answer:** C

---

18. Which document defines project scope, cost, and timeline?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Resume
B. Project charter
C. Invoice
D. Quotation

✅ **Answer:** B

---

19. Time management mainly helps in:

A. Increasing work pressure
B. Meeting deadlines efficiently
C. Reducing productivity
D. Avoiding planning

✅ **Answer:** B

---

20. Engineering management aims to:

A. Replace engineers
B. Align technical work with business goals
C. Reduce innovation
D. Focus only on theory

✅ **Answer:** B

Model Question Paper

Environmental Engineering – MCQs (20 Questions)

1. Environmental engineering mainly deals with:

A. Machine design
B. Protection of environment and public health
C. Software development
D. Electrical systems

✅ **Answer:** B

---

2. The main source of air pollution in urban areas is:

A. Agriculture
B. Vehicles
C. Forest fires
D. Volcanoes

✅ **Answer:** B

---

3. Which gas is mainly responsible for global warming?

A. Oxygen
B. Nitrogen
C. Carbon dioxide
D. Hydrogen

✅ **Answer:** C

---

4. The pH value of neutral water is:

A. 5
B. 6
C. 7
D. 8

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which process is used for wastewater treatment?

A. Distillation
B. Sedimentation
C. Polymerization
D. Crystallization

✅ **Answer:** B

---

6. BOD stands for:

A. Biological Oxygen Demand
B. Basic Oxygen Demand
C. Biochemical Oxygen Demand
D. Bacterial Oxygen Demand

✅ **Answer:** C

---

7. Which pollutant causes acid rain?

A. Carbon monoxide
B. Sulfur dioxide
C. Oxygen
D. Methane

✅ **Answer:** B

---

8. Noise pollution is measured in:

A. Hertz
B. Decibel
C. Pascal
D. Watt

✅ **Answer:** B

---

9. Which treatment removes dissolved impurities from water?

A. Screening
B. Filtration

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Sedimentation
D. Reverse osmosis

✅ **Answer:** D

---

10. Solid waste management mainly involves:

A. Waste generation only
B. Collection, treatment, and disposal
C. Transportation only
D. Recycling only

✅ **Answer:** B

---

11. Which method is used for disinfection of drinking water?

A. Coagulation
B. Filtration
C. Chlorination
D. Sedimentation

✅ **Answer:** C

---

12. Which pollutant affects the ozone layer?

A. CO_2
B. SO_2
C. CFCs
D. NO_2

✅ **Answer:** C

---

13. The purpose of environmental impact assessment (EIA) is to:

A. Increase project cost
B. Identify environmental effects of projects
C. Eliminate development
D. Improve aesthetics

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which renewable energy source is environment-friendly?

A. Coal
B. Nuclear
C. Solar
D. Diesel

✅ **Answer:** C

---

15. Water pollution mainly affects:

A. Soil fertility
B. Aquatic life
C. Air quality
D. Noise levels

✅ **Answer:** B

---

16. Which gas is released from landfills?

A. Oxygen
B. Nitrogen
C. Methane
D. Hydrogen

✅ **Answer:** C

---

17. The main objective of environmental engineering is to:

A. Increase industrial output
B. Protect human health and environment
C. Reduce construction cost
D. Eliminate regulations

✅ **Answer:** B

---

18. Which device controls particulate air pollution?

A. Electrostatic precipitator
B. Transformer
C. Heat exchanger
D. Reactor

✅ **Answer:** A

---

19. Which water quality parameter indicates organic pollution?

A. pH
B. Turbidity
C. BOD
D. Temperature

✅ **Answer:** C

---

20. Environmental engineering promotes:

A. Pollution increase
B. Sustainable development
C. Resource depletion
D. Industrial waste

✅ **Answer:** B

Model Question Paper

Geotechnical Engineering – MCQs (20 Questions)

1. Geotechnical engineering mainly deals with:

A. Steel structures
B. Soil and rock mechanics
C. Electrical systems
D. Water resources

✅ **Answer:** B

---

2. The study of soil behavior under load is called:

A. Structural engineering
B. Soil mechanics
C. Environmental engineering
D. Transportation engineering

✅ **Answer:** B

---

3. Which soil type has the highest bearing capacity?

A. Clay
B. Silt
C. Sand
D. Gravel

✅ **Answer:** D

---

4. The liquid limit of soil is determined using:

A. Proctor test
B. Atterberg limits test
C. Permeability test
D. Compaction test

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which test is used to determine soil shear strength?

A. Sieve analysis
B. Direct shear test
C. Consolidation test
D. Permeability test

✅ **Answer:** B

---

6. The process of reducing soil volume by expelling air is called:

A. Consolidation
B. Compaction
C. Settlement
D. Permeability

✅ **Answer:** B

---

7. Which foundation is suitable for weak soils?

A. Shallow foundation
B. Isolated footing
C. Pile foundation
D. Strip footing

✅ **Answer:** C

---

8. The permeability of soil depends mainly on:

A. Soil color
B. Particle size
C. Temperature
D. Mineral composition

✅ **Answer:** B

---

9. Which soil has the highest permeability?

A. Clay
B. Silt

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Sand
D. Loam

✅ **Answer:** C

---

10. The bearing capacity of soil is:

A. Maximum load soil can support
B. Weight of soil
C. Volume of soil
D. Depth of foundation

✅ **Answer:** A

---

11. Which test determines compaction characteristics?

A. CBR test
B. Proctor test
C. Plate load test
D. Triaxial test

✅ **Answer:** B

---

12. The angle of internal friction is represented by:

A. α
B. β
C. ϕ
D. θ

✅ **Answer:** C

---

13. Which soil shows maximum compressibility?

A. Gravel
B. Sand
C. Clay
D. Silt

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Settlement of soil mainly occurs due to:

A. Temperature change
B. Load application
C. Color variation
D. Chemical reaction

✅ **Answer:** B

---

15. Which test is used for pavement design?

A. Proctor test
B. CBR test
C. Consolidation test
D. Permeability test

✅ **Answer:** B

---

16. The water content of soil is expressed as:

A. Percentage
B. Ratio
C. Volume
D. Weight

✅ **Answer:** A

---

17. Which type of foundation spreads load over a large area?

A. Pile foundation
B. Raft foundation
C. Well foundation
D. Caisson foundation

✅ **Answer:** B

---

18. Which soil is most suitable for embankment construction?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Clay
B. Silt
C. Well-graded soil
D. Organic soil

