PAKISTAN ATOMIC ENERGY COMMISSION

DEPARTMENTAL PROMOTION EXAMINATION

SAMPLE PAPERS DPE-2017

■ ANSWERED VERSION — Correct answers highlighted in yellow

All 31 subject sections | 20 MCQs each | Correct option marked with yellow background

DPE – A00: General Knowledge

Q1. The angel who will blow the trumpet on the day of Judgment is:

A. Hazrat Mekail
B. Hazrat Gibrail
✔ **C. Hazrat Israfil**
D. None of these

Q2. The first Governor General of Pakistan was:

A. Khawaja Nazim-ud-din
B. Malik Ghulam Muhammad
✔ **C. Quaid-e-Azam Muhammad Ali Jinnah**
D. Liaquat Ali Khan

Q3. The Devastating earthquake in Pakistan occurred on:

A. 10th Oct. 2005
✔ **B. 8th Oct. 2005**
C. 3rd Oct 2005
D. 6th Oct, 2006

Q4. PINSTECH is an abbreviation for:

A. Pakistan Institute of Technology & Chemistry
B. Pakistan Institute of Technical Education
✔ **C. Pakistan Institute of Nuclear Science & Technology**
D. Pakistan Institute of Science & Technology

Q5. In PAEC, a Senior Scientist is in SPS:

A. 7
B. 8
✔ **C. 9**
D. None of these

Q6. The type of work being done in NIBGE is:

A. Nuclear fuel cycle related
B. Nuclear reactor design
✔ **C. Biology and genetic engineering**
D. Computer software and hardware development

Q7. One of the countries through which equator passes:

✔ **A. Kenya**
B. Australia
C. Pakistan
D. Russia

Q8. In the absence of the president, who acts as the President of Pakistan?

✔ **A. Chairman Senate**
B. Chief Justice of Supreme Court
C. Speaker of National Assembly
D. Prime Minister of Pakistan

Q9. To which Prophet the Holy Book 'Zabur' was revealed?

A. Ibrahim (AS)
✔ **B. Dawood (AS)**
C. Moosa (AS)
D. Essa (AS)

Q10. _____ is the first bank of Pakistan.

A. National Bank
✔ **B. Habib Bank**
C. Muslim Commercial Bank
D. State Bank

Q11. Cave Hira is in the _____ mountain.

A. Al Safah
B. Al Marwah
C. Uhad
✔ **D. Jabal al Noor**

Q12. The national animal of Pakistan is _____.

A. Chakor
B. Dove
✔ **C. Markhor**
D. Honey bee

Q13. Hajj is not complete unless one goes to _____.

A. Madina
B. Mina
✔ **C. Arafat**
D. None of the above

Q14. Which one is the largest desert in Pakistan?

✔ **A. Thar**
B. Cholistan

C. Rohi
D. Gobi

Q15. Mirani Dam is located in _____.

A. Sindh
B. Punjab
C. KPK
✔ **D. Baluchistan**

Q16. CNG stands for _____.

A. Converted natural gas
B. Conducted natural gas
✔ **C. Compressed natural gas**
D. Condensed natural gas

Q17. By population, Pakistan is world's _____ largest country.

A. 3rd
✔ **B. 6th**
C. 10th
D. None of the above

Q18. Sindh Madrassah-tul-Islam, Karachi was founded by _____.

✔ **A. Aga Hassan Ali Afandi**
B. Sir Aga Khan
C. Khalifa Hameed ud din
D. Sir Syed Ahmed Khan

Q19. Fifth Kalma is 'Istigfaar'. Name the sixth Kalma?

A. Tayyabah
B. Tauheed
C. Tamjeed
✔ **D. Radd-e-Kufr**

Q20. Mancher lake situated in

A. Sawat
✔ **B. Dadu**
C. Muree
D. Gilgit

DPE – A11: Chemical Technology

Q1. A fluid means:

A. Liquid only
B. Gas only
C. Solid only
✔ **D. Both a and b**

Q2. "μ" stands for the fluid:

A. Density
B. Velocity
✔ **C. Viscosity**
D. None of above

Q3. pH of water is:

A. 7.9
B. 13
C. 4.9
✔ **D. 7**

Q4. Which pH corresponds to acid:

A. 14
B. 9
C. 7
✔ **D. 3**

Q5. Oxidation occurs at:

A. Cathode
✔ **B. Anode**
C. Both a and b
D. None at a and b

Q6. Temperature at which a solid change into a liquid is called:

A. Boiling point
✔ **B. Melting point**
C. Freezing point
D. none of above

Q7. Hydrocarbons are compounds formed from:

A. H & O
B. C & O
✔ **C. C & H**
D. C & Ag

Q8. MOLARITY is:

✔ **A. It is the no of moles of the solute dissolved per liter of the solution**

B. It is the no of atoms of the solute dissolved per liter of the water

C. It is the no of moles of the water dissolved per liter of the solution

D. None of above

Q9. What is the correct formula of heavy water?

A. H2O2

B. H2O

✔ **C. D2O**

D. D3O

Q10. What happens in the nuclear reactor?

A. Fusion

✔ **B. Fission**

C. Chemical reaction

D. none of above

Q11. Which of the following is/are example(s) of rotary positive displacement pump(s)?

A. diaphragm pump

✔ **B. vane pump**

C. plunger pump

D. All of the above

Q12. Horsepower requirement for given pump capacity depends upon the:

A. specific gravity of the liquid

B. suction lift

C. discharge head

✔ **D. All of the above**

Q13. The monomer of PVC is:

A. Succinic

✔ **B. Vinyl chloride**

C. Propylene

D. Glycol

Q14. Turbulent flow exists, when Reynolds No. exceed?

✔ **A. 2100**

B. 2200

C. 2000

D. 1900

Q15. Law of conservation of matter states that:

✔ **A. Total mass of all materials entering a system in a given time must equal the total mass of materials leaving plus any accumulation in the system**

B. Total mass of all materials entering a system must equal leaving only

C. Total mass must not equal

D. None of A, B & C

Q16. What happened in endothermic Reaction?

A. Heat is evolved

✔ **B. Heat is absorbed**

C. No heat is evolved

D. No heat is absorbed

Q17. What is ion exchange process?

✔ **A. Ion Exchange system separate ionic contaminants from solution through a specialized resin where undesirable ions are replaced by other ions of the same electrical charge.**

B. Ion Exchange system mixes ionic contaminants

C. Ion Exchange system dissolves ionic contaminants

D. Ion Exchange systems leach ionic contaminants

Q18. Rotary drum vacuum filter: well suited for which materials?

✔ **A. Slurries and liquids with a high solid content**

B. Gases with a high solid content

C. Slurries only

D. Gases and liquids with a high solid content

Q19. Drying is removal of water or solvent by evaporation from which materials?

✔ **A. Solid & semi-solid materials**

B. Gaseous materials only

C. Amorphous materials

D. Liquid materials only

Q20. Size reduction process is also termed as?

A. Diminution

B. Pulverizations

✔ **C. Both A & B**

D. None of A & B

DPE – A12: Civil Technology

Q1. Stone masonry made from uniformly sized coursed stones interlocked with mortar is called:

A. Rubble masonry
✔ **B. Ashlar masonry**
C. Random rubble masonry
D. none of above

Q2. A brick placed with its length parallel to the face of the wall is called:

✔ **A. Stretcher**
B. Header
C. Closer
D. None of the above

Q3. When loads applied to a frame structure in one plane, the structure is called?

A. Grid frame
✔ **B. Plane frame**
C. Space frame
D. Truss frame

Q4. In a cantilever beam with point load 'P' at free end, the maximum reaction at support shall be:

A. P/2
B. 2P
✔ **C. P**
D. P/4

Q5. PVC stands for:

A. Plastic vinyl chloride
✔ **B. Poly vinyl chloride**
C. Polythene vinyl carbon
D. Polythene vanadium chloride

Q6. The surface where two successive placements of concrete meet, is known as:

✔ **A. Construction joint**
B. Expansion joint
C. Contraction joint
D. Both (a) and (b)

Q7. A relatively fixed point of known elevation is called:

✔ **A. Bench mark**
B. Datum point
C. Reduced level
D. Reference point

Q8. The gradient of sewers depends upon:

A. Minimum and maximum velocity of flow
B. Diameter of the sewer
C. The discharge
✔ **D. All the above**

Q9. Open channels supported above ground are generally known as:

A. Raised canals
✔ **B. Aqueduct**
C. Siphon
D. None of the above

Q10. The water content when soil continues to lose weight without losing volume is called:

✔ **A. Shrinkage limit**
B. Plastic limit
C. Liquid limit
D. Semi-solid limit

Q11. The basic purpose of a retarder in concrete is:

✔ **A. To increase the initial setting time of cement paste**
B. To decrease the initial setting time
C. To render the concrete more water tight
D. To improve the workability

Q12. The failure of foundation of a building is due to:

A. withdrawal of subsoil moisture
B. unequal settlement of soil
C. lateral escape of the supporting material
✔ **D. All of the above**

Q13. The property where water in mix rises to surface while placing is called:

A. Segregation
✔ **B. bleeding**
C. bulking
D. creep

Q14. A 28 days curing of concrete attains the strength:

A. 20 to 40 %
B. 40 to 60%
C. 61 to 80%
✔ **D. 90 to 95 %**

Q15. The ratio of volume of voids to total volume of soil mass is called:

A. Water content ratio
✔ **B. Porosity**
C. Void ratio
D. Degree of saturation

Q16. Number of bricks required for one cubic meter of brick masonry:

A. 300
✔ **B. 500**
C. 700
D. 1000

Q17. A bridge supported on cables is called:

A. deck
✔ **B. suspension**
C. arched
D. through

Q18. A baseline in a chain survey:

A. Checks the accuracy
B. Ending line
C. fixed up the directions of all other lines
✔ **D. All of the above**

Q19. Unit of plaster work is:

✔ **A. sft**
B. cft
C. rft
D. psi

Q20. The bottom horizontal member of the frame of door is called:

A. Head
B. Post
C. Style
✔ **D. Sill**

DPE – A13: Computer Technology

Q1. The memory, which is generally programmed by the computer manufacturer, is:

✔ **A. ROM**
B. DIMM
C. SIMM
D. RAM

Q2. The default increment for a For-Next loop is:

A. -1
✔ **B. 1**
C. 0
D. 2

Q3. ISP stands for:

A. Internet side programming
B. Internet Side project
✔ **C. Internet service provider**
D. International server programmer

Q4. In the content of memory units, 1 kilo =?

A. 1000
✔ **B. 1024**
C. 512
D. 2048

Q5. FORTRAN language was used for:

A. Business calculations
✔ **B. Scientific Computations**
C. Data Processing
D. Communication

Q6. The bus is a group of:

✔ **A. Wires**
B. data bits
C. Vehicles
D. Signals

Q7. Simplifying AB + AB results in:

✔ **A. A**
B. AB
C. A + B
D. A-B

Q8. The DOS command dir is used to:

A. Find direction of a file
B. Find files which have dir in their name

✔ C. List current directory files and subdirectories

D. None of the above

Q9. Bandwidth refers to

A. the cost of the cable required to implement a WAN

B. the cost of the cable required to implement a LAN

C. the amount of information a peer-to-peer network can store

✔ D. the amount of information a communications medium can transfer in a given amount of time

Q10. Which is the name of the network topology with bidirectional links between each possible node?

A. Ring

B. Start

C. Tree

✔ D. Mesh

Q11. The first network that planted the seeds of Internet was

✔ A. ARPANET

B. NSF net

C. V net

D. I net

Q12. Typical data transfer rate in LAN are of the order of

A. bits per second

B. kilo bits per second

✔ C. mega bits per second

D. tera bits per seconds

Q13. _____ is commonly used data format for exchanging information between computers

A. ASCII

B. HTML

✔ C. XML

D. DHTML

Q14. The IEEE standard of LAN is

A. IEEE 802.1

B. IEEE 802.12

✔ C. IEEE 802

D. IEEE 802.9

Q15. A _____ is a group of independent computers attached through communication media.

A. Internet

B. E-mail

✔ C. Network

D. All the above

Q16. What happens when you press Ctrl + X key?

A. A Capital X letter is typed

✔ B. Selected object is cut and copied to the Clipboard

C. Typing mistake is auto-corrected

D. Document is closed

Q17. By default, a Word document prints in ____ mode.

A. Landscape

✔ B. Portrait

C. Page Setup

D. Print Preview

Q18. The blinking symbol on the computer screen is called the

A. mouse

B. logo

C. hand

✔ D. cursor

Q19. Various applications and documents are represented on the Windows desktop by ____

A. Symbols

B. Labels

C. Menu bars

✔ D. Icons

Q20. Which of the following is true when data is entered into a memory location?

