UPSSSC JE Practice Set Paper-1

Q.1 **A statically indeterminate building frame may be converted to a statically determinate one by assuming:**

A. Hinges at mid height of columns
B. Hinges at the mid-span of the beams
C. One support as fixed at base and other support on rollers
D. Hinges at both mid-height of columns and mid-span of beams

Answer: D

Sol:

There are two methods of approximate analysis:
Portal method for low rise buildings.
Cantilever method for tall buildings.
Both methods assume an inflection point location at mid height of each column and an inflection point located at the centre of each beam.

Q.2 **In terms of bulk modulus (K) and modulus of rigidity (G), Poisson's ratio can be expressed as:**

A. $\frac{3K-4G}{6K+4G}$
B. $\frac{3K+4G}{6K-4G}$
C. $\frac{3K-2G}{6K+2G}$
D. $\frac{3K+2G}{6K-2G}$

Answer: C

Sol:

There are four elastic constants
E = Young's Modulus of elasticity
G = Modulus of rigidity
K = Bulk Modulus
μ = Poisson's ratio
Relations between them

$(i)\ G = \frac{E}{2(1+\mu)}$

$(ii)\ K = \frac{E}{3(1-2\mu)}$

$(iii)\ E = \frac{9KG}{G+3K}$

$(iv)\ \mu = \frac{3K-2G}{6K+2G}$

Q.3 **Maximum deflection of a simply supported beam occurs at zero**

A. Bending moment
B. Shear force location
C. Slope location
D. Shear force location and also zero bending moment location

Answer: C

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Sol:

If y is the deflection, then
For maximum deflection,
$\frac{dy}{dx} = 0$
$\frac{dy}{dx}$ *represents the slope.*

Q.4 **The radius of Mohr's circle is zero when the state of stress is such that**

A. Shear stress is zero
B. There is pure shear
C. There is no shear stress but identical direct stresses in two mutually perpendicular directions
D. There is no shear stress but equal direct stresses, opposite in nature, in two mutually perpendicular direction

Answer: C

Sol:

$$R = \sqrt{\left(\frac{\sigma_1 - \sigma_2}{2}\right)^2 + \tau^2}$$
$if\ R = 0$
$\tau = 0$
$and\ \left(\frac{\sigma_1 - \sigma_2}{2}\right) = 0$
$\Longrightarrow \sigma_1 = \sigma_2$

Q.5 **The angle of the failure plane with the major principal plane is given by**

A. $45° + \phi'$
B. $45° + \frac{\phi'}{2}$
C. $45° - \frac{\phi'}{2}$
D. $45° - \phi'$

Answer: B

Sol:

Angle of the failure plane with the major principal plane is
$\left[45 + \frac{\phi}{2}\right]$

Q.6 **As per IS: 456 which of the following states falls under the 'Limit state of serviceability'**

A. Floor vibrations
B. Loss of equilibrium of a structure
C. Formation of mechanism
D. Stability under load

Answer: A

Sol:

Excessive floor vibration can render a structure to be a little or no use, this is a limit state of serviceability as per the IS: 456.

Q.7 **In pre-tensioning process of prestressing, the tendons are**

A. Bonded to the concrete
B. Partially bonded to the concrete
C. Not bended to the concrete
D. Generally bonded but sometimes remain unbonded to the concrete

Answer: A

Sol:

The bonding of concrete with wires results in transfer of prestressing force in pretensioned members.
In the pre-tensioning system, the tendons are first tensioned between rigid anchor blocks prior to the casting of concrete in the moulds. The pre-tensioned wires are released by either cutting or releasing jacking pressure. The high tensile wires tend to shorten but are checked by the bond between concrete and steel. Thus, prestress load is transferred in single stage.

Q.8 **Pick up the correct statements from the following about concrete:**

A. Concrete ingredients should be kept at a temperature 37° ± 2°C
B. Bleeding is good to an extent if it occurs when concrete is plastic.
C. Workability is time independent.
D. Coarser grinding reduces the risk of segregation.

Answer: B

Sol:

Concrete ingredients should be kept a temperature of 27°± 3°C.
While concrete is still plastic the accumulated water can be used to mix concrete again and improve workability.
Workability of concrete reduces with time.
Use of larger proportion of maximum size aggregate can become a cause of segregation as coarse aggregate will settle down at bottom mix.

Q.9 **Generally, plain concrete gravity retaining walls are not used for height exceeding**

A. 5 m
B. 3 m
C. 4 m
D. 6 m

Answer: B

Sol:

In gravity retaining wall, the resistance to the earth pressure is generated by weight of the structure only.
Plane concrete gravity walls are not used for height exceeding about 3.0 m.

Q.10 **A reinforced concrete slab is 95 mm thick. The maximum size of reinforcement bar that can be used is**

A. 12 mm diameter
B. 10 mm diameter
C. 8 mm diameter
D. 6 mm diameter

Answer: B

Sol: The diameter of the bars shall not exceed one eight of the total thickness of the slab.

$$\therefore Maximum\ size = \frac{95}{8} = 11.875$$

$$So\ dimaeter\ will\ be\ 10\ mm$$

Q.11 **Modulus of rupture for the concrete having characteristic compressive strength of 50 MPa will be**

A. 50 MPa
B. 14.04 MPa
C. 7 MPa
D. 5 MPa

Answer: D

Sol:

Characterstic compressive strength of concretre is given as

$f_{cr} = 0.7\sqrt{f_{ck}}$

$f_{ck} = 50\ MPa$

$\therefore f_{cr} = 0.7\sqrt{50}$

$= 4.9497\ MPa \approx 5MPa$

Q.12 Consider the following statements about ribbed slab

I. Overall depth of slab shall not exceed 4 times the breadth of the rib

II. Width of the in-situ rib shall not be less than 7.5 cm

III. Clear spacing between ribs shall not be greater than 1.5 m

Which of the above statement(s) is/are correct:

A. I & II only
B. II & III only
C. I & III only
D. I, II & III all

Answer: C

Sol:

As per IS: 456-2000, clause 30.5:

In-situ rib shall not be less than 6.5 cm wide and they shall be spaced at centres not greater than 1.5 m apart.

Depth of the slab shall not exceed 4 times the breadth of the rib.

Ribbed slabs are provided as lighter & stiffer slab than an equivalent flat slab, reducing the extent of foundation. They provide good form of construction where slab vibration is an issue, such as laboratories.

Q.13 **Consider the following statements about the concrete:**

I. Strength of concrete decreases with the age of concrete.

II. The process of mixing, transporting, placing and compacting concrete using ordinary III. Portland cement should not take more than 60 minutes.

A. Statement I is true while II is false.
B. Statement I is false while II is true.
C. Both statements I and II are false.
D. Both statements I and II are true.

Answer: C

Sol:

Setting time of concrete should not be less than 30 minutes so that concrete remains plastic during the process of mixing, transportation, placing and compaction. Hence statement II is false.

The strength of concrete increases with the age of concrete due to hydration of dicalcium silicate.