✅ **Answer:** C

---

19. Which test measures soil permeability?

A. Falling head test
B. Triaxial test
C. Plate load test
D. CBR test

✅ **Answer:** A

---

20. Geotechnical engineering aims to:

A. Design electrical systems
B. Ensure safe foundation and earth structures
C. Improve software performance
D. Reduce soil usage

✅ **Answer:** B

Model Question Paper

Geomatics Engineering – MCQs (20 Questions)

1. Geomatics engineering mainly deals with:

A. Building construction
B. Collection and analysis of spatial data
C. Machine design
D. Power generation

✅ **Answer:** B

---

2. Which technology is used to determine precise location on Earth?

A. GIS
B. GPS
C. Remote sensing
D. Photogrammetry

✅ **Answer:** B

---

3. GIS stands for:

A. Global Information System
B. Geographic Information System
C. Geometric Imaging System
D. Geo Integrated Software

✅ **Answer:** B

---

4. Remote sensing collects data using:

A. Physical contact
B. Satellites and sensors
C. Manual surveys
D. Underground cables

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which instrument is used to measure horizontal and vertical angles?

A. Compass
B. Chain
C. Theodolite
D. Measuring tape

✅ **Answer:** C

---

6. Photogrammetry is the science of:

A. Map printing
B. Measurement from photographs
C. Soil testing
D. Satellite launching

✅ **Answer:** B

---

7. Which data represents real-world features like roads and rivers?

A. Raster data
B. Attribute data
C. Vector data
D. Statistical data

✅ **Answer:** C

---

8. Raster data is composed of:

A. Points and lines
B. Tables only
C. Grid cells or pixels
D. Coordinates only

✅ **Answer:** C

---

9. Which satellite system is operated by India?

A. GPS
B. GLONASS

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Galileo
D. IRNSS (NavIC)

✅ **Answer:** D

---

10. Which GIS component stores descriptive information?

A. Spatial data
B. Attribute data
C. Hardware
D. Software

✅ **Answer:** B

---

11. Which surveying method uses electromagnetic waves?

A. Chain surveying
B. Plane table surveying
C. EDM
D. Levelling

✅ **Answer:** C

---

12. A contour line represents:

A. Soil type
B. Road alignment
C. Equal elevation points
D. River direction

✅ **Answer:** C

---

13. Which projection represents the curved Earth on a flat surface?

A. Scale
B. Map projection
C. Contour
D. Datum

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Datum in surveying refers to:

A. Survey instrument
B. Reference surface or level
C. Measurement error
D. Survey method

✅ **Answer:** B

---

15. Which error occurs due to instrument imperfection?

A. Personal error
B. Random error
C. Systematic error
D. Natural error

✅ **Answer:** C

---

16. Which software is commonly used in GIS?

A. AutoCAD
B. ArcGIS
C. MATLAB
D. ANSYS

✅ **Answer:** B

---

17. Total station combines:

A. GPS and compass
B. Theodolite and EDM
C. Chain and tape
D. Camera and GPS

✅ **Answer:** B

---

18. Which application uses geomatics engineering?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Urban planning
B. Navigation and mapping
C. Disaster management
D. All of the above

✅ **Answer:** D

---

19. Scale of a map represents:

A. Map color
B. Direction
C. Ratio of map distance to ground distance
D. Area coverage

✅ **Answer:** C

---

20. Geomatics engineering aims to:

A. Improve agricultural yield only
B. Manage and analyze spatial information accurately
C. Replace civil engineering
D. Focus only on satellites

✅ **Answer:** B

Model Question Paper

Industrial Engineering – MCQs (20 Questions)

1. Industrial engineering mainly focuses on:

A. Machine design
B. Optimization of systems, processes, and resources
C. Power generation
D. Structural analysis

✅ **Answer:** B

---

2. The main objective of industrial engineering is to:

A. Increase labor work
B. Improve productivity and efficiency
C. Reduce product quality
D. Eliminate planning

✅ **Answer:** B

---

3. Work study consists of:

A. Time study and motion study
B. Cost study and wage study
C. Safety study and risk study
D. Machine study and tool study

✅ **Answer:** A

---

4. Which technique measures time required to perform a task?

A. Motion study
B. Time study
C. Method study
D. Value engineering

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Inventory control mainly aims to:

A. Increase stock levels
B. Reduce storage cost and ensure availability
C. Eliminate warehouses
D. Increase purchasing

✅ **Answer:** B

---

6. EOQ stands for:

A. Economic Order Quantity
B. Estimated Order Quality
C. Effective Output Quantity
D. Engineering Order Quantity

✅ **Answer:** A

---

7. Which layout minimizes material handling?

A. Process layout
B. Product layout
C. Fixed position layout
D. Cellular layout

✅ **Answer:** B

---

8. The study of worker fatigue and efficiency is related to:

A. Operations research
B. Ergonomics
C. Quality control
D. Cost accounting

✅ **Answer:** B

---

9. Which chart is used to record worker activity?

A. Gantt chart
B. Flow process chart

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Histogram
D. Pie chart

✅ **Answer:** B

---

10. Which quality tool uses cause-and-effect analysis?

A. Pareto chart
B. Control chart
C. Fishbone diagram
D. Scatter diagram

✅ **Answer:** C

---

11. JIT stands for:

A. Job Inventory Technique
B. Just In Time
C. Joint Inspection Tool
D. Job Improvement Technique

✅ **Answer:** B

---

12. The purpose of method study is to:

A. Increase cost
B. Reduce work content
C. Increase fatigue
D. Eliminate workers

✅ **Answer:** B

---

13. Which tool helps in decision-making under constraints?

A. CPM
B. PERT
C. Linear programming
D. Histogram

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

---

14. Which type of maintenance is planned and scheduled?

A. Breakdown maintenance
B. Preventive maintenance
C. Corrective maintenance
D. Emergency maintenance

✅ **Answer:** B

---

15. The aim of quality control is to:

A. Increase inspection
B. Maintain product standards
C. Increase defects
D. Reduce productivity

✅ **Answer:** B

---

16. Which factor affects productivity the most?

A. Lighting only
B. Worker skill and motivation
C. Paint color
D. Office size

✅ **Answer:** B

---

17. A Pareto chart is based on the principle of:

A. 50–50 rule
B. 70–30 rule
C. 80–20 rule
D. 90–10 rule

✅ **Answer:** C

---

18. Which cost does not change with output level?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Variable cost
B. Fixed cost
C. Marginal cost
D. Opportunity cost

✅ **Answer:** B

---

19. Value engineering focuses on:

A. Increasing cost
B. Improving function at minimum cost
C. Reducing product life
D. Increasing material use

✅ **Answer:** B

---

20. Industrial engineering aims to:

A. Replace machines
B. Improve efficiency, quality, and productivity
C. Focus only on manufacturing
D. Reduce management roles

✅ **Answer:** B

Model Question Paper

Manufacturing Engineering – MCQs (20 Questions)

1. Manufacturing engineering mainly deals with:

A. Software development
B. Design and production of goods
C. Power transmission
D. Building construction

✅ **Answer:** B

---

2. The primary objective of manufacturing engineering is to:

A. Increase product cost
B. Improve product quality and productivity
C. Reduce automation
D. Eliminate planning

✅ **Answer:** B

---

3. Which process is used to remove material from a workpiece?

A. Casting
B. Forging
C. Machining
D. Molding

✅ **Answer:** C

---

4. The machine used for turning operations is:

A. Milling machine
B. Drilling machine
C. Lathe
D. Shaper

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which manufacturing process involves molten metal?

