RANKRIDGE IIT JEE/NEET JUNIOR COLLEGE (LONGTERM)

TELANGANA

STREAM: JR MPC
Time: 3:00 Hours

WEEKEND TEST-19

Date: 01-12-2025
Max Marks: 300

SYLLABUS

MATHEMATICS : Hyperbolic functions and properties of vectors
PHYSICS : Mechanical Properties of Solids (complete chapter)
CHEMISTRY : Organic IUPAC nomenclature and isomerism

MATHEMATICS

(SINGLE CORRECT ANSWER TYPE)

This section contains 20 multiple choice questions. Each question has 4 options (A), (B), (C) and (D) for its answer, out of which ONLY ONE option can be correct.
Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases

1. The domain of $\cosh^{-1}(2x)$ is

(A) $(-\infty,\infty)$ (B) $[1,\infty)$
(C) $[2,\infty)$ (D) $\left[\frac{1}{2},\infty\right)$

2. $\cosh(2x)+\sinh(2x)=$

(A) $\frac{1+\tanh(x)}{1-\tanh(x)}$ (B) $\frac{1-\tanh(x)}{1+\tanh(x)}$
(C) $\frac{\tanh(x)-1}{\tanh(x)+1}$ (D) $\frac{1-\tanh(x)}{\tanh(x)-1}$

3. If $\tanh^2(x)=\tan^2\theta$ then $\cosh(2x)=$

(A) $\cos 2\theta$ (B) $\sec 2\theta$
(C) $\sin 2\theta$ (D) $\cos\theta$

4. If $\tanh(x)=\frac{3}{5}$ then $\cosh(2x)=$

(A) $\frac{15}{8}$ (B) $\frac{15}{17}$
(C) $\frac{8}{17}$ (D) $\frac{17}{8}$

5. $\sinh^{-1}\left(2^{3/2}\right)=$

(A) $\log_e\left(2+\sqrt{18}\right)$ (B) $\log_e\left(3+\sqrt{8}\right)$
(C) $\log_e\left(3-\sqrt{8}\right)$ (D) $\log_e\left(\sqrt{8}+\sqrt{27}\right)$

6. $\sec h^{-1}\left(\frac{1}{2}\right)-\operatorname{cosec} h^{-1}\left(\frac{3}{4}\right)=$

(A) $\log_e\left(3\left(2+\sqrt{3}\right)\right)$ (B) $\log_e\left(\frac{1+\sqrt{3}}{3}\right)$
(C) $\log_e\left(\frac{2+\sqrt{3}}{3}\right)$ (D) $\log_e\left(\frac{2-\sqrt{3}}{3}\right)$

7. $\sec h^2\left(\tanh^{-1}\frac{1}{2}\right)+\operatorname{cosec} h^2\left(\coth^{-1}3\right)=$

(A) $\frac{35}{9}$ (B) $\frac{3}{2}$
(C) $\frac{25}{4}$ (D) $\frac{35}{4}$

8. If $y=\log_e\tan\left(\frac{\pi}{4}+\frac{x}{2}\right)$, then $\tanh\left(\frac{y}{2}\right)=$

(A) $\cot hx$ (B) $\tan x$
(C) $\cot\left(\frac{x}{2}\right)$ (D) $\tan\left(\frac{x}{2}\right)$

9. the solution of the equation $2\cosh 2x+10\sinh 2x=5$ is

(A) $\frac{1}{2}\log\left(\frac{3}{5}\right)$ (B) $\frac{1}{2}\log\left(\frac{4}{3}\right)$
(C) $\frac{1}{2}\log\left(\frac{5}{4}\right)$ (D) $\frac{1}{2}\log\left(\frac{5}{3}\right)$

10. Let a, b and c be distinct non-negative numbers. If the vectors $a\bar{i}+a\bar{j}+c\bar{k}, \bar{i}+\bar{k}$ and $c\bar{i}+c\bar{j}+b\bar{k}$ lie in a plane, then c is

(A) G.M of a and b (B) A.M. of a and b
(C) Equal to zero (D) H.M. of a and b

11. The P.V.'s of the vertices of a triangle are $2\bar{i}+3\bar{j}+4\bar{k}, 4\bar{i}+6\bar{j}+3\bar{k}, 3\bar{i}+2\bar{j}+3\bar{k}$ P.V. of its orthocenter is