Q.14 **The strength of concrete depends on**

I. Type of mortar

II. Proportion between coarse and fine aggregates

III. Water cement ratio

IV. Temperature at time of mixing

A. I and II
B. II and III
C. II and IV
D. III only

Answer: B

Sol:

The concrete strength depends on concrete mix proportion
water-cement ratio compaction temperature of curing age type of cement

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Q.15 **After the 5 years of useful life an equipment of cost Rs. 25 lakhs, has a salvage value of Rs. 5 lakhs. What is the approximate equated annual cost for use of the equipment?**

A. Rs. 4 lakhs
B. Rs. 10 lakhs
C. Rs. 13 lakhs
D. Rs. 17 lakhs

Answer: A

Sol:

$$\text{Equated annual cost or annual depreciation} = \frac{\text{initial value} - \text{salvage value}}{\text{Useful life of equipment in years}}$$
$$= \frac{2500000-500000}{5}$$
$$= 400000$$

Q.16 **For a rivet of 20 mm diameter, the diameter of hole shall be taken as:**

A. 20 mm
B. 20.5 mm
C. 21.5 mm
D. 22 mm

Answer: C

Sol:

Diameter of hole
$= Dia\ of\ rivet\ + 1.5\ mm; If\ dia\ of\ rivet < 25\ mm$
$= Dia\ of\ rivet + 2\ mm; if\ dia\ of\ rivet > 25\ mm$
$\because Dia\ of\ rivet = 20\ mm$
$\therefore Dia\ of\ hole = 20\ mm + 1.5\ mm = 21.5\ mm$

Q.17 **Earnest money is deposited by the contractor at the time of-**

A. Purchase of tender document
B. Submission of bid
C. Getting letter of acceptance
D. Entering the agreement

Answer: B

Sol:

Earnest money is collected to check the seriousness of the bidder. It is submitted with the tender documents.

Q.18 **When the effect of wind or earthquake load is taken into account, the permissible stress as specified in rivets may be increased by_____**

A. 33.33%
B. 50%
C. 10%
D. 25%

Answer: D

Sol:

According to clause 11.1.4 of IS 800 : 2007,
In load combinations involving wind or seismic loads, the permissible stresses in steel structural members may be increased by 33 percent.
For anchor bolts and construction loads. This increase shall be limited to 25 percent.
Such an increase in allowable stresses should not be considered if the wind or seismic load is the major load in the load combination (such as acting along with dead load along).

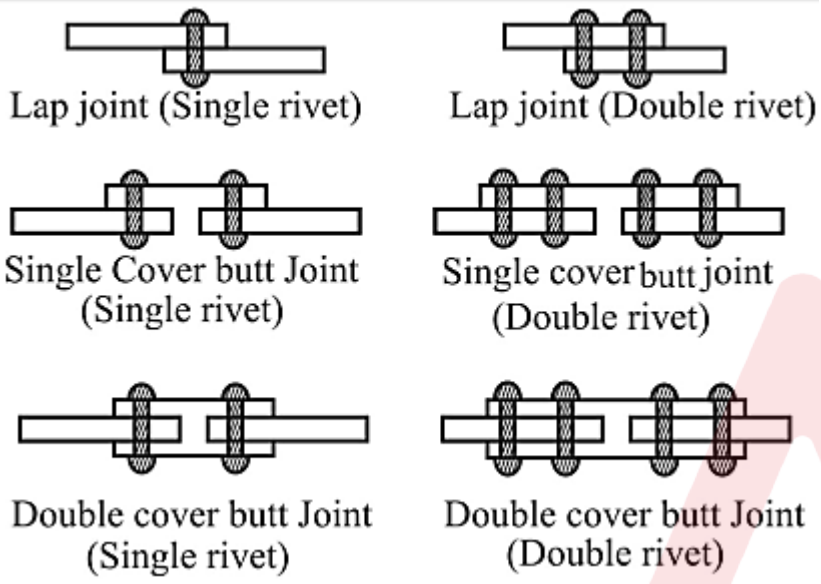
Q.19 **When two plates are placed end to end and are joined by two cover plates, the joint is known as.....**

A. Lap joint
B. Butt joint
C. Chain riveted lap joint
D. Double cover butt joint

Answer: D

Sol:

When two plates are placed end to end and are joined by two cover plates, the joint is known as double cover butt joint.



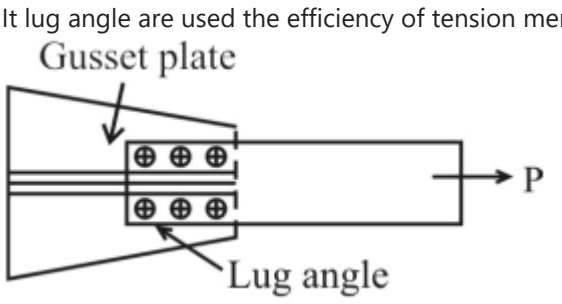
Q.20 **A short angle used to connect the gusset and the outstanding leg of main member is**

A. Long angle
B. Lug angle
C. Equal angle
D. Unequal angle

Answer: B

Sol:

Lug angle–
It is small piece of angle used to connect the outstand leg of the structural member to the gusset plate.
The purpose of lug angle is to reduce the length of connection to gusset plate and reduce the shear leg effect.
Shear leg effect is reduced by increasing the length of connection and by providing lug angles.
It lug angle are used the efficiency of tension members increases.



Q.21 **For a standard 45 degree fillet, the ratio of size of fillet to throat thickness is .....**

A. 1 : 1
B. 1 : √2
C. √2 : 1
D. 2 : 1

Answer: C

Sol:

For standard fillet–Ratio of the size of fillet to throat thickness

$$\cos\alpha = \frac{t}{S}$$

t = throat thickness

S = Size of weld

when $\alpha = 45°$ then

$$\cos 45° = \frac{t}{S}$$

$$\frac{1}{\sqrt{2}} = \frac{t}{S}$$

or $$\boxed{\frac{S}{t} = \frac{\sqrt{2}}{1}}$$

Q.22 What is the recommended value of the effective length if the end condition effectively held in position and restrained in direction at both end?

A. 0.80L
B. 1.2L
C. 0.65L
D. 2.5L

Answer: C

Sol:

According to IS 800-2007–

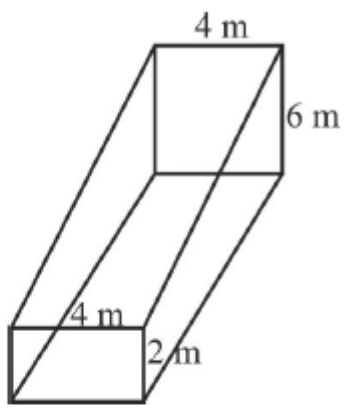
Degree of end restraint of compression member	Theo. value of Effective length	Reco. value of Effective length
Effectively held in position and restrained against rotation at both ends.	0.50 *l*	0.65 *l*
Effectively held in position and restrained against rotation at one end.	0.70 *l*	0.80 *l*
Effectively held in position at both ends, but not restrained against rotation.	1.0 *l*	1.0 *l*
Effectively held in position and restrained against rotation at one end but not held in position nor restrained against rotation at there end.	2.00 *l*	2.00 *l*
Effectively held in position and restrained against rotation at one end, and at other end restrained against rotation but not held in position.	1.2 *l*	

Q.23 What is the volume of a 6 m deep tank having rectangular shaped top 6 m × 4 m and bottom 4 m × 2 m (computed through the use of prismoidal formula)?

A. 92 m^3
B. 94 m^3
C. 90 m^3
D. 96 m^3

Answer: A

Sol:



Prismoidal formula

$$\text{Volume } (V) = \frac{d}{6}[A_1 + 4A_m + A_2]$$

$$A_1 = 6 \times 4 = 24 \text{ m}^2$$

$$A_2 = 4 \times 2 = 8 \text{ m}^2$$

$$A_m = \left(\frac{6+4}{2}\right) \times \left(\frac{4+2}{2}\right)$$

$$= 5 \times 3 = 15 \text{ m}^2$$

$$\text{Volume } (V) = \frac{6}{6}[24 + 4 \times 15 + 8]$$

$$= 24 + 60 + 8$$

$$= 92 \text{ m}^3$$

Q.24 Accuracy in the measurement of the thickness of the slab or sectional dimension of column and beam (in centimetre) should be

A. 0.5
B. 1
C. 5
D. 10

Answer: A

Sol: The accuracy in the measurement of the thickness of the slab or sectional dimension of column and beam should be 0.5 cm.
Wood work = 2 mm
Steel work = 1 mm
Volume = 0.01 m^3
Area = 0.01 m^2

Q.25 In a T-Beam the breadth of the rib is equal to the

A. Total thickness of slab including cover
B. Width of beam in compression Zone
C. Width of beam in tensile Zone
D. None of these

Answer: C

Sol:

In a T-Beam the breadth of the rib is equal to the width of beam in tensile Zone.