A. It will add to the content of the location

B. It will change the address of the memory location

✔ C. It will erase the previous content

D. It will not be fruitful if there is already some data at the location

DPE – A14: Electrical Technology

Q1. The voltages induced in the three windings of a 3-phase alternator are _____ degree apart:

✔ A. 120

B. 60

C. 90

D. 30

Q2. A transformer transforms:

A. Frequency
✔ **B. Voltage**
C. Power
D. Magnetic flux

Q3. Which of the following bulbs will have the least resistance:

A. 220 V, 60 W
B. 220 V, 100W
C. 115 V, 60W
✔ **D. 115 V, 100W**

Q4. The function of breather in a transformer is:

A. To provide oxygen to the cooling oil
B. To provide cooling air
✔ **C. To arrest flow of moisture when outside air enters the transformer**
D. To cool transformer oil

Q5. A transformer having 1000 primary turns connected to 250V a.c., for 400V secondary the number of secondary turns should be:

✔ **A. 1600**
B. 250
C. 400
D. 16

Q6. Metallic shielding is provided on cables to:

A. Control the electrostatic voltage stress
B. Reduce corona effect
C. Decrease thermal resistance
✔ **D. All of the above**

Q7. The breakdown voltage of a cable depends upon:

A. Time of application of voltage
B. Presence of moisture
✔ **C. All of the above**
D. None of the above

Q8. As the load is increased, the speed of a dc shunt motor:

A. Increases proportionally
B. remains constant
C. Increases slightly
✔ **D. Reduces slightly**

Q9. Which of the following wires has the greatest cross-sectional area?

✔ **A. 9 AWG**
B. 14 AWG
C. 22 AWG
D. 30 AWG

Q10. Which circuit configuration has the same amount of voltage drop across each component?

✔ **A. parallel**
B. series-parallel
C. series
D. combination

Q11. Which device can be used to test the windings of an inductor for continuity?

A. Wattmeter
B. Voltmeter
✔ **C. Ohmmeter**
D. Wheatstone bridge

Q12. What should be observed when connecting a voltmeter into a DC circuit?

A. rms
B. resistance
✔ **C. polarity**
D. power factor

Q13. The main purpose of the transformer core in a transformer is to:

A. decrease iron losses
B. prevent eddy current
C. eliminate magnetic hysteresis
✔ **D. decrease reluctance of magnetic circuit**

Q14. The typical distribution system for houses is:

A. Single phase, two wire
B. Two phase, two wire
✔ **C. Single phase, three wire**
D. None of the above

Q15. The size of the feeder is determined primarily by:

✔ **A. The current it is required to carry**
B. The percentage variation of voltage in the feeder
C. The voltage across the feeder
D. The distance over which the transmission is to be made

Q16. The inductance of a coil can be increased by:

A. Decreasing the number of turns
B. Increasing the core length
✔ **C. Using a core material of high relative permeability**
D. All of the above

Q17. The power factor at resonance in an RLC parallel circuit is:

A. 0.5 lagging
B. 0.5 leading
✔ **C. Unity**
D. Zero

Q18. A floating battery is the one:

A. which is getting charged
B. which is feeding load
✔ **C. in which battery, voltage is equal to charger voltage**
D. which gets charged and discharged simultaneously

Q19. The sparking at the brushes in a D.C generator is attributed to:

✔ **A. Quick reversal of current in the coil under commutation**
B. Armature reaction
C. Reactance voltage
D. High resistance of the brushes

Q20. Which circuit condition does a metal oxide varistor (MOV) protect against?

✔ **A. high voltage**
B. high current
C. high circuit noise
D. high cross-talk

DPE – A15: Electronics Technology

Q1. Every known element has:

A. The same type of atoms
B. The same number of atoms
✔ **C. A unique type of atom**
D. Several different types of atoms

Q2. The atomic number of germanium is:

A. 8
B. 2
C. 4
✔ **D. 32**

Q3. What is the basic unit for measuring current flow?

A. Volt
B. Atomic weight
✔ **C. Ampere**
D. Coulomb

Q4. In a semiconductor crystal, the atoms are held together by:

A. The interaction of valence electrons
B. Forces of attraction
C. Covalent bonds
✔ **D. all of the above**

Q5. Which semiconductor material is made from coal ash?

A. germanium
✔ **B. silicon**
C. tin
D. Carbon

Q6. Which material may also be considered a semiconductor element?

✔ **A. carbon**
B. ceramic
C. mica
D. argon

Q7. The band gap for germanium (Ge) is:

✔ **A. 0.67 eV**
B. 3.4 eV
C. 7.26 eV
D. 5.5 eV

Q8. A pn junction acts as a _____.

A. Controlled switch
B. Open switch
C. Bidirectional switch
✔ **D. Unidirectional switch**

Q9. During normal working of a transistor as an amplifier, the collector to base junction is _____.

A. Un biased
B. Forward biased
✔ C. Reverse biased
D. None of the above

Q10. In a steady state dc series circuit, capacitor & inductor act (respectively) like:

A. Short & open
B. Open & open
C. Short & short
✔ D. Open & short

Q11. What is the value of ceramic disk capacitor labeled as 0.02MF?

✔ A. 0.02μF
B. 200μF
C. 0.02pF
D. 200pF

Q12. The output frequency of a half wave rectifier is:

✔ A. equal to the input frequency
B. smaller than the input frequency
C. greater than the input frequency
D. unknown

Q13. If the solder on a PCB appears dull, it indicates:

✔ A. a cold solder connection
B. an overheated solder connection
C. a good solder connection
D. a broken solder connection

Q14. Which material may also be considered a semiconductor element?

✔ A. carbon
B. ceramic
C. mica
D. argon

Q15. The band gap for germanium (Ge) is:

✔ A. 0.67 eV
B. 3.4 eV
C. 7.26 eV
D. 5.5 eV

Q16. A pn junction acts as a …….

A. Controlled switch
B. Open switch
C. Bidirectional switch
✔ D. Unidirectional switch

Q17. Due to Forward Bias, the depletion region is:

✔ A. Narrowed
B. Broadened
C. Eliminated
D. unchanged

Q18. The knee voltage of a crystal diode is approximately equal to ……..

A. Applied voltage
B. Breakdown voltage
C. Forward voltage
✔ D. Barrier potential

Q19. A zener diode has …….

✔ A. One pn junction
B. Two pn junctions
C. Two p and one n junctions
D. Two n and one p junctions

Q20. The element that has the biggest size in a transistor is ……..

✔ A. collector
B. base
C. emitter
D. collector-base-junction

DPE – A16: Instrumentation Technology

Q1. Under identical values of cold and hot junction temperatures, which thermocouple gives highest output?

A. iron-constantan
B. nickel-nimo
✔ C. chrome-constantan
D. platinum-platinum-rhodium

Q2. An accurate ammeter must have a resistance of ____ value:

A. Very high
B. high
C. Low
✔ D. very low

Q3. The resistance of a thermistor changes with temperature as:

A. resistance increases with increasing temperature
✔ **B. resistance decreases with increasing temperature**
C. resistance decreases with decreasing temperature
D. resistance does not change with temperature

Q4. If a square wave is integrated by integrator using an operational amplifier, the output is:

✔ **A. Triangular wave**
B. ramp
C. sine wave
D. same, i.e. a square wave

Q5. Decibel is a unit of:

A. Frequency
B. impedance
C. Power
✔ **D. ratio of power**

Q6. Thermocouple transducers are voltage-generating devices. If an external voltage is applied it will work as:

A. RTD
B. thermister
✔ **C. Refrigerator**
D. Both A and B

Q7. The digits in a measured number that are known to be corrected are called:

A. Accuracy digits
✔ **B. significant digits**
C. Error digits
D. precision digits

Q8. A measure of the repeatability of a measurement of some quantity is:

A. error
✔ **B. precision**
C. accuracy
D. significant

Q9. The decimal number 18 is equal to the binary number _____:

A. 11110
B. 10001
✔ **C. 10010**
D. 1111000

Q10. The phenomenon in which substance generates voltage when subjected to dynamic forces is known as:

✔ **A. Piezoelectric**
B. Thermoelectric
C. Photoelectric
D. Radioactive

Q11. To compensate for temperature changes:

A. Strain gauge is reversed
✔ **B. Dummy strain gauge is used**
C. Strain gauge is applied on insulation
D. Strain gauge of smaller value is used

Q12. A fuse is normally a:

A. Voltage limiting device
✔ **B. Current limiting device**
C. Power limiting device
D. Power factor correcting device

Q13. A thermocouple is based on the principle of:

✔ **A. See beck effect**
B. resistance changing effect
C. Piezoelectric effect
D. Photoconductive effect

Q14. The instrument to track down sources of noise or filter problems is the:

A. ammeter
B. logic probe
C. megohmmeter
✔ **D. oscilloscope**

Q15. Combination of DCS and PLC is a:

A. PLC based DCS system
✔ **B. Hybrid system**
C. PC based DCS system
D. None of the above

Q16. HART Communication standard is a(an):

A. Digital standard
B. Analog standard
✔ **C. Hybrid standard**
D. None of the above

Q17. Primary element used for measuring pressure is:

✔ **A. Diaphragm**
B. Pressure Transmitter

C. Diaphragm and Pressure Transmitter
D. None of the above

Q18. Pt100 means:

A. 100 OHM at 10°C
✔ **B. 100 OHM at 0°C**
C. 100 OHM at 25°C
D. None of the above

Q19. Dead weight tester is a:

A. Flow Calibrator
B. Temperature Calibrator
✔ **C. Pressure Calibrator**
D. None of the above

Q20. The standard electronic instrument signal is:

✔ **A. 4 – 20mA DC**
B. 0 – 24mA
C. -12 - +12mA
D. None of the above

DPE – A17: Mechanical Technology

Q1. For pumping highly viscous fluid, the type of pump generally used is:

A. Centrifugal
B. Multistage centrifugal
✔ **C. Screw pump**
D. Gear pump

Q2. Which of the following is more accurate?

✔ **A. Micrometer**
B. Vernier caliper
C. Steel rule
D. Meter tape

Q3. A gas which obeys kinetic theory perfectly is known as:

A. Monoatomic gas
B. Diatomic gas
C. Real gas
✔ **D. Perfect gas**

Q4. The molecules move in a solid:

A. At random
B. In circular motion
✔ **C. Back and forth like tiny pendulum**
D. In irregular motion

Q5. Centrifugal blowers can supply:

✔ **A. Large volumes of air at low pressure**
B. Large volumes of air at high pressure
C. Small volumes of air at high pressure
D. Small volumes of air at low pressure

Q6. During regenerative feed heating:

A. Part of the steam is generated in turbine
B. Condenser is supplied with dry and saturated steam
✔ **C. Part of the steam is bled from turbine for feed heating**
D. High pressure steam is used to heat low pressure steam

Q7. Rivets are made of:

A. Brittle material
✔ **B. Ductile material**
C. Soft material
D. Hard material

Q8. The amount of energy required up to fracture is known as:

A. Damping effect
✔ **B. Toughness**
C. Creep strength
D. Fatigue strength

Q9. Which tool is used to remove a small amount of metal?

A. Hack saw
B. Screwdriver
C. Hole punch
✔ **D. File**

Q10. Falling drops of water become spheres due to the property of:

✔ **A. Surface tension of water**
B. compressibility of water
C. Capillarity of water
D. viscosity of water

Q11. What percentage of an iceberg's volume is submerged (densities 920 and 1030 kg/m3)?

A. 79.32%
✔ **B. 89.32 %**
C. 99.32%
D. None of the above

Q12. When a body floating in liquid is given angular displacement, it oscillates about:

A. Centre of pressure
B. Centre of gravity
C. Centre of buoyancy
✔ **D. metacentre**

Q13. A flow where each particle does not have definite path and paths cross each other:

A. non-streamline flow
✔ **B. turbulent flow**
C. non-uniform flow
D. unsteady flow

Q14. The mass flow rate in the pipe must be constant at all sections. This is called:

A. Bernoulli's Principle
✔ **B. Continuity Principle**
C. Archimedes's principle
D. None of the above

Q15. If supply is below the pump, the measured vertical distance to free level is called:

✔ **A. Static Suction Lift**
B. Static Suction Head
C. Total Static Head
D. Discharge Head

Q16. The Bernoulli's equation is based on:

✔ **A. Law of Conservation of Energy**
B. Law of Conservation of Mass
C. Law of Conservation of Momentum
D. None of the above

Q17. An air vessel is provided at the summit in a syphon to:

✔ **A. Avoid interruption in the flow**
B. increase discharge
C. Increase velocity
D. maintain pressure difference

Q18. When a gas is expanded through an aperture of minute dimensions, the process is known as:

A. Isothermal process
B. adiabatic process
C. Free expansion process
✔ **D. throttling process**

Q19. Strain rosettes are used to:

✔ **A. Measure shear strain**
B. measure linear strain
C. Measure volumetric strain
D. relieve strain

Q20. Falling drops of water become spheres due to the property of:

✔ **A. surface tension**
B. compressibility
C. capillarity
D. viscosity

DPE – A18: Metallurgy Technology

Q1. Which one is not used as binder in sand molding?

A. Cement
B. Molasses
C. resin
✔ **D. Coal dust**

Q2. Cupola furnace is used for melting of _____.