(A) $2\bar{i}-3\bar{j}+4\bar{k}$ (B) $2\bar{i}+3\bar{j}-4\bar{k}$

(C) $2\bar{i}+3\bar{j}+4\bar{k}$ (D) $-2\bar{i}+3\bar{j}+4\bar{k}$

12. The vectors $\overline{AB}=3\bar{i}+4\bar{k}$ and $\overline{AC}=5\bar{i}-2\bar{j}+4\bar{k}$ are the sides of a triangle ABC. The length of the median through A is

(A) $\sqrt{72}$ (B) $\sqrt{33}$

(C) $\sqrt{288}$ (D) $\sqrt{18}$

13. Unit vectors along the diagonals of the parallelogram whose adjacent sides are $\bar{i}+\bar{j}+\bar{k}$ and $\bar{i}-\bar{j}+\bar{k}$ are

(A) $\frac{\bar{i}+\bar{k}}{\sqrt{2}}, \frac{\bar{i}-\bar{j}}{\sqrt{2}}$ (B) $\frac{\bar{i}-\bar{k}}{\sqrt{2}}, \bar{j}$

(C) $\frac{\bar{i}+\bar{k}}{\sqrt{2}}, \bar{j}$ (D) $\frac{\bar{i}-\bar{k}}{\sqrt{2}}, \bar{k}$

14. If $A\left(3\bar{i}+2\bar{j}-\bar{k}\right), B\left(2\bar{i}-2\bar{j}+5\bar{k}\right)$, $C\left(\bar{i}+3\bar{j}-\bar{k}\right)$ then vector equation of the line passing through the centroid of ΔABC and parallel to $\overline{BC}$ is

(A) $\bar{r}=2\bar{i}+\bar{j}+\bar{k}+t\left(-\bar{i}+5\bar{j}-6\bar{k}\right)$

(B) $\bar{r}=2\bar{i}-\bar{j}+\bar{k}+t\left(\bar{i}+5\bar{j}-6\bar{k}\right)$

(C) $\bar{r}=2\bar{i}+\bar{j}-\bar{k}+t\left(-\bar{i}+5\bar{j}+6\bar{k}\right)$

(D) $\bar{r}=2\bar{i}+\bar{j}-\bar{k}+t\left(\bar{i}-5\bar{j}+6\bar{k}\right)$

15. The point of intersection of the lines $\bar{r}=\bar{a}+t\left(\bar{b}+\bar{c}\right), \bar{r}=\bar{b}+s\left(\bar{c}+\bar{a}\right)$ is

(A) $\bar{c}$ (B) $\bar{a}$

(C) $\bar{b}$ (D) $\bar{a}+\bar{b}+\bar{c}$

16. If $A(1,-1,-3), B(2,1,-2), C(-5,2,-6)$ are the vertices of a ΔABC, then the length of internal bisector of angle A is

(A) $\frac{3}{4}\sqrt{10}$ (B) $\frac{1}{2}\sqrt{10}$

(C) $\frac{1}{4}\sqrt{10}$ (D) $\sqrt{10}$

17. If the vector $\bar{a}=2\bar{i}+3\bar{j}+6\bar{k}$ and $\bar{b}$ are collinear and $|\bar{b}|=21$ then $\bar{b}=$

(A) $\pm\left(2\bar{i}+3\bar{j}+6\bar{k}\right)$

(B) $\pm3\left(2\bar{i}+3\bar{j}+6\bar{k}\right)$

(C) $\bar{i}+\bar{j}+\bar{k}$

(D) $\pm21\left(2\bar{i}+3\bar{j}+6\bar{k}\right)$

18. Let $f(t)=[t]\bar{i}+\{t-[t]\}\bar{j}+[t+1]\bar{k}$ where [.] denotes the greatest integer function. If the vectors $\overline{f\left(\frac{5}{4}\right)}$ and $\bar{i}+\lambda\bar{j}+\mu\bar{k}$ are parallel then $(\lambda,\mu)=$

(A) $\left(\frac{1}{4},2\right)$ (B) $\left(2,\frac{1}{4}\right)$

(C) $(1,2)$ (D) $(4,1)$

19. The sum of the distinct real values of μ, for which the vectors $\mu\hat{i}+j+k, \hat{i}+\mu j+k, \hat{i}+\mu k$ are co-planar is

(A) -1 (B) 0

(C) 1 (D) 2

20. The vector of magnitude $3\sqrt{6}$ along the bisector of the angle between the vectors $4\bar{i}-7\bar{j}+4\bar{k}$ and $\bar{i}+2\bar{j}-2\bar{k}$ is

(A) $7\bar{i}-\bar{j}-2\bar{k}$ (B) $\pm\left(7\bar{i}-\bar{j}-2\bar{k}\right)$

(C) $-7\bar{i}-\bar{j}-2\bar{k}$ (D) $\pm\left(-7\bar{i}-\bar{j}-2\bar{k}\right)$

(NUMERICAL VALUE TYPE)

Section-II contains 5 Numerical Value Type questions.