· The breadth of rib is taken down earth ground. It should adequate to hold the tensile zone, in it, effectively. It might be taken as between 1/3 to 2/3 of the rib depth of beam.

Q.26 An 80% saturated soil is having 40% porosity. Its percentage of air voids is

A. 32 %
B. 20 %
C. 8 %
D. 3.2 %

Answer: C

Sol:

$$Porosity, n = \frac{V_v}{V} = 40\ \% = 0.4$$

$$Degree\ of\ saturation, S = \frac{V_w}{V_v} = 80\% = 0.8$$

$$Air\ content, a_c = \frac{V_a}{V_v}$$

$$\because S + a_c = 1$$

$$\therefore a_c = 1 - 0.8 = 0.2$$

$$Percentage\ air\ void, n_a = \frac{V_a}{V_v} = n \times a_c$$

$$= 0.4 \times 0.2$$

$$= 0.08$$

$$= 8\%$$

Q.27 In the triaxial compression test, the application of additional axial stress on the soil specimen produces shear stress on:

A. On Horizontal plane only
B. On Vertical plane only
C. Both horizontal and vertical planes
D. All planes except horizontal and vertical planes

Answer: D

Sol:

in triaxial compression test failure plane is not pre determine i.e. failure can occur all planes not only horizontal & vertical plane.

Q.28 If the coefficient of passive earth pressure is 3, then what is the value of active earth pressure

A. 3
B. 9
C. 1/3
D. 1/9

Answer: C

Sol:

$$Passive\ earth\ pressure, K_p = 3$$

$$Relationship\ between\ K_a\ \&\ K_p\ is\ given\ as$$

$$K_a K_p = 1$$

Therefore,

$$K_a = \frac{1}{K_p} = \frac{1}{3}$$

Q.29 The bearing capacity factors N_c, N_q and N_y are functions of

A. Cohesion of the soil
B. Friction angle
C. Internal friction angle
D. Both cohesion of the soil and friction angle

Answer: C

Sol:

bearing capacity factors, Ne, Nq & Nr are function of internal friction angle.

Q.30 **In standard penetration test the height of fall of hammer is**

A. 56 cm
B. 66 cm
C. 75 cm
D. 86 cm

Answer: C

Sol:

in standard penetration test.
→ weight of hammer is 65 kg & height of fall of hammer is 75 cm.

Q.31 **Which of the following condition requires geodetic survey?**

A. Reconnaissance survey
B. Horizontal curve ranging
C. Vertical curve ranging
D. Survey of a country

Answer: D

Sol:

Geodetic survey is a type of survey in which the curvature of the earth is taken into consideration and a very high standard of accuracy is maintained. It is used for large areas like survey of a country.

Q.32 **In which of the following location surveys of the road, soil profile sampling is done up to a depth of 1 m to 3 m below the existing ground level?**

A. Material location survey
B. Construction survey
C. Final location survey
D. Preliminary survey

Answer: D

Sol:

Soil survey is done as a part of preliminary survey to check the suitability of proposed location and details collected are used for comparative study of alternate projects. In this, sample of soil up to depth of 1 m to 3 m below ground level or finished road level is taken.

Q.33 **Fore bearing and back bearing readings at a station in a compass survey are 55° and S45°W respectively. Included angle at that station is**

A. 100°
B. 190°
C. 50°
D. 160°

Answer: B

Sol:

θ = Fore bearing of next line – Back bearing of previous line

Included angle = θ or (360 – θ)

$Fore\ bearing = 55°$

$Back\ bearing = S45°W = 225°$

$\theta = 225° - 55° = 170°$

$\therefore Included\ angle = 170°\ or\ 360° - 170° = 190°$

Q.34 A survey plan drawn in 1980 was read in 2010. A line AB is indicated to have a length of 20 cm but while measuring it is of 19.2 cm. What is the shrinkage factor?

A. 1.92
B. 0.192
C. 0.96
D. 0.64

Answer: C

Sol:

$$Shrinkage\ factor = \frac{Shrunk\ length}{Original\ length}$$

$$= \frac{19.2}{20} = 0.96$$

Q.35 A theodolite is mentioned as 20 cm theodolite. It means

A. Length of telescope = 20 cm
B. Diameter of vertical circle = 20 cm
C. Diameter of lower plate = 20 cm
D. Focal length of lens of telescope = 40 cm

Answer: C

Sol:

The size of theodolite is defined as size of lower graduated circle.

A 20 cm theodolite means the diameter of the graduated circle of lower plate is 20 cm.

Q.36 Which of the following is not an excavating and moving type of equipment?

A. Bulldozer
B. Clamshell
C. Scraper
D. Dump-truck

Answer: D

Sol:

Dump-trucks are fitted with automatic unloading devices and they are used for moving the excavated material.

Scraper is a self-sufficient machine which can dig, load, haul and discharge the material in uniformly thick layers.

Q.37 Which of the following statements are correct?

I. Summit curves are vertical curves with convexity downwards.

II. Simple parabola is the ideal form of the curve for summit curve.

III. In actual practice circular curve is used in summit curve.

A. I, II & III all
B. I & II only
C. II only
D. None of the above

Answer: D

Sol:

Summit curves are the curves with convexity upwards.

Circular summit curve is ideal as the sight distance available throughout the length of circular curve is constant, but in practice simple parabola is used as summit curve as it is easy to construct and found to have good riding comfort.

Q.38 California bearing ratio (CBR) is

A. Measure of soil strength
B. Method of soil identification
C. Measure to indicate the relative strength of paving materials
D. Measure of shear strength under lateral confinement

Answer: C

Sol:

CBR test is used to evaluate the stability of soil subgrade and other flexible pavement materials. It is an arbitrary strength test hence cannot be used to evaluate the shear strength parameters. In essence it is measured to indicate relative strengths of paving materials and not the absolute strength.

Q.39 The ruling speed of a highway section is 95 kmph. The psychological widening required at a horizontal curve of radius 225 m is

A. 0.555 m
B. 0.667 m
C. 0.237 m
D. 2.370 m

Answer: B

Sol:

$Radius\ of\ horizontal\ curve, R = 225\ m$

$Ruling\ velocity = 85\ kmph$

$Psychological\ widening,$

$$W_p = \frac{V}{9.5\sqrt{R}}$$

$$= \frac{95}{9.5\times\sqrt{225}}$$

$$= \frac{10}{15} = \frac{2}{3}$$

Q.40 Which of the following is taken as the geometric design speed, derived from spot speed study, for a highway?

A. 80th percentile speed
B. 85th percentile speed
C. 90th percentile speed
D. 98th percentile speed

Answer: D

Sol:

Upper safe limit = 85th percentile speed
Lower safe limit = 15th percentile speed
Geometric design speed = 98th percentile speed.