A. Steels
B. Al-alloys
✔ **C. Cast irons**
D. Cu-alloys

Q3. In Aluminum foundry practice, 'drossing' is:

A. The blowing of a gas through the melt
✔ **B. The formation and floating of metal oxide on melt surface**
C. The pouring of melt in the mold
D. A pattern making method

Q4. Which one is not a non destructive technique?

A. Radiography
✔ **B. Impact testing**
C. Ultrasonic testing
D. Eddy current testing

Q5. Stress-strain diagram of a material does not tell about_____:

✔ **A. Hardness**
B. Elastic modulus
C. Yield strength
D. Toughness

Q6. Material selected for spring making must have:

✔ **A. High yield strength**
B. High modulus of elasticity
C. High toughness
D. High compressive strength

Q7. Austenitizing is:

✔ **A. Heating of steel above the recrystallization temperature.**
B. Cooling of steel from some high temperature to room temperature.
C. Cooling of steel to subzero temperature
D. Heating of steel above melting temperature

Q8. Purpose of tempering is:

✔ **A. To increase in toughness**
B. To increase in hardness
C. To increase in elasticity
D. All of the above

Q9. Crystal structure of U at room temperature is _____:

A. BCC
B. FCC
C. Octagonal
✔ **D. Orthorhombic**

Q10. 5XXX series Aluminum alloys contain _____ as major alloying addition:

✔ **A. Mg**
B. Mn
C. Si
D. Cu

Q11. The most suitable casting process for producing very large parts is:

A. Investment casting
B. Die casting
C. Centrifugal casting
✔ **D. Sand casting**

Q12. Brinell hardness test is more suitable for _____.

A. Stainless steels
✔ **B. Gray cast iron**
C. Ti-alloys
D. Brass

Q13. Difference between Stainless Steel '304L' and '316L' is:

A. Former is ferritic while later is austenitic
B. Former has more carbon than later one
✔ **C. Former doesn't contain Mo while later does**
D. All of the above

Q14. MAG stands for:

A. Metal Argon Gas
B. Metal Automatic Gas
✔ **C. Metal Active Gas**
D. Metal Acetylene Gas

Q15. Which one of the following metals has the lowest density?

A. Aluminum
B. Copper
✔ **C. Magnesium**
D. Tin

Q16. For normalizing process the cooling medium is:

A. hot water
B. oil
C. oil+ water mixture
✔ **D. air**

Q17. Cu and W can be alloyed by:

A. Melting
B. Welding
✔ **C. Powder metallurgy**
D. Can't be alloyed

Q18. Advantage of powder rolling is

A. Elimination of initial hot ingot break down
B. Fine grain size of the product

C. Minimum preferred orientation

✔ **D. All of the above**

Q19. A material has better mechanical properties if it has

A. Elongated grains

B. Coarse equiaxed grains

C. Coarse grains with twinned structure

✔ **D. Fine equiaxed grains**

Q20. The minimum cross sectional dimensions of a steel billet are:

A. 20×20mm

B. 30×30mm

C. 40×40mm

✔ **D. 50×50mm**

DPE – A19: Mining

Q1. Maximum coal production in the world is by:

A. Open Pit Mining

B. Open Cast Mining

C. Room & Pillar Mining

✔ **D. Long Wall Mining**

Q2. Methane gas accumulates in the:

A. Floor of the mine

B. Middle of the mine

✔ **C. Roof of the mine**

D. Nowhere

Q3. The most stable shape of an opening in homogenous rock is:

A. Horse shoe

B. Semi circular

C. Trapezoidal

✔ **D. Circular**

Q4. 1 hp. is equal to:

A. 546 watts

✔ **B. 0.746 kilo watts**

C. 1046 watts

D. none of above

Q5. In a mine opening tensile stresses come on the:

A. Pillars

B. Abutments

✔ **C. Roof**

D. Stops

Q6. Dolomite is a:

A. Metamorphic rock mineral

B. Intrusive rock mineral

C. Extrusive rock mineral

✔ **D. Sedimentary rock mineral**

Q7. The hardness of quartz in Moh's scale of hardness is:

✔ **A. 7**

B. 6

C. 5

D. 6.5

Q8. For a vein like deposit having 60 degrees dip, the most appropriate primary opening is:

A. Adit

B. Tunnel

C. Shaft

✔ **D. Inclined**

Q9. Tunnel Boring Machine can handle:

A. All type of strata

✔ **B. Particular Strata**

C. Only Hard strata

D. Only soft strata

Q10. Centrifugal Pumps are used for:

A. Low head

B. High head

C. High discharge

✔ **D. Both A and C**

Q11. All silicate minerals contain which two elements?

A. iron, silicon

B. silicon, sodium

C. Oxygen, carbon

✔ **D. Silicon, Oxygen**

Q12. What is the biggest safety concern in mines?

✔ **A. Ventilation**
B. Explosions
C. Earth Quakes
D. Rock out bursts

Q13. What is the cheapest way of mining?

✔ **A. Open-pit mining**
B. Drift mining
C. Shaft mining
D. Strip mining

Q14. What is low grade brown coal called?

A. Bituminous
B. Anthracite
✔ **C. Lignite**
D. None of the above

Q15. Which minerals occurs in the sands of valley floors?

✔ **A. Gold**
B. Copper
C. Sulphur
D. Marble

Q16. The equipment that is NOT used in hard rock metal mining drivage is:

✔ **A. road header**
B. drill jumbo
C. jack hammer
D. dint header

Q17. Equipment used in mining of placer deposits is:

A. auger
B. wagon drill
C. rope saw
✔ **D. riffle box**

Q18. Geologists measure hardness using:

✔ **A. Moh's Scale**
B. Vernier scale
C. Reynold Number
D. Tough Number

Q19. Uranium resources can be extracted from the ground using:

A. open pit
B. underground
C. In-situ leach (ISL)
✔ **D. All of the above**

Q20. Methane/Marsh gas is main problem in:

A. Copper mines
B. Uranium mines
✔ **C. Coal mines**
D. None of the above

DPE – A20: Power Technology

Q1. In an actual turbine, the entropy of working fluid entering is _____ leaving:

✔ **A. Greater than**
B. Less than
C. Equal to
D. None of the above

Q2. Diesel engines have normally _____ compression ratios than petrol engines:

A. Lower
✔ **B. higher**
C. Equal
D. None of these

Q3. _____ is equipped with a round device that holds several tools at once:

✔ **A. Turret lathe**
B. Milling Machine
C. Hex lathe
D. Grinder

Q4. The shaper is used primarily to produce ____ surfaces:

✔ **A. Flat**
B. Curved
C. Protrude
D. Spherical

Q5. The wetness of steam at the exhaust of the turbine should be no greater than:

A. 10%
✔ **B. 15%**
C. 20%
D. 25%

Q6. If two similar centrifugal pumps are connected in parallel the net flow will be almost:

A. Same
✔ **B. Double**
C. Half
D. None of them

Q7. In a nozzle when sonic velocity is attained, pressure ratio is called:

A. Throat pressure ratio
B. maximum pressure ratio
✔ **C. Critical pressure ratio**
D. Choked pressure ratio

Q8. The formation and subsequent collapse of vapor bubbles in a pump is called:

A. Surging
✔ **B. Cavitations**
C. Knocks
D. Gas binding

Q9. The maximum cycle temperature of a steam plant is limited by considerations:

A. Pressure
✔ **B. Metallurgical**
C. Plant size
D. Cost

Q10. In a heat exchanger, one fluid flows perpendicular to the second fluid:

A. Parallel flow
B. Counter flow
✔ **C. Cross flow**
D. No such heat exchanger

Q11. A piston cylinder engine is an example of:

✔ **A. Control Mass System**
B. Control Volume System
C. Isolated System
D. Open System

Q12. Which of the following operate on Brayton Cycle:

A. Steam Power Plant
B. Nuclear Power Plant
✔ **C. Gas Turbine**
D. Diesel Engine

Q13. Charge in diesel engine consists of:

A. Air, Diesel And Lube Oil
B. Air And Diesel
C. Diesel And Lube Oil
✔ **D. Air**

Q14. Which of the following does NOT involve adiabatic Process?

A. Compressor
✔ **B. Combustion Chamber**
C. Gas Turbine
D. Pump

Q15. Combined Cycle Power Plant is a combination of:

A. Diesel Engine And Gas Turbine
B. Diesel Engine And Steam Turbine
✔ **C. Gas Turbine And Steam Turbine**
D. Diesel Engine And Petrol Engine

Q16. The air fuel ratio of a petrol engine is controlled by:

A. Governor
✔ **B. Carburetor**
C. Fuel pump
D. Fuel Injector

Q17. Which of the following is different from others?

A. Boiler
B. Feed Water Heat Exchanger
C. Evaporator
✔ **D. Condenser**

Q18. Besides mean effective pressure, data required to determine indicated power:

A. Piston Diameter, Length Of Stroke And Calorific Value
B. Specific Fuel Consumption, Speed And Torque
C. Piston Diameter, Specific Fuel Consumption And Calorific Value
✔ **D. Piston Diameter, Length Of Stroke And Speed Of Rotation**

Q19. What type of heat exchanger is condenser of a steam power plant?

A. Parallel Flow Heat Exchanger
B. Cross Flow Heat Exchanger
C. Co-Current Heat Exchanger
✔ **D. Counter Current Heat Exchanger**

Q20. An example of a water tube boiler is a:

A. Locomotive Boiler
B. Lancashire Boiler
✔ C. Babcock – Wilcox Boiler
D. Cochran Boiler

DPE – A21: Refrigeration And Air Conditioning Technology

Q1. In a vapour compression refrigeration system the lowest temperature occurs after:

✔ A. Expansion
B. Evaporation
C. Condensation
D. Compression

Q2. Water as refrigerant is designated:

A. R-118
B. R-729
C. R-502
✔ D. None of these

Q3. The refrigerant widely used in domestic refrigerators is:

A. Ammonia
B. R-11
✔ C. R-12
D. R-22

Q4. An evaporator is also known as:

A. Freezing coil
B. Cooling coil
C. Chilling coil
✔ D. All of these

Q5. Thermostatic expansion valve is also called:

A. Constant pressure valve
B. Constant temperature valve
✔ C. Constant superheat valve
D. Constant entropy valve

Q6. A mixture of air with maximum water vapour diffused into it is called:

A. Dry air
B. Moist air
✔ C. Saturated air
D. Specific humidity

Q7. The degree of warmth or cold felt by a human body depends mainly on:

A. Dry bulb temperature
B. Relative humidity
C. Air velocity
✔ D. All of these

Q8. In winter air conditioning, the air is:

A. Cooled and humidified
B. Cooled and dehumidified
✔ C. Heated and humidified
D. Heated and dehumidified

Q9. The alignment circle is marked on the psychometric chart at:

A. 20ºC DBT and 50% RH
✔ B. 26 ºC DBT and 50% RH
C. 20 ºC DBT and 60% RH
D. 26 ºC DBT and 60% RH

Q10. The point at which latent heat of a refrigerant becomes zero is called:

A. Zero point
B. Dew point
C. Flash point
✔ D. Critical point

Q11. The liquid used in manometers should have:

A. low density
✔ B. high density
C. low surface tension
D. high surface tension

Q12. Which refrigerant has the maximum ozone depletion potential?

A. Ammonia
B. Carbon dioxide
C. Sulphur dioxide
✔ D. Fluorine

Q13. During sensible heating:

A. moisture content increases
B. dry bulb temperature and wet bulb temperature decrease
✔ C. dew point temperature remains constant
D. relative humidity increases

Q14. The capillary tube is not used in large capacity systems because:

A. cost is too high
✔ **B. capacity control is not possible**
C. it is made of copper
D. required pressure drop cannot be achieved

Q15. Accumulator is used to collect liquid refrigerant and prevent it from going to:

✔ **A. Compressor**
B. Condenser
C. Expansion valve
D. Evaporator

Q16. The formation of frost on cooling coils in a refrigerator:

A. Increases heat transfer
B. Improves COP
✔ **C. Increases power consumption**
D. Reduces power consumption

Q17. When the lower temperature is fixed, COP can be improved by:

A. Operating at higher speeds
B. Operating at lower speeds
C. Raising the higher temperature
✔ **D. Lowering the higher temperature**

Q18. One tonne of refrigeration means heat removing capacity is:

A. 21kJ/min
B. 420 kJ/min
✔ **C. 210 kJ/min**
D. 620 kJ/min

Q19. A steam pipe insulated with two layers: for minimum heat transfer:

A. The better insulation must be put inside
B. One could place either insulation on either side
C. Consider steam temperature before deciding
✔ **D. The better insulation must be put outside**

Q20. On the P-H chart, condensation and desuperheating is represented by horizontal line because:

A. involves no change in volume
B. takes place at constant temperature
C. takes place at constant enthalpy
✔ **D. takes place at constant pressure**

DPE – A22: Welding Technology

Q1. The most readily welded steel is:

✔ **A. Low-carbon steel**
B. Medium-carbon steel
C. High-carbon steel
D. Very high-carbon steel

Q2. Process of joining two dissimilar metals is called:

A. Gas welding process
B. Electric arc welding process
✔ **C. Brazing**
D. Soldering

Q3. Presence of porosity in welds is due to:

✔ **A. Gaseous produced by chemical reaction**
B. Due to incomplete fusion
C. Due to thermal stresses
D. Due to Improper current

Q4. The angle between bevels in butt welds should be approximately:

A. 90 deg
B. 80 deg
✔ **C. 60 deg**
D. 30 deg

Q5. The cost of the arc welding is increased by:

✔ **A. Use of smaller dia. Electrode**
B. Careful fit-up
C. Use of positioning fixture
D. Use of set up fixture

Q6. A respirator would most likely be worn when welding:

A. Cast Iron
✔ **B. Galvanized Iron**
C. Low-carbon steel
D. Aluminum

Q7. Incomplete penetration of a groove weld is most usually due to:

A. Welding speed too slow
✔ **B. Gap at the base of weld is too narrow**

C. Electrode diameter too small
D. Welding current to large

Q8. The main reason for the use of flux is:

✔ **A. Remove oxides**
B. Help the filler metal to adhere to the base metal
C. Prevent over heating of the base metal
D. Replace carbon lost from the metal

Q9. One difficulty in oxyacetylene welding of aluminum is that aluminum:

A. Does not readily form an oxide coating
✔ **B. Melts without changing color**
C. Welding requires large torch tip
D. Must be pre-heated before welding

Q10. The metal that is most difficult to weld is:

A. Nickel
B. Magnesium
C. Bronze
✔ **D. Copper**

Q11. A welding process well accepted for aero, rocket, missile and nuclear industries is

✔ **A. GTAW**
B. SAW
C. SMAW
D. None of the above

Q12. A process commonly used for long seams in ship building and pressure vessel fabrication is

A. SMAW
✔ **B. SAW**
C. EBW
D. GTAW

Q13. A welding process mainly employed for the welding of reactive metals is

A. SMAW
B. SAW
✔ **C. GTAW**
D. None of the above

Q14. Resistance of a welding cable depends upon

A. Material
B. Cross-sectional Area
C. Temperature
✔ **D. All of the above**

Q15. Sheet metal less than 3 mm thickness can be welded best by

✔ **A. GTAW**
B. FCAW
C. Laser welding
D. All of the above

Q16. Lap welds in sheet metal can be easily made by

✔ **A. Resistance spot and seam welding**
B. SAW
C. SMAW
D. GTAW

Q17. GTAW stands for

A. General Thickness Arc welding
B. Gas Technology Arc Welding
✔ **C. Gas Tungsten Arc Welding**
D. None of the above

Q18. In GTAW, SHIELDING Gas used is

✔ **A. Inert Gas**
B. Reactive Gas
C. CO2 Gas
D. none of the above

Q19. Autogenous Welding is

✔ **A. That welding in which Filler metal is not used**
B. That welding in which Filler metal is used
C. Both a & b
D. None of the above

Q20. In GTAW process, Shielding gas flows from

✔ **A. Torch to Nozzle**
B. Nozzle to Torch
C. Base metal to Nozzle
D. none of the above

DPE – A23: Auto and Diesel Technology

Q1. Efficiency of four cycle diesel engine is about:

A. 90 to 95 %

✔ **B. 50 to 60 %**

C. 80 to 90%

D. None of the above

Q2. Which of the following is not the function of fly Wheel:

✔ **A. It connects the piston to the crank shaft**

B. It is the mounting surface used to bolt engine up to its load

C. It has gear teeth that allow starting motor to engage

D. It reduces vibration

Q3. A diesel engine has compression ratio range from:

A. 10:1 to 11: 2

✔ **B. 14:1 to 24:1**

C. 20:1 to 34:1

D. None of these

Q4. Turbo charging is used to force the _____ air into the cylinder:

A. Hot air

B. Exhaust air

✔ **C. Fresh air**

D. Fuel

Q5. The ratio of engine's brake horsepower and indicated horsepower is called _____ of the engine:

A. Fuel efficiency

✔ **B. Mechanical efficiency**

C. Engine efficiency

D. Maximum efficiency

Q6. The diesel engines are also known as _____ engines:

A. Spark ignition

B. Combustion ignition

C. Efficient ignition

✔ **D. Compression ignition**

Q7. In a four stroke cycle, the minimum temperature inside the engine cylinder occurs at the:

A. Beginning of Suction Stroke

✔ **B. End of Suction Stroke**

C. Beginning of Exhaust Stroke

D. End of Exhaust Stroke

Q8. In diesel engines, the injected fuel is ignited due to:

A. High Temperature of Fuel

B. High Temperature of Cylinder

✔ **C. High Temperature of Compressed Air**

D. High temperature of Exhaust Air

Q9. The object of supercharging the engine is:

A. To reduce mass of the engine per brake power

B. To reduce space occupied by the engine

C. To increase the power output of an engine

✔ **D. All of the above**

Q10. The injection pressure in a diesel engine is about:

A. 10 bar

B. 100 bar

✔ **C. 200 bar**

D. 300 bar

Q11. Which of the following operate on Brayton Cycle:

A. Steam Power Plant

B. Nuclear Power Plant

✔ **C. Gas Turbine**

D. Diesel Engine

Q12. Charge in diesel engine consists of:

A. Air, Diesel And Lube Oil

B. Air And Diesel

C. Diesel And Lube Oil

✔ **D. Air**

Q13. Which does NOT involve adiabatic process?

A. Compressor

✔ **B. Combustion Chamber**

C. Gas Turbine

D. Pump

Q14. In a six cylinder 4 stroke petrol engine running at 2000 rpm, the cam shaft runs at:

✔ **A. 1000 Rpm**

B. 2000 Rpm

C. 8000 Rpm

D. 500 Rpm

Q15. Removal of burnt gases from a 2 stroke engine cylinder is known as:

A. Detonation

B. Primary Ignition

✔ C. Scavenging

D. Supercharging

Q16. The air fuel ratio of a petrol engine is controlled by:

A. Governor

✔ B. Carburetor

C. Fuel pump

D. Fuel Injector

Q17. Which is NOT an example of internal combustion engine?

✔ A. Steam Turbine

B. Gas Turbine

C. Diesel Engine

D. None of the above

Q18. Accumulation of rust and scale in the engine cooling system will cause:

A. Slow warm up

B. Reduce output

C. Low exhaust temperature

✔ D. Over heating

Q19. Which automobile system uses rack and pinion gears?

A. Support system

B. Suspension system

✔ C. Steering system

D. Breaking system

Q20. The breaking up of a liquid into fine droplets by spraying is called:

A. Vaporization

✔ B. Atomization

C. Venturi effect

D. Osmosis

DPE – A24: Boiler Technology

Q1. Which is an example of closed system?

A. Air compressor

✔ B. Liquid cooling system of an automobile

C. Boiler

D. None of these

Q2. Boiler efficiency calculation (feed water 205kg, coal 23kg, enthalpy rise 725kJ/5kg, CV 2050kJ/kg):

A. 56%

B. 74%

✔ C. 63%

D. 78%

Q3. The chemical oxygen demand (COD) measures the:

A. amount of oxygen required for growth of microorganisms

✔ B. amount of oxygen that would be removed to oxidize pollution

C. amount of oxygen required to oxidize the calcium

D. none of the above

Q4. Permanent hard water may be softened by passing it through:

A. sodium silicate

B. sodium bicarbonate

✔ C. sodium hexametaphosphate

D. sodium phosphate

Q5. Temporary hardness of water is caused by the presence of:

A. chlorides of calcium and magnesium

B. sulfates of calcium and magnesium

✔ C. bicarbonates of calcium and magnesium

D. carbonates of sodium and potassium

Q6. ONE (01) hp boiler has heating surface of _____ Sq ft:

A. 08

✔ B. 10

C. 12

D. None of above

Q7. Permanent hardness of water is caused by the presence of:

A. bicarbonates of calcium and magnesium

B. carbonates of sodium and potassium

✔ C. chlorides and sulfates of calcium and magnesium

D. phosphates of sodium and potassium

Q8. Which chemical is sometime added in coagulation and flocculation?

✔ A. Aluminum sulphate

B. Aluminum oxide

C. Calcium chloride

D. None of these

Q9. BOD stands for:

✔ **A. biochemical oxygen demand**
B. British oxygen demand
C. British oxygen depletion
D. biological oxygen depletion

Q10. Pick out the wrong statement:

A. Caustic embrittlement is caused by high concentration of caustic soda.
✔ **B. Cooling and freezing of water kills the bacteria present in it.**
C. With increasing boiler pressure, max allowable silica decreases.
D. Dissolved oxygen content in high pressure boiler feed water should be nil.

Q11. Boiler is a special type of _____.

A. Vessel
✔ **B. Heat Exchanger**
C. Evaporator
D. Distillation Column

Q12. In fire tube boilers, water is on _____.

✔ **A. Shell Side**
B. Tube Side
C. Chimney
D. None of the above

Q13. The main objective of a pressure control in a boiler is to:

A. Produce Steam
✔ **B. Pressure Control of Steam**
C. Blowdown Control
D. Flame Control

Q14. SiO2 is the major contributor in boilers toward:

A. High Fuel Consumption
✔ **B. Scale Formation**
C. Low steam Quality
D. Moisture in Steam

Q15. N2H4 is added in Boiler Feed Water as an:

A. Oxidizing Agent
B. pH Control Agent
✔ **C. O2 Scavenging Agent**
D. Steam Moisture Control Agent

Q16. Heavy oil is also commonly known as:

A. Diesel
B. Kerosene
C. Lube Oil
✔ **D. Furnace Oil**

Q17. Boiler of a PWR nuclear power plant, is also known as:

A. BWR
✔ **B. Steam generator**
C. Evaporator
D. Reactor Pressure Vessel

Q18. Draught is necessary for boilers to provide:

✔ **A. Air for fuel**
B. Fuel for combustion
C. Water
D. Blowdown

Q19. Pulverized coal fired boilers have a higher efficiency but a costly:

A. Boiler Feedwater
B. Fuel
✔ **C. SOx and NOx control**
D. None of the above

Q20. Most cement plants use _____ to recover heat from preheater towers.

A. Fire tube boilers
✔ **B. Waste heat boilers**
C. Blast Furnace
D. All of the above

DPE – A25: Machine Shop (Mechanical)

Q1. The cutting action of the shaper machine occurs only on the stroke of ram:

✔ **A. Forward**
B. Backward
C. Middle
D. End

Q2. Shaper machine size is determined by the:

A. H.P. of Motor
B. Diameter of Bull wheel
✔ C. Max. stroke length of ram
D. None of above

Q3. V-blocks are commonly used as work holding device for shafts which are:

A. Square
B. Rectangle
C. Elliptical
✔ D. Cylindrical

Q4. Turning of metals in a machine shop is usually performed on a:

A. Radial Drill machine
B. Milling machine
C. Grinding machine
✔ D. Lathe machine

Q5. The speed rate in lathe operations is usually expressed as:

✔ A. R.P.M. of work piece
B. mm/Minute
C. mm/revolution
D. Surface meter

Q6. When taking finish cut the lathe machine should be operated at:

A. Low speed
B. Medium speed
✔ C. Higher speed
D. Any speed

Q7. Tail stock centers which do not revolve with the work piece are:

A. Revolving centers
✔ B. Dead centers
C. Live centers
D. Magnetic centers

Q8. The angle of a standard metrics form of thread is:

A. 30°
✔ B. 60°
C. 45°
D. 90°

Q9. Discontinuous chips are normally formed when turning metals such as:

A. Mild steel
B. Aluminum
✔ C. Cast Iron
D. H.S.S

Q10. Lathe machine tool is considered as:

✔ A. Single point cutting tool
B. Multi point cutting tool
C. Multi edge cutting tool
D. None of above

Q11. Segmental chips are formed during machining:

A. mild steel
✔ B. cast iron
C. high speed steel
D. high carbon steel

Q12. If hole diameter is subject to considerable variation, the locator used is:

✔ A. conical locator
B. cylindrical locator
C. diamond pin locator
D. V-locator

Q13. Side rake angle of a single point cutting tool is the angle:

A. by which the face is inclined towards back
✔ B. by which the face is inclined sideways
C. between surface of flank and plane at right angles
D. between surface of flank and line from point perpendicular to base

Q14. Internal gears can be made by

A. hobbing
✔ B. shaping with pinion cutter
C. shaping with rack cutter
D. milling

Q15. Which of the following operation is first performed?