A. Forging
B. Casting
C. Extrusion
D. Rolling

✅ **Answer:** B

---

6. The function of a jig is to:

A. Hold workpiece only
B. Guide cutting tool
C. Measure dimensions
D. Reduce cutting speed

✅ **Answer:** B

---

7. Which tool is used for drilling holes?

A. Reamer
B. Drill bit
C. Tap
D. Broach

✅ **Answer:** B

---

8. CNC machines are controlled by:

A. Manual operation
B. Hydraulic systems
C. Computer programs
D. Pneumatic systems

✅ **Answer:** C

---

9. Which joining process uses electric current?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Riveting
B. Welding
C. Brazing
D. Soldering

✅ **Answer:** B

---

10. Which manufacturing process improves grain structure?

A. Casting
B. Forging
C. Machining
D. Grinding

✅ **Answer:** B

---

11. The process of cutting internal threads is called:

A. Drilling
B. Tapping
C. Reaming
D. Milling

✅ **Answer:** B

---

12. Which process produces flat surfaces?

A. Turning
B. Milling
C. Drilling
D. Boring

✅ **Answer:** B

---

13. Surface finishing improves:

A. Only appearance
B. Dimensional accuracy only

C. Wear resistance and appearance
D. Weight of component

✅ **Answer:** C

---

14. Which material is commonly used for cutting tools?

A. Copper
B. High-speed steel
C. Aluminum
D. Plastic

✅ **Answer:** B

---

15. Which forming process produces long uniform cross-section?

A. Rolling
B. Forging
C. Extrusion
D. Drawing

✅ **Answer:** C

---

16. The function of coolant in machining is to:

A. Increase cutting force
B. Reduce tool wear and heat
C. Increase speed only
D. Improve hardness

✅ **Answer:** B

---

17. Which process joins metals using filler material at lower temperature?

A. Welding
B. Brazing
C. Forging
D. Casting

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

18. Which measurement ensures product quality?

A. Inspection
B. Storage
C. Packaging
D. Transportation

✅ **Answer:** A

---

19. Which production system is suitable for mass production?

A. Job production
B. Batch production
C. Mass production
D. Project production

✅ **Answer:** C

---

20. Manufacturing engineering aims to:

A. Reduce automation
B. Produce quality products efficiently and economically
C. Eliminate machines
D. Focus only on design

✅ **Answer:** B

Model Question Paper

Marine Engineering – MCQs (20 Questions)

1. Marine engineering mainly deals with:

A. Aircraft systems
B. Ship machinery and propulsion systems
C. Road vehicles
D. Power transmission lines

✅ **Answer:** B

---

2. The main propulsion system used in modern ships is:

A. Steam engine
B. Gas turbine
C. Diesel engine
D. Electric motor

✅ **Answer:** C

---

3. Which fuel is commonly used in marine diesel engines?

A. Petrol
B. Heavy fuel oil
C. LPG
D. CNG

✅ **Answer:** B

---

4. The main function of a ship's propeller is to:

A. Generate electricity
B. Steer the ship
C. Provide thrust
D. Reduce vibration

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which system supplies fresh water onboard ships?

A. Bilge system
B. Ballast system
C. Distillation plant
D. Fuel system

✅ **Answer:** C

---

6. Which device is used to remove oil from bilge water?

A. Heat exchanger
B. Oil-water separator
C. Centrifugal pump
D. Compressor

✅ **Answer:** B

---

7. The engine room in a ship houses:

A. Navigation equipment
B. Cargo only
C. Main and auxiliary machinery
D. Crew accommodation

✅ **Answer:** C

---

8. Which system controls ship direction?

A. Propulsion system
B. Rudder system
C. Ballast system
D. Cooling system

✅ **Answer:** B

---

9. The purpose of ballast water is to:

A. Increase ship speed
B. Maintain ship stability

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Reduce fuel consumption
D. Improve engine cooling

✅ **Answer:** B

---

10. Which device converts seawater into freshwater?

A. Boiler
B. Heat exchanger
C. Evaporator
D. Condenser

✅ **Answer:** C

---

11. Which marine engine operates on compression ignition?

A. Petrol engine
B. Diesel engine
C. Steam turbine
D. Gas turbine

✅ **Answer:** B

---

12. Which component absorbs vibration in marine engines?

A. Crankshaft
B. Flywheel
C. Propeller
D. Gearbox

✅ **Answer:** B

---

13. The cooling medium commonly used in marine engines is:

A. Air only
B. Freshwater and seawater
C. Oil only
D. Steam

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which system removes exhaust gases from engines?

A. Fuel system
B. Lubrication system
C. Exhaust system
D. Cooling system

✅ **Answer:** C

---

15. Which equipment is used for fire safety onboard ships?

A. Air compressor
B. Fire pump
C. Heat exchanger
D. Distillation unit

✅ **Answer:** B

---

16. The purpose of lubrication is to:

A. Increase friction
B. Reduce wear and heat
C. Increase speed
D. Clean fuel

✅ **Answer:** B

---

17. Which pump is commonly used for bilge pumping?

A. Centrifugal pump
B. Gear pump
C. Piston pump
D. Screw pump

✅ **Answer:** A

---

18. Which international convention ensures marine pollution control?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. SOLAS
B. MARPOL
C. IMO
D. STCW

✅ **Answer:** B

---

19. Which machinery generates electrical power onboard ships?

A. Main engine
B. Alternator
C. Turbocharger
D. Compressor

✅ **Answer:** B

---

20. Marine engineering aims to:

A. Improve ship aesthetics
B. Ensure safe and efficient ship operation
C. Reduce crew size only
D. Focus only on navigation

✅ **Answer:** B

Model Question Paper

Materials Engineering – MCQs (20 Questions)

1. Materials engineering mainly deals with:

A. Software development
B. Selection, processing, and properties of materials
C. Electrical power systems
D. Building design

✅ **Answer:** B

---

2. Which property describes resistance to deformation?

A. Ductility
B. Elasticity
C. Hardness
D. Toughness

✅ **Answer:** C

---

3. Which material is a ceramic?

A. Steel
B. Glass
C. Copper
D. Aluminum

✅ **Answer:** B

---

4. The ability of a material to return to its original shape is called:

A. Plasticity
B. Elasticity
C. Malleability
D. Brittleness

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which test measures hardness?