Q.41 Minimum hourly flow occurring through the sewer during night hour may be assumed -

A. 2/3 Average Daily Flow

B. 1/3 Average Daily Flow
C. 1/2 Average Daily Flow
D. 3/2 Average Daily Flow

Answer: C

Sol:

· Minimum daily flow = 2/3 Annual average daily flow
· Minimum hourly flow = 1/2 Minimum daily flow
· Minimum hourly flow = 1/3 Annual average daily flow

Q.42 **Consider the following statements**
I. 'Safe water' does not contain any taste
II. Maximum permissible limit of fluoride in drinking water is 1 mg/l
Which of the above statements are correct:

A. I and II both
B. I only
C. II only
D. Neither I nor II

Answer: D

Sol:

'Safe water' must be free from pathogens. Taste, colour, odour in the water is due to the presence of suspended solids which does not cause disease or illness to the consumer but may create psychological impact while drinking as it is aesthetically displeasing.
Fluoride content-
Acceptable limit = 1 mg/l
Cause of rejection = 1.5 mg/l

Q.43 **Effluent from a wastewater treatment plan having flow rate of 8640 m3/d at temperature of 25°C is discharged to a surface stream having flow rate 1.2 m3/s at temperature 15°C. What is the temperature of the stream after mixing?**

A. 10°C
B. 15.77°C
C. 20°C
D. 24.99°C

Answer: B

Sol:

$$T = \frac{Q_w T_w + Q_s T_s}{Q_w + W_s}$$
$$= \frac{8640 \times 25 + 1.2 \times 24 \times 60 \times 60 \times 15}{8640 + 1.2 \times 24 \times 60 \times 60}$$
$$= 15.77\ ^\circ C$$

Q.44 **Which of the following statement(s) is/are correct?**
I. pH value of fresh sewage is usually more than 7.
II. E-coli is a harmful bacterium, which may be present in sewage.

A. Only I
B. Only II
C. Both I & II
D. Neither I nor II

Answer: A

Sol:

Fresh waste water sample is generally alkaline but as the time passes it become acidic, because of the bacterial action in anaerobic or nitrification processes.

E-coli is a parasite living only in the human or animal intestine.

Q.45 The detention period of a rectangular tank is given by

A. $t_0 = LBH/Q$
B. $t_0 = LB/HQ$
C. $t_0 = Q/LBH$
D. $t_0 = HQ/LB$

Answer: A

Sol:

The detention period (t_0) of rectangular tank is given by-

$$t_0 = \frac{Volume\ of\ Tank(V)}{Discharge\ (Q)}$$

$$\boxed{t_0 = \frac{L.B.H}{Q}}$$

Where,

$L = Length\ of\ tank$

$B = width\ of\ tank$

$H = height\ of\ tank$

$Q = discharge\ rate$

Q.46 The crop having the base period of 125 days has the delta of 50 cm. What will be the duty?

A. 2480 hectare/cumec
B. 2160 hectare/cumec
C. 248 hectare/cumec
D. 24.81 hectare/cumec

Answer: B

Sol:

$\Delta \times D = 864 \times B$

$\Delta = 50\ cm$

$B = 125\ days$

$D = \frac{864 \times 125}{50} = 2160\ cumec$

Q.47 Garret's diagram is used to

A. Separate the base flow from total runoff
B. Correct inconsistency in rainfall data
C. Determine reservoir capacity
D. Design channels

Answer: D

Sol:

Garret's diagram gives the graphical method of designing a channel. Basic aim is to save time.

It is based on the Keneddy's theory and Kutter's formula.

Q.48 The ratio of base width 'b' to height 'h' of an elementary profile of a gravity dam, from 'no tension' consideration, is given by
Where G = specific gravity of dam material

K = uplift pressure intensity and
μ = coefficient of friction

A. $\frac{1}{\sqrt{G-K}}$
B. $\frac{1}{(G-K)\mu}$
C. $\frac{1}{\sqrt{(G-K)\mu}}$
D. $\frac{1}{\sqrt{(G^2-K^2)}}$

Answer: A

Sol:

For no tension at base, the base width of a elementary profile of dam $b \geq \frac{h}{\sqrt{G-K}}$. Hence $\frac{b}{h} \geq \frac{1}{\sqrt{G-K}}$
G= specific gravity of dam material
K= uplift pressure intensity
b= base width of dam
h= height of dam

Q.49 **Which of the following statements are incorrect:**
I. Areal characteristics of a rain storm are represented by DAD curve.
II. The area under hyetograph represents total intensity of rainfall received in the period.

A. I only
B. II only
C. I & II both
D. Neither I nor II

Answer: B

Sol: Statement I is true. A DAD (Depth–Area–Duration) curve describes how rainfall depth varies with the area and duration of the storm, so it represents areal characteristics.
Statement II is false. A hyetograph plots rainfall intensity versus time; the area under the hyetograph equals the total rainfall depth (depth of rainfall) over the period, not "total intensity."

Information Booster
Hyetograph → intensity (vertical axis) vs time (horizontal axis). Area under curve = total depth (mm).
DAD (Depth–Area–Duration) and ADD (Area–Depth–Duration) relationships are used for areal rainfall estimation and for designing catchment-scale hydraulic structures.

Q.50 **Which of the following statement(s) is/are correct**
I. Symon's raingauge is a non – recording type of raingauge.
II. Float-type raingauge is a recording type raingauge.

A. I and II both
B. Only I
C. Only II
D. Neither I nor II

Answer: A

Sol:

Symon's gauge is a non-recording type rain-gauge.
Float-type raingauge also known as Natural syphon type raingauge is a recording gauge.
Other recording type gauge are- Weighing-bucket type and Tipping bucket type.

Q.51 **Bricks are soaked in water before using the brick masonry**

A. For removing dust
B. For reducing air voids

C. For preventing depletion of moisture from mortar
D. For reducing efflorescence

Answer: C

Sol:

If dry bricks are used it will absorb the water from mortar and mortar will become dry and cannot attain desired strength. Bricks are soaked in water so that when used in masonry work, they do not absorb water from mortar.

Q.52 Which of the following property of black cotton soil makes it unsuitable for the foundation:

A. Low permeability
B. High organic content
C. Excess salt content
D. Swelling & Shrinkage

Answer: D

Sol:

Black cotton soil swells excessively when it is wet and shrinks excessively when it is dried. This high change in volume makes it unsuitable for the foundation.
Under-reamed pile foundation is suitable when a foundation is to be provided in black cotton soil.

Q.53 Which of the following types of chemical weathering is associated with the feldspar, which can be found in granite changing to clay?

A. Carbonation
B. Hydrolysis
C. Hydrogenation
D. Oxidation

Answer: B

Sol:

A chemical reaction causes feldspar one of the constituents of common rocks like granite, into clay minerals. This reaction called hydrolysis.

$$CaAl_2Si_2O_8 + H_2CO_3 + \frac{1}{2}O_2 \rightarrow Al_2Si_2O_5(OH)_4 + Ca^{2+} + CO_3^2$$

plagioclase + carbonic acid → Kaolinite + dissolved calcium + carbonate ions.

Q.54 The solidification of molten magma when it reaches the surface of earth result in the formation of

A. Sedimentary rock
B. Basalt and traps
C. Granite
D. Metamorphic rocks

Answer: B

Sol:

Igneous rock– Rock formed due to cooling or solidification of magma or lava is known as igneous rocks.
There are two types of igneous rock.
Intrusive igneous rocks– These rock are formed due to cooling / solidification of magma within the crust as a planet. It is also known as Plutonic rock.
Eg. Dike, sill, granite, laccolith, pegmatite etc.
Extrusive igneous rocks– These rocks are formed due to cooling/solidification of magma at the crust's surface.
It cools faster than the intrusive one.
Ex- Basalt, traps, block smokers, etc.

Q.55 The water absorption of heavy duty burnt clay bricks having compressive strength greater than 40 N/mm^2 is :

A. 10%
B. 25%

C. 15%
D. 5%

Answer: C

Sol: Heavy duty burnt clay bricks (IS : 2180) –
According to IS: 3495-1992, a good brick when immersed in water for about 24 hours, must not absorb water more than 20 percent by weight up to class 12.5 MPa and 15 percent by weight for higher classes.