A. Spot facing
B. Boring
C. Tapping
✔ D. Drilling

Q16. The size of a lathe is specified by:

A. length between centers
B. swing diameter over the bed

C. swing diameter over the carriage

✔ **D. All of the above**

Q17. In a bilateral system of tolerance, the tolerance is allowed on

A. one side of the actual size

B. one side of the nominal size

C. both sides of the actual size

✔ **D. both sides of the nominal size**

Q18. The silicon carbide abrasive is chiefly used for grinding

A. cemented carbide

B. ceramic

C. cast iron

✔ **D. All of the above**

Q19. Drilling is an example of

A. orthogonal cutting

✔ **B. oblique cutting**

C. simple cutting

D. uniform cutting

Q20. When the cutting edge of the tool is dull, then during machining

A. continuous chips are formed

✔ **B. discontinuous chips are formed**

C. continuous chips with built-up edge are formed

D. no chips are formed

DPE – A26: Mechanical (Drafting & Designing)

Q1. The primary unit of measurement for engineering drawings in mechanical industries is the:

✔ **A. Millimeter**

B. Centimeter

C. Meter

D. Kilometer

Q2. This is how axonometric, oblique, and perspective sketches show objects:

A. Orthographically

✔ **B. Pictorially**

C. Obliquely

D. Parallel

Q3. Draftsman should use a _____ in a section view including cylindrical view of a threaded hole:

✔ **A. Center line**

B. Hatch line

C. Poly line

D. Dimension line

Q4. In offset sections, offsets or bends in the cutting plane are all:

✔ **A. 90 degrees**

B. 180 degrees

C. Either 90 or 180 degrees

D. 30, 60, or 90 degrees

Q5. The _____ tool on the Dimension tool bar places the length of an arch on a drawing:

A. Arc Radius

✔ **B. Arc Length**

C. Radius

D. Diameter

Q6. How can the draftsman prevent AutoCAD from stacking another center mark when adding a diameter dimension?

A. Explode the dimension and then erase the center mark.

✔ **B. Use the Properties dialog box to turn off the center mark.**

C. It can't be done.

D. Use the trim tool to take away the stacked center mark.

Q7. This is the term for the range of tightness or looseness resulting from allowances and tolerances in mating parts:

A. Limits

✔ **B. Fit**

C. Specifications

D. Allowance

Q8. This is the theoretically exact size from which limits of size are determined:

A. Actual Size

B. Dimensioned size

C. Production size

✔ **D. Basic size**

Q9. When filling an area with a hatch pattern in AutoCAD the draftsman needs to _____.

✔ **A. see the entire bounding area to hatch**

B. set Ortho on

C. turn ISO grid off
D. set the layer to Defpoints

Q10. These breaks are used to shorten the view of an object:

A. Section breaks
B. Aligned breaks
✔ **C. Conventional breaks**
D. Full breaks

Q11. Which of the following is not included in title block of drawing sheet?

A. Sheet number
✔ **B. Size of sheet**
C. Scale
D. Method of projection

Q12. Which of the following represents reducing scale?

A. 1:1
✔ **B. 1:2**
C. 2:1
D. 10:1

Q13. In first angle projection method, object is assumed to be placed in:

✔ **A. First quadrant**
B. Second quadrant
C. Third quadrant
D. Fourth quadrant

Q14. The following line is used for visible outlines:

✔ **A. Continuous thick**
B. Continuous thin
C. Chain thin line
D. Short zigzag thin

Q15. The dotted lines represents:

✔ **A. Hidden edges**
B. Projection line
C. Centre line
D. Hatching line

Q16. Hatching lines are drawn at ___ degree to reference line:

A. 30
✔ **B. 45**
C. 60
D. 90

Q17. Metric thread of 10mm diameter is represented by:

A. 10M
✔ **B. M10**
C. M^10
D. None of the above

Q18. The internal angle of regular pentagon is _____ degree.

A. 72
✔ **B. 108**
C. 120
D. 150

Q19. A line of 1 meter is shown by 1cm on a scale. Its Representative Fraction (RF) is:

A. 1
B. 100
✔ **C. 1/100**
D. 1/50

Q20. A point 'P' is above Horizontal Plane (HP) and in front of Vertical Plane (VP). The point is in:

✔ **A. First quadrant**
B. Second quadrant
C. Third quadrant
D. Fourth quadrant

DPE – A27: Auto and Farms Technology

Q1. Which is NOT an example of internal combustion engine?

✔ **A. Steam Turbine**
B. Gas Turbine
C. Diesel Engine
D. None of the above

Q2. The material that is left by the harvesting machine in row is:

✔ **A. Swath**
B. Stubble
C. Straw
D. All are correct

Q3. A machine used to cut crops and deliver them in a uniform manner in a row is:

A. Combine
B. Mower
C. Reaper binder
✔ **D. Windrower**

Q4. Turbo charging is used to force the _____ air into the cylinder:

A. Hot air
B. Exhaust air
✔ **C. Fresh air**
D. Fuel

Q5. In diesel engines, the injected fuel is ignited due to:

A. High Temperature of Fuel
B. High Temperature of Cylinder
✔ **C. High Temperature of Compressed Air**
D. High temperature of Exhaust Air

Q6. The object of supercharging the engine is:

A. To reduce mass of the engine per brake power
B. To reduce space occupied by the engine
C. To increase the power output of an engine when greater power is required
✔ **D. All of the above**

Q7. Which of the following operate on Brayton Cycle:

A. Steam Power Plant
B. Nuclear Power Plant
✔ **C. Gas Turbine**
D. Diesel Engine

Q8. Charge in diesel engine consists of:

A. Air, Diesel And Lube Oil
B. Air And Diesel
C. Diesel And Lube Oil
✔ **D. Air**

Q9. Which does NOT involve adiabatic process?

A. Compressor
✔ **B. Combustion Chamber**
C. Gas Turbine
D. Pump

Q10. In a six cylinder 4 stroke petrol engine running at 2000 rpm, the cam shaft runs at:

✔ **A. 1000 Rpm**
B. 2000 Rpm
C. 8000 Rpm
D. 500 Rpm

Q11. Removal of burnt gases from a 2 stroke engine cylinder is known as:

A. Detonation
B. Primary Ignition
✔ **C. Scavenging**
D. Supercharging

Q12. The air fuel ratio of a petrol engine is controlled by:

A. Governor
✔ **B. Carburetor**
C. Fuel pump
D. Fuel Injector

Q13. A tractor drawn in semi-mounted mower is operated by:

A. Belt pulley drive
B. Tractor hydraulic
✔ **C. Tractor power take off**
D. Tractor hitch

Q14. The two-stroke engine is:

A. Diesel engine
B. Steam engine
✔ **C. Petrol engine**
D. None of the above

Q15. The diesel engine used on tractors are:

A. One-stroke engine
B. Two-stroke engine
✔ **C. Four stroke engine**
D. None of the above

Q16. The carburetor is main part of:

A. Diesel engine
B. Steam engine
✔ **C. Petrol engine**
D. Gas engine

Q17. Diesel engine works on principle of:

✔ **A. Diesel cycle**
B. Otto cycle

C. Carnot cycle
D. None of the above

Q18. The injector and fuel pump are the heart of:

✔ **A. Diesel**
B. Steam engine
C. Petrol engine
D. Gas engine

Q19. In four-stroke cycle engine, one power stroke is obtained after every:

A. Half revolution of crankshaft
B. One revolution of crankshaft
✔ **C. Two revolution of crankshaft**
D. Three revolution of crankshaft

Q20. The injection pressure in a diesel engine is about:

A. 10 bar
B. 100 bar
✔ **C. 200 bar**
D. 300 bar

DPE – A31: Biology

Q1. In word biology, bio mean:

A. Sky
B. Earth
C. Man
✔ **D. life**

Q2. Biology word is derived from:

A. English
B. Urdu
C. Latin
✔ **D. Greek**

Q3. Biology is a science of:

A. Metal
B. Gasses
✔ **C. Life and living organisms**
D. Buildings

Q4. Expert dealing with living things is known as:

A. Engineer
B. Medical doctor
✔ **C. Biologist**
D. None of these

Q5. Cytology deals with:

A. Plant root
B. Animal skins
✔ **C. Chromosomes**
D. Plasma

Q6. Study of plant is:

A. Chemistry
B. Biology
C. Physics
✔ **D. Botany**

Q7. Molecular biology deals with:

A. Mines
B. Sea
✔ **C. DNA**
D. Metals

Q8. The study of insects is more relevant to:

A. Physics
B. Chemistry
✔ **C. Zoology**
D. Botany

Q9. Zoology deals with:

A. Plants
B. Soil
C. Sea
✔ **D. Animals**

Q10. Angiosperms are:

✔ **A. Plants**
B. Cell
C. Animals
D. Insects

Q11. Proteins are made of amino acids linked together by specific bonds called:

✔ **A. Peptide bonds**
B. Nitrogen bonds
C. Hydrogen bonds
D. Hydrogen & Nitrogen bonds

Q12. Changes in DNA not passed to offspring occur in:

A. Eggs & sperm cells
✔ **B. Non-sexual cells**
C. Diploid and haploid cells
D. All of the above

Q13. The genetic changes that occur in more than 1 percent of the population are:

✔ **A. Polymorphisms**
B. Monotheism
C. Frame shift mutation
D. None of above

Q14. Bosindicus is the scientific name of:

A. Goat
B. Sheep
C. Buffalo
✔ **D. Cow**

Q15. Which disease combination is caused by virus?

✔ **A. Influenza, Dengue, AIDS**
B. Influenza, Kala azar, Haemophilia
C. Sleeping sickness, Kala azar, Dengue
D. Influenza, Kala azar, Dengue

Q16. Which is generally true about Antibiotics?

A. Are toxic to bacteria
B. Directly kills the bacteria
✔ **C. Blocks biochemical pathways of bacteria**
D. Suffocates the bacteria

Q17. Common cold, Pneumonia and Tuberculosis are:

✔ **A. Air borne diseases**
B. Water borne diseases
C. Soil borne diseases
D. Vector borne diseases

Q18. The immune system:

A. Fights and kills pathogens
B. Develops antibodies for future attacks
C. Remembers previous infections
✔ **D. All of the above**

Q19. Eukaryotic unicellular organisms are grouped in the kingdom:

A. Monera
✔ **B. Protista**
C. Fungi
D. Plantae

Q20. An organism having some characteristics of plant and animal kingdom is:

A. Paramoecium
B. Amoeba
✔ **C. Euglena**
D. Giraffe

DPE – A32: Chemistry

Q1. 1.0 g of calcium carbonate required 50ml of dilute HCl. The strength of HCl is:

A. 4 N
B. 2 N
✔ **C. 0.4 N**
D. 0.2 N

Q2. CuSO4.nH2O 499mg sample heated, final mass 319mg, 2.0 mol Cu. Average number of water of hydration?

A. 2
✔ **B. 5**
C. 10
D. 18

Q3. A 13 gram gaseous sample of unknown hydrocarbon occupies 11.2 L at STP. What is the hydrocarbon?

A. CH4
✔ **B. C2H2**
C. C4H4
D. C3H5

Q4. Which has the minimum number of protons?

✔ **A. Li**
B. Na
C. K
D. Rb

Q5. If the actual mass of 39K is 39.32197 amu per atom then the mass deficiency for 39K is:

A. 0.00110 amu
B. 1.0073 amu
C. 1.0087 amu
✔ **D. None of these**

Q6. What is the largest number of protons that can exist in a nucleus and still be stable?

✔ **A. 83**
B. 206
C. 92
D. 84

Q7. Which of the following would have a pH of more than 7?

✔ **A. ammonia solution**
B. sodium chloride solution
C. pure water
D. carbonic acid

Q8. A solution that resists changes in pH when small amounts of acid or base are added is called:

A. neutral solution
B. saturated solution
C. balanced solution
✔ **D. buffer solution**

Q9. Which molecule has no net dipole moment?

A. HCl
B. H2O
✔ **C. CCl4**
D. CH3Cl

Q10. Which has largest first ionization energy?

✔ **A. Li**
B. Na
C. K
D. Rb

Q11. Substance A has pH 2 and B has pH 3. This means that:

A. substance A has more basic properties
B. Substance B has more acidic properties
✔ **C. substance A is ten times more acidic than substance B**
D. temperature effect on CO2 solubility

Q12. Covalent bonds are least likely to be formed:

A. between atoms of the same element
B. between atoms of different elements on the right of periodic table
C. by head of group elements with high ionization energies
✔ **D. between an element in Group I and element in Group VII**

Q13. A compound is more likely to be covalent if the:

✔ **A. cation has a small size and a high charge**
B. anion has a small size and a high charge
C. cation has a large size and a small charge
D. anion has a small size and a small charge

Q14. Which one of the following is not true of metallic bonding?

A. between atoms of the same element
✔ **B. between atoms of different elements on right of periodic table**
C. by head of group elements with high ionization energies
D. the strength of metallic bonding affects the boiling point of metals

Q15. Niels Bohr is credited with what scientific contribution?

A. The discovery of the electron
B. The observation that matter emits light
C. The discovery of the equation E = hv
✔ **D. The theory that electrons in atoms are arranged in shells with discrete energies**

Q16. How many electrons are added before the start of the fifth shell?

A. n=3, l=0
B. n=4, l=1
✔ **C. n=3, l=2**
D. n=4, l=2

Q17. As the temperature of water decreases, the solubility of carbon dioxide gas:

✔ **A. increases**
B. decreases
C. remains the same
D. increases or decreases, depending on specific temperature

Q18. The basis for the C-14 dating method is that:

A. C-14 is very unstable and is readily lost
B. Living tissue will not absorb C-14 but will absorb C-12
✔ **C. The ratio of C-14 to C-12 in the atmosphere is a constant**
D. The amount of C-14 in all objects is the same

Q19. The solution concentration terms are concerned with the amount of:

A. solvent in the solution
✔ **B. solute in the solution**
C. solute compared to solvent
D. solvent compared to solute

Q20. In period, which of the following decreases?