A. Tensile test
B. Impact test
C. Brinell test
D. Fatigue test

✅ **Answer:** C

---

6. The unit cell is a concept related to:

A. Polymers
B. Ceramics
C. Crystalline materials
D. Composites

✅ **Answer:** C

---

7. Which property allows metals to be drawn into wires?

A. Malleability
B. Ductility
C. Toughness
D. Hardness

✅ **Answer:** B

---

8. Which material is non-metallic and organic in nature?

A. Ceramic
B. Polymer
C. Metal
D. Alloy

✅ **Answer:** B

---

9. The process of heating and cooling metals to change properties is called:

A. Casting
B. Annealing

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Heat treatment
D. Forging

✅ **Answer:** C

---

10. Which structure has the highest atomic packing factor?

A. Simple cubic
B. Body-centered cubic
C. Face-centered cubic
D. Hexagonal close-packed

✅ **Answer:** C

---

11. Corrosion mainly occurs due to:

A. Mechanical action
B. Chemical or electrochemical reaction
C. Thermal stress
D. Magnetic field

✅ **Answer:** B

---

12. Which alloy is primarily composed of copper and zinc?

A. Bronze
B. Brass
C. Steel
D. Duralumin

✅ **Answer:** B

---

13. Which material property measures energy absorption before fracture?

A. Hardness
B. Brittleness
C. Toughness
D. Elasticity

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Composite materials consist of:

A. Single element
B. Two or more distinct materials
C. Only metals
D. Only polymers

✅ **Answer:** B

---

15. Which test determines tensile strength?

A. Compression test
B. Impact test
C. Tensile test
D. Fatigue test

✅ **Answer:** C

---

16. Which ceramic property makes it suitable for high-temperature use?

A. Electrical conductivity
B. Low melting point
C. High thermal resistance
D. Ductility

✅ **Answer:** C

---

17. Which polymer is thermoplastic?

A. Bakelite
B. Epoxy
C. Polyethylene
D. Vulcanized rubber

✅ **Answer:** C

---

18. Which defect occurs due to missing atoms?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Interstitial defect
B. Vacancy defect
C. Dislocation
D. Grain boundary

✅ **Answer:** B

---

19. Grain refinement in metals improves:

A. Brittleness
B. Strength
C. Corrosion rate
D. Density

✅ **Answer:** B

---

20. Materials engineering aims to:

A. Replace manufacturing
B. Develop materials with desired properties
C. Eliminate metals
D. Focus only on theory

✅ **Answer:** B

Model Question Paper

Mechanical Engineering – MCQs (20 Questions)

1. Mechanical engineering mainly deals with:

A. Software development
B. Design, analysis, and manufacturing of mechanical systems
C. Electrical power systems
D. Chemical processing

✅ **Answer:** B

---

2. The SI unit of force is:

A. Joule
B. Pascal
C. Newton
D. Watt

✅ **Answer:** C

---

3. Which law relates force, mass, and acceleration?

A. Ohm's law
B. Newton's second law
C. Boyle's law
D. Bernoulli's principle

✅ **Answer:** B

---

4. The study of heat and energy transfer is called:

A. Kinematics
B. Thermodynamics
C. Fluid mechanics
D. Strength of materials

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which machine converts thermal energy into mechanical energy?

A. Compressor
B. Pump
C. Heat engine
D. Refrigerator

✅ **Answer:** C

---

6. Which material property indicates resistance to impact?

A. Hardness
B. Ductility
C. Toughness
D. Elasticity

✅ **Answer:** C

---

7. The device used to measure pressure is:

A. Barometer
B. Thermometer
C. Anemometer
D. Hygrometer

✅ **Answer:** A

---

8. Which type of stress is induced due to twisting?

A. Tensile stress
B. Compressive stress
C. Shear stress
D. Bending stress

✅ **Answer:** C

---

9. The machine used to drill holes is:

A. Lathe
B. Shaper

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Drilling machine
D. Milling machine

✅ **Answer:** C

---

10. Which process improves surface finish?

A. Casting
B. Forging
C. Grinding
D. Turning

✅ **Answer:** C

---

11. Which law governs fluid flow in pipes?

A. Pascal's law
B. Bernoulli's principle
C. Boyle's law
D. Hooke's law

✅ **Answer:** B

---

12. Which property allows a material to be hammered into thin sheets?

A. Ductility
B. Malleability
C. Hardness
D. Brittleness

✅ **Answer:** B

---

13. Which component stores energy in a flywheel?

A. Electrical energy
B. Thermal energy
C. Kinetic energy
D. Potential energy

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. The purpose of lubrication is to:

A. Increase friction
B. Reduce wear and heat
C. Increase speed
D. Change material properties

✅ **Answer:** B

---

15. Which cycle is used in petrol engines?

A. Diesel cycle
B. Otto cycle
C. Rankine cycle
D. Brayton cycle

✅ **Answer:** B

---

16. Which instrument measures temperature?

A. Manometer
B. Thermometer
C. Barometer
D. Hygrometer

✅ **Answer:** B

---

17. Which stress occurs due to bending?

A. Tensile and compressive stress
B. Shear stress only
C. Compressive stress only
D. Torsional stress

✅ **Answer:** A

---

18. Which machine element transmits power between shafts?

A. Bearing
B. Gear
C. Spring
D. Brake

✅ **Answer:** B

---

19. Which process joins metals by melting them?

A. Brazing
B. Soldering
C. Welding
D. Riveting

✅ **Answer:** C

---

20. Mechanical engineering aims to:

A. Eliminate machines
B. Design efficient and reliable mechanical systems
C. Focus only on theory
D. Reduce industrial output

✅ **Answer:** B

Model Question Paper

Metallurgical Engineering – MCQs (20 Questions)