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

21. If the points with position vectors $60\bar{i}+3\bar{j}, 40\bar{i}-8\bar{j}, a\bar{i}-52\bar{j}$ are collinear then $|a|=$

22. Let the vectors $\overline{AB}=2\bar{i}+2\bar{j}+\bar{k}$ and $\overline{AC}=2\bar{i}+4\bar{j}+4\bar{k}$ be two sides of a triangle ABC. If G is the centroid of ΔABC, then $\frac{27}{7}\left|\overline{AG}\right|^2+5=$

23. Let $\vec{a}=\vec{i}+\vec{j}, \vec{b}=\vec{j}+\vec{k}$ and $\vec{c}=\alpha\vec{a}+\beta\vec{b}$ If the vectors $\vec{i}-2\vec{j}+\vec{k}, 3\vec{i}+2\vec{j}-\vec{k}$ and $\vec{c}$ are coplanar then $\frac{-\alpha}{3\beta}$ equals ____.

24. If the vectors $a\vec{i}+\vec{j}+\vec{k}, \vec{i}+b\vec{j}+\vec{k}$, $\vec{i}+\vec{j}+c\vec{k}\ (a\neq b\neq c\neq 1)$ are coplanar, then $\frac{1}{1-a}+\frac{1}{1-b}+\frac{1}{1-c}=$ ____.

25. If the position vectors of the points A, B, C, D given by

$\vec{i}+2\vec{j}+3\vec{k}, 2\vec{i}-\vec{j}+2\vec{k}, \frac{1}{4}(7\vec{i}+15\vec{j}+15\vec{k})$

and $\frac{1}{3}(7\vec{i}+2\vec{j}+(5+3a)\vec{k})$ respectively

are such that $|\overrightarrow{AC}|=|\overrightarrow{BD}|$, then

$16(3a-1)^2=$ 187

PHYSICS

(SINGLE CORRECT ANSWER TYPE)

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26. An air filled balloon is at a depth of 1 km below the water level in an ocean. Determine the normal stress on the balloon (atmospheric pressure = 10^5 pa)
(A) $98\times10^5 N/m^2$ (B) $99\times10^5 N/m^2$
(C) $98\times10^3 N/m^2$ (D) $99\times10^3 N/m^2$

27. A steel wire of 2mm in diameter is stretched by applying a force of 72N. Stress in the wire is
(A) $2.29\times10^7 N/m^2$ (B) $1.7\times10^7 N/m^2$
(C) $3.6\times10^7 N/m^2$ (D) $0.8\times10^7 N/m^2$

28. The length of two wires are in the ratio 3: 4. Ratio of the diameters is 1:2; young's modulus of the wires are in the ratio 3:2; If they are subjected to same tensile force, the ratio of the elongation produced is
(A) 1:1 (B) 1:2
(C) 2:3 (D) 2:1

29. An aluminium rod has a breaking strain 0.2%. The minimum cross-sectional area of the rod in m^2 in order to support a load of 10^4 N is if (Young's modulus is $7\times10^5 Nm^{-2}$)
(A) 1.7×10^{-4} (B) 1.7×10^{-2}
(C) 7.1×10^{-4} (D) 1.4×10^{-4}

30. The length of a metal wire is 11cm when the tension in it is 20N and 12cm when the tension is 40N. Then natural length of the wire is in cm
(A) 6 (B) 4
(C) 8 (D) 9

31. A steel wire of uniform cross section $1mm^2$ is heated to 70°C and stretched by tying it two ends rigidly. Calculate the change in tension on the wire when temperature falls from 70°C to 35°C
$\alpha_s=1.1\times10^{-5}/°C\ Y_s=2\times10^{11} N/m^2$
(A) 70N (B) 72N
(C) 74N (D) 77N

32. A steel wire of length 5 m and cross sectional area $2\times10^{-6} m^2$ stretches by the same amount as a copper wire of length 4 m and cross sectional area of $3\times10^{-6} m^2$ under a given load. The ratio of young's modulus of steel to that of copper is
(A) 8:15 (B) 15:8
(C) 5:3 (D) 3:5