✔ **A. Atomic radius**
B. Ionization energy
C. electron affinity
D. electronegativity

DPE – A33: Geology

Q1. Gypsum indicates

✔ **A. Lacustrine Environments**
B. Oceanic Environments
C. Continental environments
D. Igneous environments

Q2. The process of building up of a surface by deposition is called:

A. Degradation
✔ **B. Aggradations**
C. Up gradation
D. Low gradation

Q3. What type of fault is characterized by horizontal movement?

✔ **A. Strike Slip Fault**
B. Dip Slip Fault
C. Oblique Slip fault
D. Transform Fault

Q4. Where do most of the sediments get deposited?

✔ **A. On continental shelf & adjacent ocean floor**
B. In lakes
C. Along streams
D. In deserts

Q5. Which is an example of a divergent tectonic plate boundary?

✔ **A. Mid Atlantic Ridge**
B. San Andrews
C. Mississippi River
D. Japanese Trench

Q6. Pelagic Sediments are:

A. Fine grained
B. Deposited far away from continental margins
C. Settle down very slowly on the sea floor
✔ **D. All of above**

Q7. Most of the world's earthquakes occur at:

A. Divergent Plate Boundaries
✔ **B. Convergent Plate Boundaries**
C. Mid Oceanic Ridges
D. Mountain Ridges

Q8. Which of the following is not dip slip fault?

✔ **A. A right lateral fault**
B. A normal fault
C. A thrust fault
D. A reverse fault

Q9. Of the following metamorphic rocks, which one is formed at the highest temperature:

A. Slate
B. Marble
C. Schist
✔ **D. Eclogite**

Q10. Granite is:

A. Silica poor rock
✔ **B. Silica rich rock**
C. A metamorphic rock
D. Is a basic rock

Q11. Halite is the name of:

A. White Cement
B. Iron ore
✔ C. Common Salt
D. A clay

Q12. NGR stands for:

A. National Geologic Reference
✔ B. National Grid Reference
C. National Geographic Reference
D. National Group Reference

Q13. Potwar Plateau is bounded to the east by

✔ A. Jhelum River
B. Indus River
C. Chenab River
D. Ravi River

Q14. What is the scientific term for a crack along which no appreciable movement has occurred:

A. Fault
✔ B. Joint
C. Horizon
D. Axis

Q15. Clay minerals can be easily identified by:

A. Microscope
✔ B. XRD
C. Hand lens
D. Magnifying glass

Q16. Himalayas are the product of collision between:

A. Arabian plate and Afghan Block
✔ B. Indian plate Euro-Asian plate
C. African plate Euro-Asian plate
D. Antarctic plate and North American plate

Q17. Contour is a:

A. Line showing points of different heights
✔ B. Line showing points of same heights
C. Indicates hill tops
D. Indicates a deep basin

Q18. Scintillation Counter detects:

A. Alpha particles
B. Beta Particles
✔ C. Gamma Particles
D. Electromagnetic waves

Q19. In Pakistan uranium is found in:

✔ A. In Siwaliks
B. In Dunites
C. In Peridotites
D. In limestones

Q20. Sandstone is formed by:

A. volcanic activity
B. igneous activity
✔ C. sedimentation
D. metamorphism

DPE – A34: Mathematics

Q1. Which one of the following is discrete data?

A. Sam is 160 cm tall
✔ B. Sam has two brothers and one sister
C. Sam weighs 60 kg
D. Sam ran 100 meters in 10.2 seconds

Q2. Which one of the following is NOT quantitative data?

A. The snake is 7 feet long
B. The snake has two eyes
✔ C. The snake is green and yellow
D. The snake has no legs

Q3. A set S has a power set with 512 members. How many members does S have?

✔ A. 9
B. 11
C. 12
D. 512

Q4. For S = {1,2,3,4,5,6,7,8,9,10,J,Q,K}, how many members will power set have?

A. 169
B. 4096
✔ C. 8192
D. 16384

Q5. What is the determinant of the matrix A = [[2,0,-1],[3,5,2],[-4,1,4]]?

A. 13
B. 21
✔ **C. 53**
D. 59

Q6. Areebah, Abdullah, Areesha shopping problem - cost of 1 coconut:

✔ **A. Rs. 2.00**
B. Rs. 2.10
C. Rs. 2.20
D. Rs. 2.30

Q7. Area of right-angled triangle is 20 cm2 and one side is 4 cm. What is the altitude on the hypotenuse?

A. 2
✔ **B. 20/sqrt(26)**
C. 2/sqrt(26)
D. 2*sqrt(29)

Q8. If x-y=3 and x+2y=6 are diameters of a circle, what are the coordinates of center?

A. (0, 0)
B. (2, 2)
C. (1,-1)
✔ **D. (4, 1)**

Q9. What is (-infinity, 0] intersect [0, +infinity)?

A. empty set
✔ **B. { 0 }**
C. R - { 0 }
D. R

Q10. S = {0,1,4,9,16...}, what is S in set builder notation?

A. S = { x^2, x in N | x >= 0}
✔ **B. S = { x2, x in W | x >= 0}**
C. S = { x^2, x in W | x >= 1}
D. S = { x^2, x in R | x >= 0}

Q11. Solve 5 log_z(0.6) = 6 to find z to 3 decimal places.

✔ **A. 0.653**
B. 0.635
C. 0.542
D. 0.500

Q12. What is the 5th term in the expansion of (x + 2)^7 in decreasing powers of x?

A. 84 x^5
B. 280 x^4
C. 280 x^3
✔ **D. 560 x^3**

Q13. Which of the following pairs of numbers is NOT co-prime?

A. 25 and 28
B. 35 and 38
✔ **C. 45 and 48**
D. 55 and 58

Q14. The sum and product of roots of quadratic equation are 7 and 12. What is the quadratic equation?

✔ **A. X^2 - 7x + 12 = 0**
B. X^2 + 7x + 12 = 0
C. X^2 - 7x - 12 = 0
D. X^2 + 7x - 12 = 0

Q15. If [[x^2],[y^2]] - 3[[x],[2y]] = [[-2],[-9]], then values of x and y?

A. X = 1 or 2 and y = -3
B. X = -1 or 2 and y = 3
C. X = 1 or -2 and y = 3
✔ **D. X = 1 or 2 and y = 3**

Q16. If x = y^a, y = z^b, z = x^c, then the value of a.b.c is?

✔ **A. 1**
B. X.y.z
C. (x.y.z)^abc
D. 0

Q17. One complete turn is the same as?

A. pi/2 rads
B. pi rads
C. 3pi/2 rads
✔ **D. 2pi rads**

Q18. If x < 0 and y > 0, then in which quadrant the point P(x,y) lies?

A. 1st
✔ **B. 2nd**
C. 3rd
D. 4th

Q19. What is the value of angle (theta) when Sin theta = Cos theta?

A. 30 deg
✔ **B. 45 deg**

C. 60 deg

D. 90 deg

Q20. A heptagon is polygon having _____ number of sides.

A. 5

B. 6

✔ **C. 7**

D. 8

DPE – A35: Physics

Q1. Which of Newton's Law says 'For every action there is an equal and opposite reaction':

A. Newton's First Law

B. Newton's Second Law

✔ **C. Newton's Third Law**

D. All of the above

Q2. What happens to a stream of alpha particles shot at a thin sheet of gold foil?

A. All of the particles pass straight through

✔ **B. A few of the particles bounce back at 180°**

C. All of the particles bounce back at 180°

D. Most of the particles are absorbed by the foil

Q3. Which has the greater momentum: a large object moving slowly or a small object moving fast?

✔ **A. Can't determine from the information given**

B. The small object

C. The large object

D. The momentum is the same

Q4. What is another name for Newton's first law of motion?

A. Law of Acceleration

B. Law of Velocity

✔ **C. Law of Inertia**

D. Law of Mass

Q5. Which of Newton's laws best explains how rockets work?

A. First Law

B. Second Law

✔ **C. Third Law**

D. Gravitational Law

Q6. Accuracy is defined as:

A. A measure of how often an experimental value can be repeated.

✔ **B. The closeness of a measured value to the real value.**

C. The number of significant figures used in a measurement.

D. None of these

Q7. How many significant figures are present in the number 10,450?

A. three

✔ **B. four**

C. five

D. none of these

Q8. What is the appropriate SI unit for distance?

A. centimeters

B. inches

✔ **C. meters**

D. kilometers

Q9. Which of the following is a unit of time?

✔ **A. Lunar Month**

B. Candela

C. Light year

D. Both A) & C)

Q10. Vector A=9 north, B=3 north, C=5 west. Magnitude of resultant A+B+C?

A. 10

B. 11

C. 12

✔ **D. 13**

Q11. An athlete runs four laps of a 400m track. What is the athlete's total displacement?

A. –400 m

✔ **B. 0 m**

C. 400 m

D. 1600 m

Q12. A ball dropped from top of a building (with air resistance), which best describes speed?

A. It will increase at a steady rate

B. It will remain constant

C. It will decrease

✔ **D. Its rate of acceleration will decrease until the ball moves at a constant speed**

Q13. What happens to a stream of alpha particles shot at a thin sheet of gold foil?

A. All of the particles pass straight through

✔ **B. A few of the particles bounce back at 180°**

C. All of the particles bounce back at 180°

D. Most of the particles are absorbed by the foil

Q14. Which has the greater momentum: large slow object or small fast object?

✔ **A. Can't determine from the information given**

B. The small object

C. The large object

D. The momentum is the same

Q15. When performing 34.530g+12.1g+1222.34g, the final answer must have:

A. Three decimal places

B. Three significant figures

C. Units of g^3

✔ **D. Only one decimal place**

Q16. The speed of a dog covering 24m in 52s is:

A. 0.54m/s

B. 2.2m/s

✔ **C. 0.46m/s**

D. None of the above

Q17. The x and y components of displacement are 1.15 m and 8.24 m. What angle does vector make with x axis?

✔ **A. 78**

B. 80

C. 82

D. 84

Q18. A brick dropped from a roof hits ground 3.64 seconds later. Approximately how high was the roof?

A. 55 m

B. 60 m

✔ **C. 65 m**

D. 70 m

Q19. On average, fission of a uranium nucleus gives:

A. 200 Joules of energy

B. 200 eV of energy

C. 200 BTU of energy

✔ **D. 200 MeV of energy**

Q20. In nuclear reactions, total kinetic energy does not remain conserved in:

A. elastic scattering

✔ **B. inelastic scattering**

C. radioactive capture

D. All of the above

DPE – A38: Nuclear Medicine and Imaging Technology

Q1. In occupational dosimetry, the quantity to be compared with dose limits is:

A. Surface dose

B. Depth dose

✔ **C. Organ dose**

D. Surface and depth doses

Q2. Same field size, patient A 70kV and patient B 90kV, both 10 mGy. Effective doses:

A. Effective doses are the same.

✔ **B. Effective dose in patient A is greater than patient B.**

C. Effective dose in patient B is greater than patient A

D. Effective doses are not comparable

Q3. Related to stochastic effects:

A. Effect severity increases with dose

B. There is a threshold

C. Stochastic effects are the same than deterministic effects

✔ **D. None of the above**

Q4. Biological effect of radiation is NOT modified by:

A. Linear energy transfer (LET)

B. Moment of the cellular cycle

C. Temperature

✔ **D. None of the above**

Q5. It is FALSE that:

✔ **A. It is frequent that a malformation occurs during pre-implantation**

B. Mental retardation occurs mainly between 8 and 25 weeks of pregnancy

C. Lethality is more probable to occur during pre-implantation

D. None of the above

Q6. Related to radiation protection (RP):

A. RP is not applicable to patients.

B. RP is aimed exclusively for workers.

C. A doctor can only request a certain number of radiation examinations.

✔ D. One of the aims of RP is to avoid deterministic effects of ionizing radiation.

Q7. Related to the system of radiation protection:

A. Justification is not applied in medical exposures.

✔ B. Limitation is not applied in medical exposures.

C. ALARA criterion aims to give a summary of contraindicated situations.

D. There is also a minimum dose limit that everyone should receive.

Q8. Related to dose limits:

A. Public have a higher limit because they do not receive an 'extra' dose.

✔ B. Skin equivalent dose limit for occupational exposed people is 500 mSv/year

C. Dose limits do consider neither type of occupation nor country.

D. Pregnant woman cannot be exposed to any ionizing radiation.

Q9. Which of the following is in order of increasing wavelength?

✔ A. (radio waves) - (visible light) - (X Rays)

B. (infra red) - (radio waves) - (X Rays)

C. (X Rays) - (visible light) - (ultraviolet)

D. (radio waves) - (x rays) - (radio waves)

Q10. The frequency of a photon of wavelength 6cm is:

A. 18 Hz

B. 2x10^-10 Hz

C. 5000 Hz

✔ D. 5 MHz

Q11. Which of the following tissues would be classified as radiosensitive?