1. Metallurgical engineering mainly deals with:

A. Electrical systems
B. Extraction and processing of metals
C. Machine design
D. Chemical reactions only

✅ **Answer:** B

---

2. The branch of metallurgy concerned with metal extraction is:

A. Physical metallurgy
B. Mechanical metallurgy
C. Extractive metallurgy
D. Process metallurgy

✅ **Answer:** C

---

3. Which process removes impurities from molten metal?

A. Casting
B. Refining
C. Rolling
D. Forging

✅ **Answer:** B

---

4. Which furnace is commonly used in steel making?

A. Blast furnace
B. Cupola furnace
C. Electric arc furnace
D. All of the above

✅ **Answer:** D

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Iron is extracted from its ore mainly by:

A. Electrolysis
B. Roasting
C. Smelting
D. Leaching

✅ **Answer:** C

---

6. Which ore is the chief source of aluminum?

A. Hematite
B. Bauxite
C. Magnetite
D. Galena

✅ **Answer:** B

---

7. The process of adding alloying elements to a metal is called:

A. Annealing
B. Alloying
C. Quenching
D. Normalizing

✅ **Answer:** B

---

8. Which property measures resistance to plastic deformation?

A. Toughness
B. Ductility
C. Hardness
D. Elasticity

✅ **Answer:** C

---

9. Which heat treatment process improves ductility?

A. Quenching
B. Annealing

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Hardening
D. Case hardening

✅ **Answer:** B

---

10. Steel is an alloy of:

A. Iron and copper
B. Iron and carbon
C. Iron and aluminum
D. Iron and zinc

✅ **Answer:** B

---

11. Which defect occurs along grain boundaries?

A. Vacancy defect
B. Interstitial defect
C. Grain boundary defect
D. Frenkel defect

✅ **Answer:** C

---

12. Which metal is extracted using electrolytic process?

A. Iron
B. Copper
C. Aluminum
D. Zinc

✅ **Answer:** C

---

13. The process of controlled cooling in air is called:

A. Annealing
B. Quenching
C. Normalizing
D. Tempering

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which test measures impact strength of metals?

A. Brinell test
B. Rockwell test
C. Izod test
D. Tensile test

✅ **Answer:** C

---

15. Corrosion of iron is commonly known as:

A. Oxidation
B. Scaling
C. Rusting
D. Pitting

✅ **Answer:** C

---

16. Which metal has the highest electrical conductivity?

A. Copper
B. Aluminum
C. Silver
D. Gold

✅ **Answer:** C

---

17. Which process improves surface hardness?

A. Annealing
B. Normalizing
C. Case hardening
D. Tempering

✅ **Answer:** C

---

18. The blast furnace is mainly used for:

A. Steel refining
B. Iron ore reduction
C. Aluminum extraction
D. Copper smelting

✅ **Answer:** B

---

19. Which alloy contains copper and tin?

A. Brass
B. Bronze
C. Steel
D. Duralumin

✅ **Answer:** B

---

20. Metallurgical engineering aims to:

A. Eliminate metal usage
B. Develop and process metals with desired properties
C. Focus only on mining
D. Reduce industrial output

✅ **Answer:** B

Model Question Paper

Mechatronics Engineering – MCQs (20 Questions)

1. Mechatronics engineering mainly combines:

A. Civil and mechanical engineering
B. Mechanical, electrical, electronics, and control engineering
C. Chemical and mechanical engineering
D. Electrical and civil engineering

✅ **Answer:** B

---

2. The core objective of mechatronics engineering is to:

A. Design smart and automated systems
B. Reduce machine efficiency
C. Eliminate electronics
D. Focus only on mechanics

✅ **Answer:** A

---

3. Which component senses physical parameters?

A. Actuator
B. Sensor
C. Controller
D. Motor

✅ **Answer:** B

---

4. Which device converts electrical energy into mechanical motion?

A. Sensor
B. Actuator
C. Controller
D. Encoder

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. PLC stands for:

A. Power Logic Controller
B. Programmable Logic Controller
C. Process Level Controller
D. Programmable Load Circuit

✅ **Answer:** B

---

6. Which motor is commonly used in robotics?

A. Induction motor
B. DC motor
C. Stepper motor
D. Steam engine

✅ **Answer:** C

---

7. The brain of a mechatronic system is the:

A. Sensor
B. Actuator
C. Controller
D. Power supply

✅ **Answer:** C

---

8. Which sensor measures rotational position?

A. Thermocouple
B. Encoder
C. Proximity sensor
D. Load cell

✅ **Answer:** B

---

9. Which control system uses feedback?

A. Open-loop system
B. Closed-loop system

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Manual system
D. Static system

✅ **Answer:** B

---

10. The function of an actuator is to:

A. Measure signals
B. Control signals
C. Perform mechanical action
D. Store data

✅ **Answer:** C

---

11. Which programming language is commonly used for PLC?

A. C++
B. Python
C. Ladder logic
D. Java

✅ **Answer:** C

---

12. Which sensor detects presence of objects without contact?

A. Limit switch
B. Proximity sensor
C. Temperature sensor
D. Pressure sensor

✅ **Answer:** B

---

13. Which system integrates mechanics with electronics?

A. Hydraulic system
B. Pneumatic system
C. Mechatronic system
D. Manual system

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which device measures speed?

A. Tachometer
B. Voltmeter
C. Thermometer
D. Ammeter

✅ **Answer:** A

---

15. The role of microcontroller in mechatronics is to:

A. Supply power
B. Control and process signals
C. Act as sensor
D. Reduce noise

✅ **Answer:** B

---

16. Which actuator uses fluid pressure?

A. Electric actuator
B. Hydraulic actuator
C. Piezo actuator
D. Thermal actuator

✅ **Answer:** B

---

17. Which robot configuration has high precision?

A. Cylindrical robot
B. Cartesian robot
C. Polar robot
D. SCARA robot

✅ **Answer:** B

---

18. Which control method reduces error?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Open-loop control
B. Feedback control
C. Manual control
D. Random control

✅ **Answer:** B

---

19. Which application uses mechatronics?

A. Industrial automation
B. Robotics
C. CNC machines
D. All of the above

✅ **Answer:** D

---

20. Mechatronics engineering aims to:

A. Replace humans
B. Create intelligent automated systems
C. Eliminate mechanics
D. Focus only on electronics

✅ **Answer:** B

Model Question Paper

Mining Engineering – MCQs (20 Questions)

1. Mining engineering mainly deals with:

A. Software development
B. Extraction of minerals from the Earth
C. Power generation
D. Agriculture

✅ **Answer:** B

---

2. Which method is used for extracting minerals near the surface?

A. Underground mining
B. Open-cast mining
C. Shaft mining
D. Drift mining

✅ **Answer:** B

---

3. Which type of mining is used for deep deposits?

A. Open-cast mining
B. Placer mining
C. Underground mining
D. Strip mining

✅ **Answer:** C

---

4. The primary purpose of ventilation in mines is to:

A. Increase temperature
B. Remove toxic gases and supply fresh air
C. Increase dust
D. Improve lighting

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which gas is most dangerous in coal mines?