Q.56 **Seasoning of timber does NOT increases its:**

A. Stiffness
B. durability
C. strength
D. self-weight

Answer: D

Sol:
Seasoning of timber increases its strength, durability and workability but reduce the shrinkage, warping, after placement in structure and reduce its self weight also.

Q.57 **The impact tests are used to determine. .....**

A. Ultimate crushing strength
B. Toughness
C. Ductility
D. Tenacity

Answer: B

Sol:
The impact tests are used to determine toughness.
Toughness–
Stone should be tough enough to resist vibratory and impact loading.

Q.58 **Match List-I (Bogue's compound) with List-II (Heat of Hydration in J/g) and select the correct option using the code given below the lists:**

List-I		List-II
A.	C_3S	1. 865
B.	C_2S	2. 500
C.	C_3A	3. 420
D.	C_4AF	4. 300
		5. 260

Codes:

	A	B	C	D
(a)	2	5	4	3
(b)	2	5	1	3
(c)	1	2	4	5
(d)	3	1	2	4

A. a
B. b
C. c
D. d

Answer: B

Sol: Rate of Hydration $C_4AF > C_3A > C_3S > C_2S$

Heat of Hydration $C_3A > C_3S > C_4AF > C_2S$

Bogue's Compound	Heat of Hydration (J/g.)
C_3A	865
C_3S	500
C_4AF	420
C_2S	260

Q.59 Quick lime is:

A. calcium carbonate
B. Calcium oxide
C. Calcium hydroxide
D. Calcium chloride

Answer: B

Sol: Quick time is a common name used for calcium oxide it chemical formula is CaO.
Calcium hydroxide - $Ca(OH)_2$ – hydrated lime
Calcium carbonate - $CaCO_3$
Calcium chloride - $CaCl_2$

Q.60 The flakiness index of coarse aggregate is the percentage by weight of particles having least dimension (thickness) less than _____ of their mean dimension.

A. One-fifth
B. Two-fifth
C. Three- fifth
D. Four-filth

Answer: C

Sol: Flakiness index of coarse aggregate is percentage by weight of particles having least lateral dimension < 0.6 times their mean dimension.

Q.61 An actual discharge of 300 litres per second flow through an orifice of an area 0.3 m2 having the theoretical velocity of 3 m/s. Coefficient of discharge is

A. 0.27
B. 0.33
C. 0.90
D. 0.57

Answer: B

Sol:

$$Q = C_d(A.V)$$
$$300 \times 10^{-3}\, m^3/sec = 0.3 \times 3 \times C_d$$
$$C_d = \frac{0.3}{0.3 \times 3} = 0.33$$

Q.62 Which of the following statements are correct

I. For an ideal fluid viscosity has a constant positive value.

II. Ideal fluid flows with least friction.

A. I & II both
B. II only
C. I only
D. Neither I nor II

Answer: D

Sol:

Ideal fluids have no viscosity, i.e., viscosity is zero.
Ideal fluids are frictionless and incompressible.

Q.63 The Froude's model law would not be applicable for the analysis of

A. pressure rise due to sudden closure of valves
B. flow over the spillway of a dam
C. flow of liquid jets from orifices
D. motion of ship in rough and turbulent sea

Answer: A

Sol:

Froude's model law is based on the principle of **dynamic similarity** when gravitational forces dominate the flow. It is particularly useful for free-surface flows, where the ratio of inertial forces to gravitational forces (Froude number) is significant.
This is a classic free-surface flow problem where gravitational effects dominate, making Froude's model law applicable. Froude's law applies to jet formation when gravity significantly affects the trajectory and flow pattern. Ship motion involves wave interactions and free-surface effects, governed by Froude number.

$$\text{Froude Number (Fr)} = \sqrt{\frac{\text{Inertia force}}{\text{Gravity force}}}$$

Q.64 In fluid mechanics, a streamline is a line that:

A. Is always parallel to the velocity vector of the flow
B. Represents constant pressure
C. Represents constant velocity
D. Is normal to the flow direction

Answer: A

Sol: A streamline is a line in a fluid flow where the velocity vector is tangent to the streamline at every point. This means that the fluid particles travel along the streamline, and there is no flow across a streamline. Streamlines provide a visual representation of the flow direction in steady flows.

Q.65 The purpose of a surge tank in a hydraulic system is to:

A. Store excess water
B. Prevent cavitation
C. Reduce water hammer effects
D. Increase water velocity

Answer: C

Sol: A surge tank is installed in a hydraulic system to reduce the effects of water hammer, which is a pressure surge caused when fluid in motion is forced to stop or change direction suddenly. The surge tank absorbs the excess pressure and helps to prevent damage to the pipes and system components.

Q.66 In MS-Word this option suggest other words with a similar meaning to the word which you have selected:

A. Thesaurus
B. Semillon
C. Format Painter
D. Indent

Answer: A

Sol: The correct answer is: **(a) Thesaurus**

Explanation:
In MS Word, the **Thesaurus** is the feature that suggests other words with a similar meaning (synonyms) to the word you have selected. It helps users find alternative words or expressions for improving writing or enhancing vocabulary.

- **Semillon** is a type of grape variety, not a Word feature.
- **Format Painter** is used to copy formatting from one part of a document to another.
- **Indent** is related to adjusting the positioning of text, but it is not used to suggest synonyms.

Therefore, **Thesaurus** is the correct answer.

Q.67 Which of the following was the first counting tool?

A. Aba Zaba
B. Abacus
C. Punch Card
D. Stepped Reckoner

Answer: B

Sol: The **Abacus** is considered the **first counting tool** developed by humans. It was used for performing basic arithmetic operations like addition, subtraction, multiplication, and division.

- The **Abacus** dates back to around **2400 BCE** and was first used in **Mesopotamia**.
- It consists of a frame with rods and sliding beads, which represent units, tens, hundreds, etc.
- It remained a fundamental tool for calculations for centuries, especially in regions like **China** and **Japan**.

Important Key Points:

1. **Abacus:**
   - A simple, mechanical counting device used for manual calculations.
   - It paved the way for modern computational tools.
2. **Importance of the Abacus:**
   - It introduced the concept of **place value** and organized counting.
   - Even today, it is used for teaching basic arithmetic concepts.

Knowledge Booster:

1. **Option A: Aba Zaba**
   - **Incorrect:** This is not related to counting tools; it refers to a candy brand, not a historical device.
2. **Option C: Punch Card**
   - **Incorrect:** Punch cards were used for storing and processing data in early computers, introduced in the 19th century.
3. **Option D: Stepped Reckoner**
   - **Incorrect:** The Stepped Reckoner was a mechanical calculator invented by **Gottfried Wilhelm Leibniz** in 1673, long after the Abacus.

Q.68 Which of the following MS Excel functions is used to count the number of cells based on condition?

A. Count
B. countif
C. countwhen
D. Couton

Answer: B

Sol: The **COUNTIF** function in MS Excel is used to count the number of cells that satisfy a specific **condition** or **criteria**.

Information Booster:

1. Syntax of **COUNTIF**:
   $=COUNTIF(range,condition)$
2. Example:
   If cells A1:A10 contain numbers, and you want to count cells with values > 50:
   $=COUNTIF(A1:A10,">50")$

Additional Knowledge:

- **COUNT**: Counts all numerical values in a range.
- **COUNTWHEN**: Incorrect; no such function exists in Excel.
- **COUTON**: Incorrect term.