✔ A. Bone marrow

B. Brain

C. Muscle

D. Skin

Q12. Nuclear Medicine Imaging is a type of _____ imaging.

✔ A. Emission

B. Transmission

C. Artificial

D. Projection

Q13. A feature in radiograph not related to any anatomical structure, produced by measuring process:

A. Image detail

✔ B. Artifact

C. Penumbra

D. None

Q14. Which human response to ionizing radiation would be categorized as a late effect?

A. Central nervous system syndrome

B. Gastrointestinal syndrome

✔ C. Eye damage

D. Hematology depression

Q15. If necessary to restrain a patient during radiographic examination, most acceptable person:

A. 18-year-old brother of the patient

B. 20-year-old female technologist

C. 40-year-old male technologist

✔ D. 50-year-old female friend of the patient

Q16. Which of the following is boiled during preparation?

A. MAA

✔ B. sulfur colloid

C. albumin colloid

D. di-phosphonates

Q17. If a radiopharmaceutical is spilled on the floor, the first priority is to:

A. Contact the Radiation Safety Officer

B. Pour a chelating solution over the area

✔ C. Cover the area with absorbent paper and restrict access

D. Call the housekeeping department

Q18. What part of an imaging system emits light when it has absorbed a photon?

A. Photomultiplier tube

B. Pulse height analyzer

✔ C. Scintillation crystal

D. Collimator

Q19. To obtain high-resolution images of a small organ, which collimator will be most useful?

A. Low-energy parallel hole
B. Slant hole
C. Diverging
✔ **D. Pinhole**

Q20. What steps should be taken to reduce a star artifact from reconstructed SPECT images?

A. Decrease the matrix size
B. Increase the time per projection
C. Increase the radius of projection
✔ **D. Increase the number of projections**

DPE – A39: Medical Technology Radiotherapy

Q1. A structure composed of two or more tissues is termed:

✔ **A. organ**
B. serous membrane
C. complex tissue
D. organ system

Q2. The visceral pleura:

✔ **A. is the membrane lining surface of the lungs**
B. is the membrane lining the wall of the thoracic cavity
C. is the fluid around the lungs
D. is the thinnest portion of the peritoneum

Q3. The anatomical position is characterized by all of the following except:

✔ **A. palms facing posterior**
B. thumbs pointing laterally
C. face pointing interiorly
D. body standing upright

Q4. Which of the following lies fully ipsilateral to the left iliac region:

A. epigastria region
✔ **B. left hypochondriac region**
C. right inguinal region
D. hypo gastric region

Q5. The 'basic unit of life' is:

A. the atom
B. water
✔ **C. the cell**
D. the chemical level of organization

Q6. A homeostatic imbalance:

A. must be restored by negative feedback mechanisms
✔ **B. is considered the cause of most diseases**
C. is when the internal conditions of the body become more stable
D. only occur when positive feedback mechanisms are overwhelmed

Q7. Which of the following is NOT a characteristic of life:

A. growth
B. responsiveness
C. reproduction
✔ **D. organ systems**

Q8. The sum of all chemical reactions in the body is termed:

A. homeostasis
B. physiology
C. dynamic feedback
✔ **D. metabolism**

Q9. A vertical plane through the body dividing it into right and left is termed:

✔ **A. sagittal**
B. lateral
C. transverse
D. frontal

Q10. Which of the following is an example of applied physiology:

A. measuring the length of the femur on a fetus using ultrasound
B. locating an injury to a tendon using CT imaging
✔ **C. describing the process of how a toxin interferes with nerve impulse conduction**
D. identifying the types of cells found in a biopsy sample

Q11. Which tissues would be classified as radiosensitive?

✔ **A. Bone marrow**
B. Brain
C. Breast
D. Muscle

Q12. Nuclear Medicine Imaging is type of imaging:

✔ **A. Emission**
B. Transmission
C. Reflection
D. Diffraction

Q13. Sixth generation CT scanners are also called:

A. Linear CT
B. Translational CT
✔ **C. Helical CT**
D. Rotational CT

Q14. _____ are widely employed in radiology to enhance visualization.

A. Radioactive Drugs
B. Saline Water
✔ **C. Contrast agents**
D. Aluminum plates

Q15. A feature in radiograph not related to anatomical structure, produced by measuring process:

A. Image detail
✔ **B. Artifact**
C. Penumbra
D. Blur

Q16. Which human response to ionizing radiation would be categorized as late effect?

A. Central nervous system syndrome
B. Gastrointestinal syndrome
✔ **C. Eye damage**
D. Extremity damage

Q17. Which is correctly stated for diagnostic radiology?

A. Collimation is important only for chest examination
B. Copper is most often used as an x-ray filter
C. Gonad shields as important for a 50-year-old as for a 20-year-old female
✔ **D. Radiographic intensifying screens reduce patient dose**

Q18. When conducting abdominal radiography of a child, which is true?

A. Gonad shielding is not necessary
B. Increasing kVp will increase contrast
✔ **C. Parent should hold child if necessary, protective apparel should be provided**
D. Parent should hold child, protective apparel is not necessary

Q19. Increasing the kilovoltage setting for an exposure will:

A. Reduce the skin dose and improve contrast
B. Increase skin dose and improve contrast
✔ **C. reduce skin dose**
D. increase sharpness

Q20. Collimators are used to:

✔ **A. Reduce the radiation beam spread**
B. Filter the radiation beam
C. Increase film latitude
D. Decrease film latitude

DPE – A51: Medical Dispenser

Q1. Which one of following medicine is NOT beta-lactam antibiotic?

✔ **A. Erythromycin**
B. Cephradin
C. Ceftriaxone
D. Coamoxiclav

Q2. Doctor has written 'SOS' on his prescription. What does it means?

A. Take medicine twice daily
B. Take medicine thrice daily
C. Take medicine once daily
✔ **D. Take medicine when needed**

Q3. To prepare 2% mixture of sulphur, add how much sulphur in 50 ml of liquid paraffin?

A. 02 gram
B. 02 milligram
✔ **C. 01 gram**
D. 20 gram

Q4. Insulin can be given in all routes EXCEPT:

A. Intravenous
B. Intramuscular
C. Subcutaneous
✔ **D. Intrathecal**

Q5. The brain and the spinal cord form the _____ Nervous system.

✔ **A. Central**

B. Peripheral

C. Autonomic

D. Sympathetic

Q6. All nerves of the body present outside the brain and spinal cord comprise the _____ nervous system:

A. Central

✔ **B. Peripheral**

C. Autonomic

D. Sympathetic

Q7. Sympathetic (which are true):

✔ **A. Ganglia have acetylcholine as a transmitter substance.**

B. Nerve terminals supplying the heart transmit via adrenaline.

C. Nerves supplying skin arterioles transmit via acetylcholine.

D. Nerves supplying sweat glands transmit via noradrenalin.

Q8. The vagus nerve provides the parasympathetic innervations to the:

A. Eye.

B. Urinary bladder.

C. Small intestine.

✔ **D. Heart.**

Q9. What is the function of the blood vessels and capillaries?

A. They pump blood to the heart

B. They filter impurities from the blood.

✔ **C. They carry blood to all parts of the body.**

D. They carry messages from the brain to the muscles.

Q10. Why does blood turn dark red as it circulates through the body?

A. It starts to clot.

B. It gets old and dirty flowing through the body.

✔ **C. The oxygen in it is replaced with carbon dioxide.**

D. The farther blood is from the heart, the more dark red it is.

Q11. A 50 year old male on warfarin developed bleeding after tooth extraction, INR 20.4. Suitable treatment:

A. Aminocaproic acid

B. Tranexamic acid

✔ **C. Fresh frozen plasma**

D. Vitamin K

Q12. Patient taking verapamil for supraventricular tachycardia has become constipated. Osmotic laxative?

A. Aluminium hydroxide

B. Diphenoxylate

✔ **C. Magnesium hydroxide**

D. Metoclopramide

Q13. Which vitamin reduces beneficial effects of levodopa by enhancing its extracerebral metabolism?

✔ **A. Pyridoxine**

B. Thiamine

C. Tocopherol

D. Riboflavin

Q14. Which has slow onset but long duration of action and is always used in combination with corticosteroid?

A. Aminophylline

B. Cromolyn

✔ **C. Salmetrol**

D. Epinephrine

Q15. All of the following are antacids except:

A. PPI

B. Anti histamines

C. Ranitidin

✔ **D. Lornoxicam**

Q16. The serum analyses conducted for liver function determination are:

A. T.bilirubin, Urea and Creatinine

✔ **B. T. bilirubin, SGPT, SGOT and Alkaline Phosphatase**

C. T.bilirubin, Alkaline phosphatase and cholesterol

D. T. bilirubin, SGPT and cholesterol

Q17. Complete blood counts mainly measure which of the following?

A. Hemoglobin, erythrocytes (RBCs), leucocytes (WBCs) and platelets

B. mean corpuscular volume and erythrocyte sedimentation rate

✔ **C. Both A) & B)**

D. None of the above

Q18. Which vacationer stopper color is not indicated with its proper use?

A. Grey for glucose estimation

B. Red for chemistry

C. Purple for hematology

✔ **D. Black for coagulation study**

Q19. Which of these are the non-nucleated cells of the blood?

A. Lymphocytes

✔ **B. Erythrocytes**

C. Neutrophils

D. None of the above

Q20. Which of the following is a hormone?

A. Trypsin

✔ **B. Triiodothyronine**

C. Amylase

D. Lipase

DPE – A52: Medical Health Physics

Q1. Which term describes the body's ability to maintain its normal state?

A. Catabolism

B. Tolerance

✔ **C. Homeostasis**

D. Metabolism

Q2. Each of the following mature cells has a nucleus EXCEPT:

A. Monocyte

✔ **B. Erythrocyte**

C. Basophile

D. Neutrophil

Q3. Which is flexible connective tissue attached to bones at the joints?

A. Adipose

✔ **B. Cartilage**

C. Epithelial

D. Nerve

Q4. Each of the following is located in the mediastinum EXCEPT the:

A. Aorta

B. Heart

✔ **C. Pancreas**

D. Trachea

Q5. Which is located beneath the diaphragm in the right upper quadrant?

A. Appendix

B. Kidney

✔ **C. Liver**

D. Spleen

Q6. Which of the following cavities are separated by the diaphragm?

A. Abdominal and pelvic

B. Cranial and spinal

C. Pericardial and pleural

✔ **D. Thoracic and abdominal**

Q7. In which position does a patient lie face down?

A. Dorsal

B. Lateral

✔ **C. Prone**

D. Supine

Q8. Which cranial nerve is related to the sense of smell?

A. Abducens

B. Hypoglossal

✔ **C. Olfactory**

D. None of the above

Q9. In the lungs, gas exchange occurs in tiny one-celled air sacs called:

✔ **A. Alveoli**

B. Bronchioles

C. Capillaries

D. Pleurae

Q10. Each of the following is a segment of the large intestine EXCEPT the:

A. Cecum

✔ **B. Ileum**

C. sigmoid colon

D. transverse colon

Q11. Which tissues would be classified as radiosensitive?

✔ **A. Bone marrow**

B. Brain

C. Muscle

D. Skin

Q12. A feature in radiograph not related to anatomical structure, produced by measuring process:

A. Image detail

✔ **B. Artifact**

C. Penumbra

D. None

Q13. Which human response to ionizing radiation would be categorized as a late effect?

A. Central nervous system syndrome

B. Gastrointestinal syndrome

✔ **C. Eye damage**

D. Hematology depression

Q14. Insertion of aluminum, copper and tin filters into the x-ray beam causes:

✔ **A. Low energy x-rays to be absorbed**

B. The kVp to increase

C. An unnecessary dose on the skin surface

D. The dose to increase

Q15. In a fixed SSD technique, the dose is routinely normalized:

A. At the isocenter

B. At tumor depth

✔ **C. At Dmax**

D. On the surface

Q16. In an Iso centric treatment technique, the dose is routinely normalized:

✔ **A. At the isocenter**

B. At the tumor depth

C. At Dmax

D. On the surface

Q17. The width of the penumbra increases with:

A. Decreased SSD, Decreased source-collimator distance, decreased field size

✔ **B. Decreased SSD, increased source-collimator distance, increased source size**

C. Increased SSD, decreased source-collimator distance, increased source size

D. Increased SSD, increased source-collimator distance, decreased source size

Q18. What is the minimum number of counts for uniformity correction flood for SPECT camera?

A. 10 K

✔ **B. 10 million**

C. 30 million

D. 60 million

Q19. Constancy of the dose calibrator must be tested:

✔ **A. daily**

B. quarterly

C. weekly

D. every six months

Q20. How much activity of 99mTc is sufficient for evaluating intrinsic uniformity?

A. 2 mCi

✔ **B. 200 µCi**

C. 20 mCi

D. 10 µCi

DPE – A53: Mechanical (Manufacturing)

Q1. What does CAM stand for?