A. Oxygen
B. Nitrogen
C. Methane
D. Carbon dioxide

✅ **Answer:** C

---

6. The process of breaking rocks using explosives is called:

A. Drilling
B. Cutting
C. Blasting
D. Loading

✅ **Answer:** C

---

7. Which equipment is used for transporting minerals?

A. Conveyor belt
B. Crusher
C. Drill machine
D. Pump

✅ **Answer:** A

---

8. Roof support in underground mines is provided by:

A. Timber and rock bolts
B. Conveyors
C. Crushers
D. Pumps

✅ **Answer:** A

---

9. Which mining method is safest?

A. Open-cast mining
B. Underground mining

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Shaft mining
D. Drift mining

✅ **Answer:** A

---

10. The process of separating valuable minerals from ore is called:

A. Smelting
B. Beneficiation
C. Refining
D. Casting

✅ **Answer:** B

---

11. Which mineral is mainly used for steel production?

A. Bauxite
B. Limestone
C. Iron ore
D. Copper

✅ **Answer:** C

---

12. Which instrument measures mine gases?

A. Barometer
B. Anemometer
C. Gas detector
D. Hygrometer

✅ **Answer:** C

---

13. Which type of drilling is used in mining?

A. Rotary drilling
B. Percussion drilling
C. Both A and B
D. Manual drilling only

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. The main objective of mine safety is to:

A. Increase production only
B. Prevent accidents and protect workers
C. Reduce mine depth
D. Eliminate equipment

✅ **Answer:** B

---

15. Which factor affects mine productivity?

A. Lighting only
B. Equipment efficiency
C. Mine color
D. Temperature only

✅ **Answer:** B

---

16. Which type of support is permanent?

A. Timber support
B. Hydraulic props
C. Rock bolts
D. Temporary props

✅ **Answer:** C

---

17. Subsidence in mining refers to:

A. Increase in ground level
B. Sinking of land surface
C. Increase in mine depth
D. Gas leakage

✅ **Answer:** B

---

18. Which mining law regulates safety standards?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Environmental Protection Act
B. Mines Act
C. Factory Act
D. Labor Act

✅ **Answer:** B

---

19. Which mineral is extracted by placer mining?

A. Coal
B. Iron ore
C. Gold
D. Limestone

✅ **Answer:** C

---

20. Mining engineering aims to:

A. Eliminate mining
B. Extract minerals safely and economically
C. Focus only on theory
D. Reduce industrial use

✅ **Answer:** B

Model Question Paper

Nanotechnology Engineering – MCQs (20 Questions)

1. Nanotechnology engineering mainly deals with materials at the scale of:

A. Millimeters
B. Micrometers
C. Nanometers
D. Centimeters

✅ **Answer:** C

---

2. One nanometer is equal to:

A. 10^{-3} m
B. 10^{-6} m
C. 10^{-9} m
D. 10^{-12} m

✅ **Answer:** C

---

3. Which instrument is used to view nanostructures?

A. Optical microscope
B. Scanning electron microscope
C. Atomic force microscope
D. Telescope

✅ **Answer:** C

---

4. Carbon nanotubes are made of:

A. Silicon
B. Carbon
C. Aluminum
D. Copper

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which property significantly changes at nanoscale?

A. Color only
B. Electrical, optical, and mechanical properties
C. Weight only
D. Density only

✅ **Answer:** B

---

6. Which nanoparticle is used in sunscreens?

A. Gold nanoparticles
B. Silver nanoparticles
C. Titanium dioxide nanoparticles
D. Carbon nanotubes

✅ **Answer:** C

---

7. The bottom-up approach involves:

A. Breaking bulk materials into nanosize
B. Building structures atom by atom
C. Machining materials
D. Grinding particles

✅ **Answer:** B

---

8. Which nanomaterial has exceptional electrical conductivity?

A. Graphene
B. Clay
C. Polymer
D. Glass

✅ **Answer:** A

---

9. Which field widely uses nanotechnology?

A. Medicine
B. Electronics

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Energy
D. All of the above

✅ **Answer:** D

---

10. Which process is used to produce nanoparticles?

A. Casting
B. Electrospinning
C. Forging
D. Rolling

✅ **Answer:** B

---

11. Which nanoparticle is known for antibacterial properties?

A. Iron oxide
B. Silver
C. Aluminum oxide
D. Zinc

✅ **Answer:** B

---

12. The surface-to-volume ratio of nanoparticles is:

A. Very low
B. Moderate
C. Very high
D. Zero

✅ **Answer:** C

---

13. Which nanostructure is two-dimensional?

A. Quantum dot
B. Nanowire
C. Thin film
D. Nanoparticle

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which application uses nanotechnology in electronics?

A. Transistors
B. Batteries
C. Displays
D. All of the above

✅ **Answer:** D

---

15. Which technique is used for nanoscale fabrication?

A. Lithography
B. Welding
C. Turning
D. Drilling

✅ **Answer:** A

---

16. Nanotechnology in medicine is called:

A. Biotechnology
B. Nanomedicine
C. Bioinformatics
D. Pharmacology

✅ **Answer:** B

---

17. Which property makes nanoparticles reactive?

A. Low surface area
B. High surface area
C. Large size
D. Low energy

✅ **Answer:** B

---

18. Which nanomaterial is a single layer of carbon atoms?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Fullerene
B. Graphene
C. Carbon black
D. Diamond

✅ **Answer:** B

---

19. Which environmental application uses nanotechnology?

A. Water purification
B. Air filtration
C. Pollution control
D. All of the above

✅ **Answer:** D

---

20. Nanotechnology engineering aims to:

A. Replace all materials
B. Develop advanced materials and devices at nanoscale
C. Focus only on theory
D. Eliminate manufacturing

✅ **Answer:** B

Model Question Paper

Petroleum Engineering – MCQs (20 Questions)

1. Petroleum engineering mainly deals with:

A. Mining of coal
B. Exploration and production of oil and gas
C. Power generation
D. Chemical manufacturing

✅ **Answer:** B

---

2. Which stage comes first in petroleum production?

A. Refining
B. Transportation
C. Exploration
D. Drilling

✅ **Answer:** C

---

3. Which method is used to locate oil and gas reservoirs?

A. Magnetic survey
B. Seismic survey
C. Gravity survey
D. Electrical survey

✅ **Answer:** B

---

4. The process of creating a wellbore is called:

A. Completion
B. Workover
C. Drilling
D. Logging

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which fluid is used to control pressure during drilling?