Q.69 **_____ is a cloud-based storage solution that allows users to store, manage, and access data over the internet rather than on local storage devices.**

A. Solid-State Drive (SSD)
B. Google Drive
C. USB Hard Drive
D. Network Attached Storage (NAS)

Answer: B

Sol: **Google Drive** is a **cloud-based storage solution** that allows users to store, manage, and access files over the internet. Unlike traditional storage devices like SSDs or USB drives, cloud storage provides users with the ability to access their data from anywhere with an internet connection. Google Drive also offers collaboration features, enabling multiple users to work on documents simultaneously. This makes it an ideal solution for both personal and professional file storage and sharing.
Important Key Points:
1. **Google Drive**: A **cloud storage service** that provides users with online access to their files. It offers various features like document sharing, real-time collaboration, and secure file storage.
2. **Accessibility**: Files stored on Google Drive can be accessed from any device with an internet connection, providing users with **flexibility** and ease of access.
Knowledge Booster:
· **Solid-State Drive (SSD)**: A type of local storage device that uses flash memory to store data but does not offer internet-based access or sharing capabilities.
· **USB Hard Drive**: A portable storage device that connects via USB, used for storing files locally but lacks the cloud's remote access features.
· **Network Attached Storage (NAS)**: A dedicated file storage device that operates over a **local network**, providing centralized storage but without the global accessibility of cloud storage solutions.

Q.70 **_____ is a data communication technology which allows IP phones and computers to connect to telephones through PSTN and mobile networks.**

A. VPN
B. VoIP
C. TCP
D. None of these

Answer: B

Sol: VoIP (Voice over Internet Protocol) is a data communication technology that allows voice communication to be carried over the internet using IP networks. VoIP technology enables IP phones and computers to connect to traditional telephones via PSTN (Public Switched Telephone Network) and mobile networks. It essentially converts voice signals into digital data packets that can be transmitted over the internet.
Important Key Points:
1. VoIP - Converts voice signals into digital data packets and transmits them over IP networks, enabling cost-effective, scalable voice communication.
2. PSTN Connectivity - VoIP can connect to the traditional telephone network (PSTN), making it a convenient option for integrating internet communication with conventional phone systems.
Knowledge Booster:
• VPN (Virtual Private Network): A VPN is used to create a secure connection over a public network, such as the internet, for safe data transmission. It is not related to voice communication over IP.
• TCP (Transmission Control Protocol): TCP is a fundamental network protocol used for reliable data transfer across IP networks. It is used for establishing connections and ensuring data integrity, not specifically for voice communication.

Q.71 Keyboard and Monitor are the examples of _____.

A. Full-duplex mode
B. Simplex mode
C. Half-duplex mode
D. Both (a) and (b)

Answer: B

Sol: Simplex is a data transmission mode in which data can only flow in one direction, resulting in unidirectional communication.
 A transmitter can only send data in this mode and cannot receive it.
 A receiver, on the other hand, can only receive data and not send it.
 This transmission mode is not as common as others because it does not allow for two-way contact between the sender and receiver.
 Simplex mode is exemplified by a keyboard that can only accept data from the user and a monitor that can only be used to display data on the screen.

Q.72 Which of the following languages is least commonly used for machine learning applications?

A. Julia
B. Scala
C. Assembly
D. R

Answer: C

Sol: **Assembly language** is rarely used for **machine learning applications** because it operates at a very low level and lacks libraries or frameworks for data science or machine learning. In contrast, high-level languages like Python, R, Julia, and Scala are preferred for their extensive libraries, tools, and ease of use in machine learning tasks.
Important Key Points:
1. Assembly is primarily used for hardware-level programming and is unsuitable for data-intensive machine learning tasks.
2. Languages like **Python** and **R** dominate machine learning due to their specialized libraries (e.g., TensorFlow, PyTorch, and caret).
3. **Julia** and **Scala** are also emerging in machine learning due to their speed and scalability.
Knowledge Booster:
· **Julia:** Known for high-performance numerical computing and used in machine learning.
· **Scala:** Popular for big data and machine learning, especially with Apache Spark.
· **R:** A specialized language for statistical computing and machine learning tasks.
· Assembly's low-level nature makes it impractical for high-level machine learning applications.

Q.73 Big Data is primarily characterized by which of the following?

A. Volume, Variety, Velocity
B. Accuracy, Speed, Volume
C. Data lakes, Streams, Analytics
D. Structure, Order, Management

Answer: A

Sol: **Big Data** is defined by the **three V's**:
· **Volume**: Large amounts of data.
· **Variety**: Data in various formats (structured, unstructured, semi-structured).
· **Velocity**: High speed at which data is generated and processed.
Important Key Points:
1. The 3Vs (Volume, Variety, Velocity) define the complexity of Big Data.
2. Big Data requires advanced tools like Hadoop and Spark for analysis.
3. It is used in industries like finance, healthcare, and e-commerce for insights.
Knowledge Booster:
· **Accuracy, Speed, Volume:** These are not standard Big Data characteristics.
· **Data lakes, Streams, Analytics:** These are related tools/methods but not defining features.
· **Structure, Order, Management:** These relate to database systems, not Big Data.

Q.74 Which of the following is an example of a web-based email service with a graphical user interface (GUI)?

A. Outlook Express
B. Pine
C. Mutt
D. Gmail

Answer: D

Sol: **Gmail** is a web-based email service that features a **graphical user interface (GUI)**. It allows users to manage their emails directly through a web browser using a visually interactive platform. Gmail is one of the most widely used email services globally and offers a variety of features like chat, calendar integration, and cloud storage.
Important Key Points:
1. **Web-based email services** like Gmail are accessible via a browser, requiring no installation.
2. **Outlook Express**, **Pine**, and **Mutt** are traditional email clients, not web-based services.
Knowledge Booster:
· Gmail provides seamless integration with other Google services such as **Google Drive**, **Google Calendar**, and **Google Meet**.
· Web-based email services are generally more accessible than client-based systems because they can be accessed from any device with internet connectivity.

Q.75 **What is 'Phishing' in the context of network security?**

A. A type of computer worm that spreads through email attachments.
B. An attack that floods a network with excessive traffic to disrupt its operation.
C. A social engineering attack that tricks users into revealing sensitive information.
D. A type of malware that spreads through infected USB drives.

Answer: C

Sol: **Phishing** is a form of social engineering where attackers pose as legitimate entities to trick individuals into sharing confidential data, typically through deceptive emails or messages.
Important Key Points:
1. **Social Engineering**: Relies on manipulation rather than technical methods.
2. **Sensitive Data**: Targets information like passwords and financial details.
3. **Common Platforms**: Often uses emails, fake websites, and messages.
Knowledge Booster:
· **Worms and Viruses**: Spread through files, not deception tactics.
· **DDoS**: Involves traffic flooding, not data deception.
· **USB Malware Spread**: Requires physical devices, unlike phishing.

Q.76 **What is the extension of PowerPoint in Microsoft Office 2007?**

A. .ptx
B. pptx
C. ptp
D. None of the above

Answer: B

Sol: The .pptx extension is used for Microsoft PowerPoint 2007 and later versions. The "x" in .pptx indicates that the file is using the Open XML format, which was introduced with Microsoft Office 2007 to improve compatibility and data management.
Important Key Points:
1. .pptx Format - Introduced in Microsoft Office 2007, .pptx replaced the older .ppt format. It provides enhanced features like better file compression and support for advanced graphics.
2. Compatibility - Files with the .pptx extension are compatible with later versions of PowerPoint, as well as other software that supports Open XML formats.
Knowledge Booster:
• .ptx: This is not a valid extension for PowerPoint files. It may be confused with other file types.
• .ptp: This is not a recognized extension for PowerPoint files and is included here as a distractor.