A. Computer Aided Milling

B. Computer Aided Machining

✔ **C. Computer Aided Manufacturing**

D. Computer Aided Mechanic

Q2. In CNC block N002 G02 G91 X40 Z40, G02 AND G91 refer to:

A. Circular interpolation counterclockwise and incremental dimension

B. Circular interpolation counterclockwise and absolute dimension

✔ **C. Circular interpolation clockwise and incremental dimension**

D. Circular interpolation clockwise and absolute dimension

Q3. For generating Coons patch we require:

A. A set of grid points on surface

B. A set of control points

✔ **C. Four bounding curves defining surface**

D. Two bounding curves and a set of grid control points

Q4. During execution of CNC block NO20 GO2 X45.0 Y25.0 R5.0, type of tool motion will be:

✔ **A. Circular Interpolation – clockwise**

B. Circular Interpolation – counterclockwise

C. Linear Interpolation

D. Rapid feed

Q5. Tool moved from (5,4) to (7,2) along circular path with center (5,2). Correct G and M code:

A. N010 G03 X7.0 Y2.0 I5.0 J2.0
✔ **B. N010 G02 X7.0 Y2.0 I5.0 J2.0**
C. N010 G01 X7.0 Y2.0 I5.0 J2.0
D. N010 G00 X7.0 Y2.0 I5.0 J2.0

Q6. In computer aided drafting, an arc is defined by:

A. Two end points only
B. Center and radius
C. Radius and one end point
✔ **D. Two end points and center**

Q7. On turning lathes the machine zero point is generally at the:

✔ **A. Head stock of lathe spindle nose face**
B. Dead center of tail stock
C. Tool point mounted on tool post
D. None of the above

Q8. Dwell is defined by:

✔ **A. G04**
B. G03
C. G02
D. G01

Q9. M30 stands for:

A. End of program
B. End of block
✔ **C. End of tape and tape rewind**
D. Coolant on/ off

Q10. Typical Electrode material used in EDM:

A. Copper
B. Tungsten
C. Graphite
✔ **D. All of the above**

Q11. In EDM process, the metal removed is carried out by:

✔ **A. Melting and vaporization**
B. Electrolysis
C. Fracture of work material due to impact of grains
D. None of the above

Q12. Which process is used for grinding splined shafts?

✔ **A. External cylindrical grinding**
B. Internal cylindrical grinding
C. Surface grinding
D. Foam grinding

Q13. Which characteristic of a material is used in forging process?

A. Characteristic of elasticity
B. Characteristic of ductility
✔ **C. Characteristic of plasticity**
D. None of the above

Q14. Crater wear occurs mainly due to:

A. Abrasion
✔ **B. Diffusion**
C. Oxidation
D. Adhesion

Q15. Cold working of metal increases:

A. Tensile strength
B. Hardness
C. Yield strength
✔ **D. All of the above**

Q16. Which of the following is a single point cutting tool:

A. Hacksaw Blade
B. Milling Cutter
C. Grinding Wheel
✔ **D. Parting tool**

Q17. A connecting rod is made by:

A. Casting
B. Drawing
✔ **C. Forging**
D. Extrusion

Q18. Which of the following is not a surface finishing process:

A. Honing
B. Buffing
C. Lapping
✔ **D. Turning**

Q19. Casting replica used to make the cavity is called as:

A. Mould
✔ **B. Pattern**

C. Cope
D. None of the above

Q20. What is meant by drag in casting process?

A. Molten Metal
✔ **B. Lower part of casting flask**
C. Upper part of casting flask
D. Lower and upper part of casting flask

DPE – A54: Non-Destructive Testing

Q1. Which one the following is the major limitation of NDT:

A. Equipments are not portable
✔ **B. Requires high skill and trained workers**
C. Required so much time to perform the job
D. All of the above

Q2. Plastic deformation takes place when stress induced reached the:

✔ **A. Yield point**
B. Proportional limit
C. Fatigue strength
D. Ultimate strength

Q3. Tensile test can be performed on:

A. Impact testing machine
✔ **B. Universal testing machine**
C. Rockwell tested
D. Brinell tester

Q4. During hardness test the indenter is usually a:

A. Ball
B. Pyramid
C. Cone
✔ **D. All of the above**

Q5. Materials which are usually most ductile:

✔ **A. Face centered cubic lattice**
B. Body centered cubic lattice
C. Hexagonal closed packed lattice
D. None of the above

Q6. The impact test is done to test _____ of a material:

A. Strength
B. Ductility
✔ **C. Toughness**
D. Hardness

Q7. Which material will require the largest size of riser for the same size of casting?

A. Aluminum
B. Cast iron
✔ **C. Steel**
D. Copper

Q8. Liquid penetrant testing is based on the principle of:

A. Polarized sound waves in a liquid
B. Magnetic domains
C. Absorption of X rays
✔ **D. Capillary action**

Q9. When a small diameter tube is placed in a glass of water, water rises. This is called:

A. Viscosity
✔ **B. Capillary action**
C. Surface tension
D. Barometric testing

Q10. A penetrant that is self-emulsifying is called:

A. Solvent removable
✔ **B. Water washable**
C. Post-emulsified
D. Dual sensitivity method

Q11. A lamination in steel plate would be classified as which type of discontinuity?

✔ **A. Inherent**
B. Processing
C. Service
D. None of the above

Q12. An important consideration when using direct contact method in magnetic particles testing is:

A. Lifting power of the yoke
B. Coil diameter
✔ **C. Preventing arc burns**
D. Field strength adjacent to coil inside diameter

Q13. An advantage of AC equipment over DC is:

A. AC is more penetrating

B. AC is less hazardous

✔ **C. AC makes the magnetic particles more mobile on the test surface**

D. AC equipment is heavier than DC

Q14. An advantage of a gamma ray source is:

A. Radiation may be turned on or off at will

✔ **B. Outside power is normally not required**

C. Less shielding is required than for X ray

D. All of the above

Q15. Lower X ray tube voltages result in:

A. greater wavelengths X rays

B. Less penetrating X rays

C. Fewer X rays in the primary beam

✔ **D. All of the above**

Q16. The eddy current probe is most simply a

✔ **A. coil of copper wire**

B. semiconductor

C. capacitor

D. ceramic resistor

Q17. Which transducer material is the most efficient receiver of ultrasonic energy?

A. Lead metaniobate

B. Quartz

✔ **C. Lithium sulphate**

D. Barium titanate

Q18. Which is a true statement about frequency/wavelength?

A. Higher frequencies produce lower sensitivity

B. Higher frequencies produce longer wavelengths

✔ **C. Thicker crystals produce lower frequency transducers**

D. Longer wavelengths produce higher sensitivity

Q19. What is the magnetic field strength at surface of 25mm bar vs 50mm bar, each carrying 1000 amps?

✔ **A. Twice**

B. One half

C. One quarter

D. Four times

Q20. Which type of developer gives highest sensitivity test results?

A. Dry

✔ **B. Non-aqueous wet**

C. Aqueous wet

D. Lipophilic

DPE – A55: Drilling

Q1. In percussive rock drills, the blow rate of hammer is usually:

A. 100-150 per minute

B. 200-500 per minute

✔ **C. 1500-3000 per minute**

D. None of A, B,C

Q2. The measure of the distance from the centre line of a cone from the centre of the bit is:

A. Journal off set

✔ **B. Cone of set**

C. Both A & B

D. None of A,B,C

Q3. The overall cost of drilling per meterage is comparatively much higher in case of:

✔ **A. Surface set diamond bit**

B. Impregnated diamond bit

C. Both A & B

D. None of A,B,C

Q4. The ability of maintaining a constant penetration rate in similar formation is more in:

A. Surface set diamond bit

✔ **B. Impregnated diamond bit**

C. Both A & B

D. None of A,B,C

Q5. What kind of rotary roller bits are good for soft rocks:

✔ **A. Long teeth, wide spaced**

B. Small teeth, closely spaced

C. Both A & B

D. None of A,B,C

Q6. Which of these is used in bit making?

A. Tungsten carbonates

B. Tungsten chromite

C. Tungsten calcite

✔ **D. Tungsten carbide**

Q7. In cross bits (star bits) the chisel shaped segments are usually at:

A. Angles of 45 deg with each other

B. Angles of 60deg with each other.

✔ **C. Almost right angles**

D. Angles of 120 deg with each other.

Q8. Usually button bits have a size range from:

A. 14 mm to 67 mm

✔ **B. 19 mm to 460 mm**

C. 557 mm to 814 mm

D. 821 mm to 913 mm

Q9. For very soft formation pump pressure should be:

A. High

✔ **B. Low**

C. Optimal

D. Very low

Q10. Halite is the name of:

A. White Cement

B. Iron ore

✔ **C. Common Salt**

D. A clay

Q11. NGR stands for:

A. National Geologic Reference

✔ **B. National Grid Reference**

C. National Geographic Reference

D. National Group Reference

Q12. Potwar Plateau is bounded to the east by

✔ **A. Jhelum River**

B. Indus River

C. Chenab River

D. Ravi River

Q13. Himalayas are the product of collision between:

A. Arabian plate and Afghan Block

✔ **B. Indian plate Euro-Asian plate**

C. African plate Euro-Asian plate

D. Antarctic plate and North American plate

Q14. Contour is a:

A. Line showing points of different heights

✔ **B. Line showing points of same heights**

C. Indicates hill tops

D. Indicates a deep basin

Q15. Sandstone is formed by:

A. volcanic activity

B. igneous activity

✔ **C. sedimentation**

D. metamorphism

Q16. In percussion drilling:

A. Drill bit is used

✔ **B. Heavy bailer is used**

C. Wireline system is used

D. Rotary machine is used

Q17. Which one of the following is the oldest type of drilling?

A. Rotatory drilling

✔ **B. Percussion drilling**

C. Calyx drilling

D. Auger drilling

Q18. The ability of rock to allow liquids to enter is called:

A. Aeration

✔ **B. Permeability**

C. Capillarity

D. Hydraulic conductivity

Q19. The soil which cracks and shrinks most as it dries is:

A. Chalky soil

✔ **B. Clayey soil**

C. Loaray soil

D. always rich in mineral content

Q20. Wireline drilling is a methodology in which:

A. core is recovered by pulling rods

B. core is not recovered

✔ **C. core is recovered without pulling rods**

D. hole is reamed by using a bit

DPE – A56: Woodwork Technology

Q1. Sapwood consists of _____.

A. Innermost annular rings around the pith

✔ **B. Portion of timber between heartwood and cambium layer**

C. Thin layers below the bark

D. Thin fiber which extends from the pith outwards

Q2. Which of the following trees yields hardwood?

A. deodar

B. chir

✔ **C. shishum**

D. pine

Q3. Which timber is suitable for making sports goods?

✔ **A. mulberry**

B. mahogany

C. sal

D. deodar

Q4. The disease of dry rot in timber is caused by:

✔ **A. lack of ventilation**

B. alternate wet and dry conditions

C. same tensile strength in all directions

D. none of the above

Q5. Plywood has the advantage of:

A. High tensile strength in longitudinal direction

B. High tensile strength in transverse direction

✔ **C. Same tensile strength in all directions**

D. None of the above

Q6. The moisture content in a well seasoned timber is _____.

A. 4 to 6%

✔ **B. 10 to 12%**

C. 15 to 20%

D. None of the above

Q7. The tree trunk when all the branches have been cut, is named as:

✔ **A. log**

B. batten

C. plank

D. All of the above

Q8. Which of the following is not a hard wood?

✔ **A. fir**

B. cherry

C. walnut

D. maple

Q9. When finished with spraying, _____ should be worn.

A. Rubber gloves

B. Mask or respirator

C. An apron

✔ **D. All of the above**

Q10. A shallow dent in wood can sometimes be repaired by _____.

✔ **A. Swelling the wood by steam**

B. Filling it with glue

C. Filling it with silver of wood

D. Rubbing it with white shellac

Q11. To cut a groove for a strip of inlay, _____ bit is used.

A. beading

✔ **B. V-grooving**

C. Left-hand spiral

D. Core box

Q12. Large machines with two belts arranged on three pulleys are capable of _____ speed settings.

A. three

B. six

✔ **C. nine**

D. twelve

Q13. When making straight cuts:

✔ **A. choose the widest blade possible**

B. use a special V-fixture

C. make a sandwich of the material

D. All of the above

Q14. Cutting several pieces at one time is called _____ sawing.

✔ **A. pad**

B. repeat

C. duplicate

D. pattern

Q15. The elevating crank is used to adjust:

A. Cutting width

✔ **B. Depth of cut**

C. Angle of cut

D. All of the above

Q16. The most common saw blades are _____.

A. Ripsaw blades

✔ **B. Combination blades**

C. Crosscut blades

D. None of the above

Q17. Flat cutting produces a _____ grain.

A. flat

B. patterned

C. irregular

✔ **D. cathedral**

Q18. A screw-mate drill and countersink can be used with _____.

✔ **A. a power drill**

B. a hand drill

C. both power and hand drill

D. None of the above

Q19. A device for holding a door closed is called _____.

A. knob

B. T-plate

C. pull

✔ **D. catch**

Q20. Hand tools used to cut a mortise include a drill and a _____.

A. Fine crosscut saw

B. Dovetail saw

C. Table saw

✔ **D. ripsaw**