A. Water
B. Oil
C. Drilling mud
D. Cement

✅ **Answer:** C

---

6. The function of drilling mud includes:

A. Cooling the drill bit
B. Carrying cuttings to surface
C. Controlling formation pressure
D. All of the above

✅ **Answer:** D

---

7. Which rock type commonly contains oil and gas?

A. Igneous rock
B. Metamorphic rock
C. Sedimentary rock
D. Volcanic rock

✅ **Answer:** C

---

8. Which porosity allows fluid to flow through rocks?

A. Total porosity
B. Secondary porosity
C. Effective porosity
D. Absolute porosity

✅ **Answer:** C

---

9. The process of injecting fluids to enhance oil recovery is called:

A. Primary recovery
B. Secondary recovery

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Enhanced oil recovery
D. Natural flow

✅ **Answer:** C

---

10. Which gas is commonly associated with petroleum?

A. Oxygen
B. Nitrogen
C. Methane
D. Hydrogen

✅ **Answer:** C

---

11. The equipment used to prevent blowouts is:

A. Derrick
B. Drill bit
C. Blowout preventer (BOP)
D. Mud pump

✅ **Answer:** C

---

12. Which logging method measures formation resistivity?

A. Sonic log
B. Density log
C. Electrical log
D. Neutron log

✅ **Answer:** C

---

13. Which recovery method uses natural reservoir energy?

A. Primary recovery
B. Secondary recovery
C. Tertiary recovery
D. Enhanced recovery

✅ **Answer:** A

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which formation seals hydrocarbons in a trap?

A. Reservoir rock
B. Source rock
C. Cap rock
D. Basement rock

✅ **Answer:** C

---

15. Which unit measures oil production rate?

A. Barrels per day
B. Cubic meters per second
C. Tons per year
D. Liters per hour

✅ **Answer:** A

---

16. Which drilling method allows directional wells?

A. Vertical drilling
B. Horizontal drilling
C. Cable tool drilling
D. Rotary drilling

✅ **Answer:** B

---

17. Which process separates oil, gas, and water at surface?

A. Refining
B. Distillation
C. Separation
D. Completion

✅ **Answer:** C

---

18. Which petroleum product is used as fuel for vehicles?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Bitumen
B. Lubricating oil
C. Petrol
D. Paraffin wax

✅ **Answer:** C

---

19. Which factor affects reservoir productivity?

A. Permeability
B. Porosity
C. Pressure
D. All of the above

✅ **Answer:** D

---

20. Petroleum engineering aims to:

A. Eliminate fossil fuels
B. Extract hydrocarbons safely and economically
C. Focus only on refining
D. Reduce energy use

✅ **Answer:** B

Model Question Paper

Photonics Engineering – MCQs (20 Questions)

1. Photonics engineering mainly deals with:

A. Sound waves
B. Light generation, transmission, and detection
C. Mechanical motion
D. Electrical power systems

✅ **Answer:** B

---

2. Photon is a particle of:

A. Sound
B. Heat
C. Light
D. Electricity

✅ **Answer:** C

---

3. The speed of light in vacuum is approximately:

A. 3×10^6 m/s
B. 3×10^7 m/s
C. 3×10^8 m/s
D. 3×10^9 m/s

✅ **Answer:** C

---

4. The unit of wavelength is:

A. Hertz
B. Nanometer
C. Watt
D. Decibel

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which device converts electrical signals into light signals?

A. Photodiode
B. LED
C. Optical amplifier
D. Photodetector

✅ **Answer:** B

---

6. Optical fibers transmit light based on:

A. Refraction
B. Diffraction
C. Total internal reflection
D. Absorption

✅ **Answer:** C

---

7. Which material is commonly used in optical fibers?

A. Copper
B. Plastic
C. Glass (silica)
D. Aluminum

✅ **Answer:** C

---

8. LASER stands for:

A. Light Amplification by Stimulated Emission of Radiation
B. Light Absorption by Stimulated Emission of Radiation
C. Low Amplified Stimulated Energy Radiation
D. Linear Amplified Source of Emission Radiation

✅ **Answer:** A

---

9. Which laser is commonly used in optical communication?

A. Ruby laser
B. CO_2 laser

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Semiconductor laser
D. Nd:YAG laser

✅ **Answer:** C

---

10. The core of an optical fiber has:

A. Lower refractive index than cladding
B. Same refractive index as cladding
C. Higher refractive index than cladding
D. No refractive index

✅ **Answer:** C

---

11. Which device converts light into electrical signals?

A. LED
B. Laser diode
C. Photodiode
D. Modulator

✅ **Answer:** C

---

12. Which parameter determines the color of light?

A. Amplitude
B. Frequency
C. Intensity
D. Power

✅ **Answer:** B

---

13. Which photonic device amplifies optical signals directly?

A. Transistor
B. Optical amplifier
C. Rectifier
D. Converter

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which loss occurs due to bending of optical fiber?

A. Absorption loss
B. Scattering loss
C. Bending loss
D. Reflection loss

✅ **Answer:** C

---

15. Which phenomenon explains light emission in lasers?

A. Reflection
B. Refraction
C. Stimulated emission
D. Diffraction

✅ **Answer:** C

---

16. Which wavelength range is used in fiber optic communication?

A. Ultraviolet
B. Visible
C. Infrared
D. X-rays

✅ **Answer:** C

---

17. Which component controls light intensity in photonic circuits?

A. Modulator
B. Detector
C. Sensor
D. Amplifier

✅ **Answer:** A

---

18. Which application uses photonics?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. Optical communication
B. Medical imaging
C. Laser cutting
D. All of the above

✅ **Answer:** D

---

19. Which device measures optical power?

A. Voltmeter
B. Optical power meter
C. Oscilloscope
D. Spectrum analyzer

✅ **Answer:** B

---

20. Photonics engineering aims to:

A. Replace electronics
B. Develop light-based technologies for communication and sensing
C. Focus only on physics theory
D. Eliminate electrical systems

✅ **Answer:** B

Model Question Paper

Robotics Engineering – MCQs (20 Questions)

1. Robotics engineering mainly deals with:

A. Software testing
B. Design and control of robots
C. Chemical processing
D. Electrical power generation

✅ **Answer:** B

---

2. A robot is best defined as:

A. A machine that only moves
B. A programmable machine capable of performing tasks automatically
C. A computer program
D. A remote-controlled toy

✅ **Answer:** B

---

3. The main components of a robot are:

A. Sensors, actuators, and controller
B. Wheels and wires
C. Motor and battery only
D. Screen and keyboard

✅ **Answer:** A

---

4. Which component acts as the brain of a robot?

A. Sensor
B. Actuator
C. Controller
D. End effector

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. Which actuator is commonly used in robots?