Q.77 **In the email ID eyz@abc.com, abc.com is the _____.**

A. domain name of the email server
B. name of the service provider
C. name of the user

D. Login ID

Answer: A

Sol: In an email ID, the part after the "@" symbol (in this case, **abc.com**) is referred to as the **domain name of the email server**. It identifies the server that handles email services for the user and directs the email to the correct recipient.
Important Key Points:
1. The domain name (e.g., **abc.com**) helps in identifying the email server responsible for processing emails.
2. The part before the "@" (e.g., **eyz**) represents the **user's unique ID** within that domain.
3. Email domains often represent organizations, businesses, or service providers.
Knowledge Booster:
· **Name of the service provider:** While it might be related, this is not always accurate; the domain can represent an organization or custom domain.
· **Name of the user:** This is represented by the part before the "@" symbol (e.g., **eyz**).
· **Login ID:** This typically refers to the full email address (**eyz@abc.com**) used for authentication.

Q.78 **Under which section of IT Act, stealing any Digital asset or information is written a Cyber-crime?**

A. Section 69
B. Section 65
C. Section 67
D. Section 70

Answer: B

Sol: **Section 65** of the IT Act covers the tampering, theft, or destruction of digital assets, data, or information, making it a punishable cybercrime. This section ensures the protection of digital property by penalizing unauthorized access or alteration of digital records.
Important Key Points:

1. **Section 65 (IT Act):** Deals with cybercrimes related to tampering with digital documents or data, including unauthorized access, modification, or theft of information.
2. **Penalties:** Violations under this section can lead to imprisonment and fines, emphasizing the legal consequences of data theft.

Knowledge Booster:

- **Section 69:** Relates to the power of the government to intercept, monitor, or decrypt any information through any computer resource for security purposes.
- **Section 67:** Deals with the punishment for publishing or transmitting obscene material in electronic form.
- **Section 70:** Refers to the protection of critical information infrastructure and unauthorized access to it as a punishable offense.

Q.79 **The k-Means algorithm is an _____ algorithm.**

A. Supervised Learning
B. Unsupervised Learning
C. Semi-supervised Learning
D. Reinforcement Learning

Answer: B

Sol: The **k-Means algorithm** is an **unsupervised learning** algorithm used for **clustering** data points into distinct groups based on their similarities.
Important Key Points:
1. **k-Means Clustering**: The **k-Means algorithm** is a popular **unsupervised learning** technique used to partition a dataset into **k clusters**, where each cluster contains data points that are similar to one another.
2. **Unsupervised Learning**: In **unsupervised learning**, the data is not labeled, and the algorithm must find patterns and groupings on its own.
Knowledge Booster:
· **Supervised Learning**: Involves training models on **labeled data**, like **classification** or **regression** tasks.
· **Semi-supervised Learning**: Combines a small amount of **labeled data** with a larger amount of **unlabeled data**.
· **Reinforcement Learning**: A learning paradigm where an agent learns by **interacting** with an environment and receiving **rewards** or **penalties**.

Q.80 **Which innovation has significantly impacted data analysis and machine learning?**

A. Blockchain
B. Big Data
C. 3D Printing
D. Virtual Reality

Answer: B

Sol: **Big Data** refers to the processing and analysis of massive volumes of structured and unstructured data, which has revolutionized fields like data analysis and machine learning by providing deeper insights and predictions.
Important Key Points:
1. **Volume:** Handles massive datasets.
2. **Velocity:** Enables real-time data processing.
3. **Variety:** Processes diverse data types (text, images, etc.).
Knowledge Booster:
· **Blockchain:** Primarily used for decentralized ledgers.
· **3D Printing:** Used for manufacturing, not data analysis.

Q.81 **The government of Uttar Pradesh has taken the consent of the Central Government to change district-wise sports of _____ districts under the Khelo India scheme to include them in the ODOS (One District, One Sport).**

A. 8
B. 9
C. 10
D. 7

Answer: C

Sol: The Uttar Pradesh government, under the Khelo India scheme, has obtained consent from the Central Government to change district-wise sports of **10** districts. This aligns with the "One District, One Sport" (ODOS) initiative, aimed at promoting local sports culture by focusing on specific sports disciplines per district.
Important Key Points:

1. ODOS identifies and develops district-specific sports.
2. Encourages youth participation in sports.
3. Helps streamline resources and infrastructure development.
4. Part of the Khelo India scheme for holistic sports growth.
5. Promotes district-level sports talent to national platforms.

Q.82 **'Hill Development Department' established by the Uttar Pradesh Government in :**

A. 1949 A.D.
B. 1960 A.D.
C. 1966 A.D.
D. 1967 A.D.

Answer: D

Sol: The correct answer is (d) 1967 A.D.
The Hill Development Department was established by the Uttar Pradesh Government in 1967 to address the developmental needs of the hill regions of the state, which are now part of Uttarakhand. The department was created to focus on improving infrastructure, education, health, and economic conditions in these remote and challenging areas.

Key Details:

1. **Purpose:**
   - To promote balanced development in the hill regions.
   - To address issues like lack of infrastructure, limited access to services, and economic backwardness.
2. **Special Focus:**

- Projects related to road connectivity, forestry, agriculture, and water resources were prioritized.
- Encouragement of tourism and hydropower projects to boost local economies.

3. **Background:**
   - The formation of the department was part of broader efforts to integrate remote regions into mainstream development frameworks.

Additional Information:

Additional Information:

Uttarakhand, often referred to as "Devbhoomi" (Land of the Gods), became India's 27th state on November 9, 2000, following a prolonged movement for statehood.

Historical Context:

- **Pre-Independence Era:** The regions of Garhwal and Kumaon, now part of Uttarakhand, were historically ruled by local dynasties. In the early 19th century, these areas came under British control after the Anglo-Nepalese War and were integrated into the United Provinces, later known as Uttar Pradesh.
- **Post-Independence Developments:** Post-1947, the distinct cultural and geographical identity of the hill regions led to demands for separate administrative recognition. The movement gained momentum in the 1990s, highlighting issues like economic neglect and the need for sustainable development.

Q.83 **Total Geographical area of Uttarakhand is :**

A. 53,483 sq. km.
B. 60,480 sq. km.
C. 55,483 sq. km.
D. 65,480 sq. km.

Answer: A

Sol: The total geographical area of Uttarakhand is 53,483 square kilometers. This region encompasses diverse landscapes, including mountains, valleys, forests, and rivers, forming an integral part of the Indian Himalayan belt.
Important Key Points:

1. Uttarakhand has a significant portion of its area covered by forest and natural reserves.
2. The state is known for its ecological diversity, housing several national parks.
3. It shares borders with Tibet and Nepal.
4. Uttarakhand's terrain includes high mountains, such as the Nanda Devi and Trishul.
5. It is an important source of water for the Ganges and Yamuna rivers.
6. The geographical area supports various climatic zones from temperate to alpine.

Q.84 **Which God is worshipped in Chhat Pooja that is a very important festival of Uttar Pradesh, Jharkhand and Bihar?**

A. Earth
B. Fire
C. Sun
D. Trees

Answer: C

Sol: The Sun is worshipped in Chhat Pooja that is a very important festival of Uttar Pradesh, Jharkhand, and Bihar.
· The festival of Chhath puja is dedicated to the Sun god and Chhathi Maiya in order to thank them for bestowing the bounties of life on earth and to request the granting of certain wishes.

Q.85 **Where is the 'Rani-Mahal Museum' situated?**

A. Agra
B. Jhansi
C. Allahabad
D. Mathura

Answer: B

Sol: The Rani Mahal Museum is situated in the city of Jhansi, Uttar Pradesh, India.