33. A brass wire of length 300 cm when subjected to a force F produces an elongation "a". Another wire of twice the diameter and of same length and material, when subjected to the force F produces an elongation b. Then the value of a/b is
(A) 1:1 (B) 4:1
(C) 2:1 (D) 1:2

34. A tungsten wire, 0.5 mm in diameter, is just stretched between two fixed points at a temperature of 40°C. Determine the tension in the wire when the temperature falls to 20°C. (coefficient of linear expansion of tungsten = 4.5×10^{-6}/°C; Young's modulus of tungsten = $3.45\times10^{10} Nm^{-2}$)
(A) 0.6097N (B) 3.097N
(C) 5.097N (D) 7.097N

35. Two rods of different materials are clamped at their ends rigidly. When they are heated for the same rise in temperature, same thermal stresses are produced in them. If their Young's moduli are in the ratio x:y then ratio of coefficients of their linear expansion is
(A) x:y (B) y:x
(C) $x^2:y^2$ (D) $y^2:x^2$

36. A metal cube of side length 8.0 cm has its upper surface displaced with respect to the bottom by 0.10 mm when a tangential force of 4×10^{9}N is applied at the top with bottom surface fixed. The rigidity modulus of the material of the cube is
(A) 4×10^{14}N/m^2 (B) 5×10^{14}N/m^2
(C) 8×10^{14}N/m^2 (D) 1×10^{14}N/m^2

37. A spherical ball of volume 1000 cm^3 is subjected to a pressure of 10 atmosphere. The change in volume is 10^{-2} cm^3. If the ball is made of iron find its bulk modulus. (Atmospheric pressure $=1\times10^{5}$Nm^{-2})
(A) 1×10^{11}N/m^2 (B) 2×10^{11}N/m^2
(C) 3×10^{11}N/m^2 (D) 4×10^{11}N/m^2

38. A uniform bar of length L' and cross sectional area ` A' is subjected to a tensile load 'F'. 'Y' be the Young's modulus and 'σ' be the Poisson's ratio then volumetric strain is
(A) $\frac{F}{AY}(1-\sigma)$ (B) $\frac{F}{AY}(2-\sigma)$
(C) $\frac{F}{AY}(1-2\sigma)$ (D) $\frac{F}{AY}.\sigma$

39. Two wires of same radius and length are subjected to the same load. One wire is of steel and the other is of copper. If the Young's modulus of steel is twice that of copper, the ratio of elastic energy stored per unit volume in steel to that of copper wire is
(A) 1:2 (B) 2:1
(C) 1:4 (D) 4:1

40. Two wires of equal cross section, but one made up of steel and the other copper are joined end to end. When the combination is kept under tension, the elongations in the two wires are found to be equal. If $Y_{steel}=2.0\times10^{11}$N.m^{-2} and $Y_{copper}=1.1\times10^{11}$N.m^{-2}, the ratio of the lengths of the two wires is
(A) 20:11 (B) 11:20
(C) 5:4 (D) 4:5

41. A cubical ball is taken to a depth of 200m in a sea. The decrease in volume observed to be 0.1% the bulk modulus of the ball is ($g=10m/s^2$)
(A) 2×10^{7}pa (B) 2×10^{6}pa
(C) 2×10^{9}pa (D) 1.2×10^{9}pa

42. A fractional change in volume of oil is 1percent. When a pressure of 2×10^{7}N/m^2 is applied. Calculate the bulk modulus and its compressibility.
(A) 3×10^{8}N/m^2;0.33×10^{-9}m^2/N
(B) 5×10^{9}N/m^2;2×10^{-10}m^2/N
(C) 2×10^{9}N/m^2;5×10^{-10}m^2/N
(D) 2×10^{9}N/m^2;5×10^{-9}m^2/N

43. A 8m long string of rubber, having density 1.5×10^{3}kg/m^3 and young's modulus 5×10^{6}N/m^2 is suspended from the ceiling of a room. The increase in its length due to its own weight will be ($g=10m/s^2$)
(A) 96×10^{-5}m (B) 960×10^{-1}m
(C) 9.6×10^{-2}m (D) 96×10^{-1}m

44. When a wire of length 10 m is subjected to a force of 100N along its length, the lateral strain produced is 0.01×10^{-3} Poisson's ratio was found to be 0.4. If area of cross section of wire is 0.025m^2 its Young's modulus is
(A) 1.6×10^{8}N/m^2 (B) 19×10^{6}N/m^2
(C) 2×10^{8}N/m^2 (D) 5×10^{6}N/m^2