A. Hydraulic cylinder
B. Pneumatic cylinder
C. Electric motor
D. All of the above

✅ **Answer:** D

---

6. Which sensor is used for distance measurement?

A. Temperature sensor
B. Ultrasonic sensor
C. Pressure sensor
D. Light sensor

✅ **Answer:** B

---

7. Which robot configuration has three linear axes?

A. SCARA
B. Cylindrical
C. Cartesian
D. Polar

✅ **Answer:** C

---

8. End effector is:

A. Robot controller
B. Robot arm
C. Tool attached to robot for task execution
D. Sensor unit

✅ **Answer:** C

---

9. Which control system uses feedback?

A. Open-loop control
B. Closed-loop control

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

C. Manual control
D. Sequential control

✅ **Answer:** B

---

10. Which programming is widely used in robotics?

A. HTML
B. Ladder logic
C. Python
D. Assembly only

✅ **Answer:** C

---

11. Which robot is commonly used in manufacturing?

A. Humanoid robot
B. Industrial robot
C. Medical robot
D. Service robot

✅ **Answer:** B

---

12. Which sensor detects object position?

A. Encoder
B. Thermocouple
C. Gyroscope
D. Microphone

✅ **Answer:** A

---

13. Which type of robot works with humans safely?

A. Industrial robot
B. Autonomous robot
C. Collaborative robot
D. Mobile robot

✅ **Answer:** C

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which robotic system moves on wheels or tracks?

A. Manipulator robot
B. Mobile robot
C. Humanoid robot
D. Cartesian robot

✅ **Answer:** B

---

15. Which algorithm helps robots find the shortest path?

A. Sorting algorithm
B. Path planning algorithm
C. Encryption algorithm
D. Compression algorithm

✅ **Answer:** B

---

16. Which sensor helps maintain balance?

A. Pressure sensor
B. Accelerometer
C. Temperature sensor
D. Proximity sensor

✅ **Answer:** B

---

17. Which robotic field focuses on human-like robots?

A. Industrial robotics
B. Medical robotics
C. Humanoid robotics
D. Mobile robotics

✅ **Answer:** C

---

18. Which power source is commonly used in mobile robots?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. AC supply
B. Steam
C. Batteries
D. Solar only

✅ **Answer:** C

---

19. Which application uses robotics?

A. Manufacturing
B. Healthcare
C. Space exploration
D. All of the above

✅ **Answer:** D

---

20. Robotics engineering aims to:

A. Replace all human jobs
B. Design intelligent, efficient, and safe robotic systems
C. Eliminate automation
D. Focus only on theory

✅ **Answer:** B

Model Question Paper

Transportation Engineering – MCQs (20 Questions)

1. Transportation engineering mainly deals with:

A. Building design
B. Planning, design, and operation of transportation systems
C. Power generation
D. Software development

✅ **Answer:** B

---

2. Which mode of transport carries the maximum passenger load in cities?

A. Air transport
B. Water transport
C. Road transport
D. Pipeline transport

✅ **Answer:** C

---

3. The primary function of traffic signals is to:

A. Increase vehicle speed
B. Reduce fuel consumption
C. Control traffic flow safely
D. Decorate roads

✅ **Answer:** C

---

4. Which pavement type uses bitumen?

A. Rigid pavement
B. Flexible pavement
C. Concrete pavement
D. Composite pavement

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

5. The stopping sight distance depends on:

A. Road width only
B. Vehicle color
C. Speed and braking efficiency
D. Traffic volume

✅ **Answer:** C

---

6. The unit of traffic volume is:

A. km/hr
B. Vehicles/day
C. Vehicles/hour
D. Both B and C

✅ **Answer:** D

---

7. Which road marking indicates no overtaking?

A. Broken white line
B. Solid yellow line
C. Dashed yellow line
D. White arrows

✅ **Answer:** B

---

8. The camber of a road is provided to:

A. Increase speed
B. Improve aesthetics
C. Drain surface water
D. Reduce traffic

✅ **Answer:** C

---

9. Which test determines pavement strength?

A. Slump test
B. CBR test

Note for Candidates

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C. Proctor test
D. Tensile test

✅ **Answer:** B

---

10. PCU stands for:

A. Passenger Car Unit
B. Public Car Unit
C. Personal Car Utility
D. Peak Car Usage

✅ **Answer:** A

---

11. Which factor affects road capacity?

A. Lane width
B. Traffic composition
C. Road condition
D. All of the above

✅ **Answer:** D

---

12. The minimum distance required to stop a vehicle safely is called:

A. Overtaking distance
B. Sight distance
C. Stopping sight distance
D. Passing distance

✅ **Answer:** C

---

13. Which transport is most economical for heavy goods?

A. Road
B. Rail
C. Air
D. Ropeway

✅ **Answer:** B

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

14. Which intersection control is used at low traffic volume?

A. Signal control
B. Roundabout
C. Stop sign control
D. Grade separation

✅ **Answer:** C

---

15. Which survey is conducted to study traffic characteristics?

A. Topographic survey
B. Traffic volume survey
C. Soil survey
D. Geological survey

✅ **Answer:** B

---

16. The design speed of a road mainly depends on:

A. Traffic density
B. Terrain and road classification
C. Vehicle color
D. Weather only

✅ **Answer:** B

---

17. Which device is used to measure vehicle speed?

A. Speedometer
B. Radar gun
C. Tachometer
D. Anemometer

✅ **Answer:** B

---

18. Which type of road has highest design speed?

Note for Candidates

This is a **model reference document** intended for **general understanding only**.

A. State highway
B. National highway
C. Expressway
D. District road

✅ **Answer:** C

---

19. Which pavement distress is caused by repeated loads?

A. Bleeding
B. Rutting
C. Cracking
D. Raveling

✅ **Answer:** B

---

20. Transportation engineering aims to:

A. Increase congestion
B. Provide safe, efficient, and economical transportation systems
C. Focus only on roads
D. Reduce mobility

✅ **Answer:** B