Q.86 **'Hardul Katha' are folk songs to typical _____ which spreads over Uttar Pradesh and Madhya Pradesh?**

A. Mirzapur
B. Bundelkhand
C. Awadh
D. Braj

Answer: B

Sol: Hardul Katha' are folk songs to typical Bundelkhand which spreads over Uttar Pradesh and Madhya Pradesh

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Q.87 **..... is the state tree of Uttar Pradesh.**

A. Neem
B. Peepal
C. Ashoka
D. Banyan

Answer: C

Sol: The Ashoka tree (*Saraca asoca*), revered for its cultural and historical significance, is the state tree of Uttar Pradesh. Known as the "Sorrow-less Tree," it is associated with ancient Indian traditions, mythology, and medicinal practices. The tree features prominently in Buddhist and Hindu scriptures, symbolizing love, beauty, and prosperity. In Uttar Pradesh, the Ashoka tree is often planted in gardens and sacred places, reflecting its ornamental and cultural value.

Information Booster:

- The Ashoka tree is a native species of the Indian subcontinent, primarily found in moist regions.
- It is celebrated for its bright orange and yellow flowers, which later turn crimson.
- In Hindu mythology, the tree is considered sacred to Lord Kamadeva, the god of love.
- The bark of the Ashoka tree is used in Ayurveda to treat various ailments, including menstrual disorders.
- Emperor Ashoka is believed to have been named after this tree, reflecting its historical importance.

Other Options Analysis:

- **A Neem**: While widely grown in India for its medicinal and environmental benefits, the Neem tree (*Azadirachta indica*) is the state tree of Andhra Pradesh and not Uttar Pradesh.
- **B Peepal**: The Peepal tree (*Ficus religiosa*), also culturally significant, is the state tree of Bihar and not Uttar Pradesh.
- **D Banyan**: The Banyan tree (*Ficus benghalensis*) is the national tree of India but is not associated as the state tree of Uttar Pradesh.

Q.88 **As per the 2011 Census, what Percentage did Uttar Pradesh contributed to the Indian Population?**

A. 14.2
B. 15.5
C. 16.16
D. 18.2

Answer: C

Sol: Uttar Pradesh has a population of 19.98 Crores, which is 16.16% of the population of India, an increase from the figure of 16.62 Crore in the 2001 census.
· Total population of Uttar Pradesh as per 2011 census is 199,812,341 of which male and female are 104,480,510 and 95,331,831 respectively.

Q.89 Which one of the following is not a folk song of UP?

A. Birha
B. Dhola Maru
C. Kajri
D. Rasia

Answer: B

Sol: Dhola Maru is not a folk song of UP.
· Birha is a type of folk song from the Bhojpuri-speaking regions of Uttar Pradesh, Bihar, and Jharkhand. It is often sung in a call-and-response format, and the lyrics typically deal with themes of love, separation, and social issues.
· Dhola Maru is a type of folk song from the desert regions of Rajasthan, which tells the story of two lovers, Dhola and Maru. The lyrics are in the Marwari language and are often accompanied by traditional instruments such as the dholak and harmonium.
· Kajri is a type of folk song from the Bundelkhand region of Uttar Pradesh and Madhya Pradesh, typically sung during the rainy season. The lyrics often describe the joy of farmers at the arrival of the monsoon and the hope for a good harvest.
· Rasia is a type of devotional folk song from the Braj region of Uttar Pradesh and Rajasthan, which celebrates the love between Radha and Krishna. The lyrics are often in the Braj language and are accompanied by traditional instruments such as the dholak and bansuri.Bottom of Form

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Q.90 Which state has launched the concept of ODOP?

A. Mumbai
B. Tripura
C. Uttarakhand
D. Uttar Pradesh

Answer: D

Sol: Uttar Pradesh was the first state to launch the concept of ODOP.
· Its aim to encourage local arts & crafts skills.

Q.91 From which country Uttar Pradesh taken the Concept of "One District One Product"?'

A. USA
B. Japan
C. UK
D. Iran

Answer: B

Sol: The Concept of "One District One Product" taken from Japan.
· ODOP was first adopted by Japan in the world.

Q.92 Which district of Uttar Pradesh does not share boundary with Nepal?

A. Pilibhit
B. Maharajganj
C. Deoria
D. Siddharth Nagar

Answer: C

Sol: Deoria district in Uttar Pradesh does not share a boundary with Nepal.
Uttar Pradesh shares the international border with Nepal.
There are 7 districts of UP that form the boundary with Nepal.

· Pilibhit
· Lakhimpur Kheri
· Bahraich
· Shravasti
· Balrampur
· Siddharth Nagar
· Maharajganj

Q.93 **Which of the following districts of Uttar Pradesh is world famous for the production and exports of carpets, which have distinctive and outstanding designs?**

A. Mirzapur
B. Ghaziabad
C. Lucknow
D. Bhadohi

Answer: D

Sol: Bhadohi district of Uttar Pradesh is world-famous for the production and exports of carpets, which have distinctive and outstanding designs.
· The old name of Bhadohi was Sant Ravidas Nagar.
· The district is widely known for its Carpet (Dari) work which is why the district is also known as Carpet city as it is home to the largest hand-knotted carpet weaving industry hubs in South Asia.

Q.94 **Which famous writer was born in Uttar Pradesh and wrote the novel “Godaan”?**

A. Mahadevi Verma
B. Jai Shankar Prasad
C. Amrita Pritam
D. Munshi Premchand

Answer: D

Sol: Munshi Premchand was born in Uttar Pradesh and wrote the novel "Godaan"
Munshi Premchand was born in Lamhi, Varanasi, Uttar Pradesh, in 1880

Q.95 **Which of the following regions receives heavy rainfall?**

A. Terai region
B. East plain of Ganga
C. Centre plain of Ganga
D. Western plain of Ganga

Answer: A

Sol: The region that typically receives heavy rainfall is the Terai region.
· The Terai region is a low-lying area located at the foothills of the Himalayas in the northern part of the Indian subcontinent. It extends across the southern parts of Nepal and the Indian states of Uttarakhand, Uttar Pradesh, Bihar, and West Bengal. Due to its proximity to the Himalayas, the Terai region experiences high amounts of rainfall, making it one of the wettest regions in the area.

Q.96 **Guru Ravidas was born in**

A. Varanasi
B. Mathura
C. Ujjain
D. Patna

Answer: A

Sol: Guru Ravidas was born in Varanasi

Q.97 **The Allahabad Fort was built by**

A. Babur
B. Humayun
C. Akbar
D. Bahadur Shah I

Answer: C

Sol: The Allahabad Fort was constructed by the Mughal Emperor Akbar in 1583.

Q.98 **Bal Sundari Devi fair is organised at which place?**

A. Gonda
B. Vrindavan
C. Kheri
D. Anupshahar

Answer: D

Sol: Anupshahr is the location of the annual festival known as the Bala Sundari Devi Mela, which takes place during the month of Chaitra (March-April).

Q.99 **Where is the Bharat-Kala-Bhawan situated in UP?**

A. Agra
B. Allahabad
C. Varanasi
D. Lucknow

Answer: C

Sol: Bharat-Kala-Bhawan is situated Varanasi, UP. The museum was established in 1920 by the founder of Banaras Hindu University, Pandit Madan Mohan Malviya, with the aim of promoting the study and understanding of Indian art, culture, and history. Bharat Kala Bhavan is a museum that is part of the Banaras Hindu University campus.

Q.100 **Where is the UP Sangeet Natak Academy?**

A. Allahabad
B. Varanasi
C. Mathura
D. Lucknow

Answer: D

Sol: The Uttar Pradesh Sangeet Natak Academy is located in Lucknow, the capital city of the of Uttar Pradesh. The academy was established in 1954 by the government of Uttar Pradesh with the aim of promoting and preserving the traditional music, dance, and drama of the state.