45. A coper wire and an aluminium wire has lengths in the ratio 3:2 diameter in the ratio 2:3 and force applied in the ratio 4:5 find the ratio of the increase in length of the two wires $Y_{Al}=7\times10^{10}$N/m^2, $Y_{Cu}=11\times10^{10}$N/m^2
(A) 110:89 (B) 180:110
(C) 189:110 (D) 80:11

NUMERICAL VALUE TYPE)

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46. A wire of length 1m fixed at one end has a sphere attached to it at the other end. The sphere is projected horizontally with a velocity of $\sqrt{9g}$. When it describes a vertical circle, the ratio of elongations of the wire when the sphere is at the top and bottom of the circle is $\frac{x}{5}$ where x=

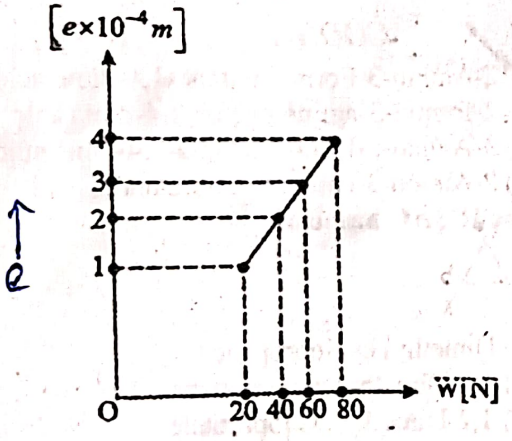
47. Two seperate wires A and B are stretched by 2mm and 4mm respectively, when they are subjected to a force of 2N. Assume

that both the wires are made up of same material and the radius of wire B is 4 times that of the radius of wire A. The length of the wires A and B are in the ratio of a:b. Then a/b can be expressed as 1/x where x is ____.

48. A copper wire 2m long is stretched by 1mm. If the energy stored in the stretched wire is converted into heat, then the rise in temperature of the wire is $x\times10^{-4}\ ^0C$ where x=_____. $(Y=12.5\times10^{10}N/m^2;$ $\rho=9\times10^3kg/m^3; S=385J/Kg-K)$

49. When a wire of length 10 m is subjected to a force of 100N along its length, the lateral strain produced 0.01×10^{-3}. Poisson's ratio was found to be 0.4. If area of cross section of wire is $0.025m^2$ its Young's modulus is $x\times10^7N/m^2$, where x = _____.

50. In the given graph extension (e) of a wire of length 1m is suspended from the top of a roof at one end and with a load W connected to other end, if the cross sectional area of the wire is $10m^2$, the Young's modulus of the material of wire is $Y=x\times10^9N/m^2$, where x=____.



CHEMISTRY

(SINGLE CORRECT ANSWER TYPE)

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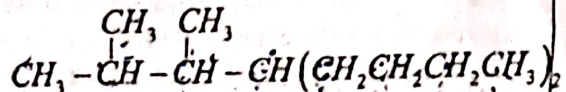
Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases

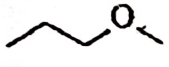
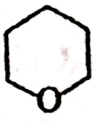
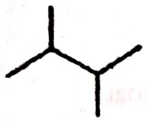
51. The IUPAC name of the compound



is
(1) 2,4,4-Dibutyl-3,3-dimethylbutane
(2) 5-(1,2-Dimethylpropyl) nonane
(3) 4-Butyl-2,3-dimethyloctane
(4) 1,1-Dibutyl-2,3-dimethylbutane

52. The correct IUPAC name of $(C_2H_5)_4C$ is
(1) Tetraethyl methane
(2) 2-Ethylpentane
(3) 3, 3-Diethylpentane
(4) None of these

53. Which of the following is a homocyclic compound?

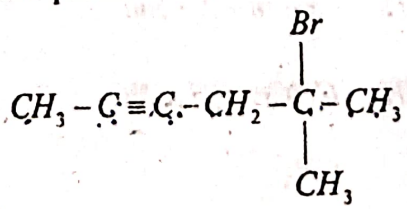
(1) 
(2) 
(3) 
(4) 

54. IUPAC name of the compound

(1) Nonatetraene
(2) Diene pentadiene
(3) 3, 3-Diethenyl-1, 4-pentadiene
(4) None of these

55. 3-methyl pent-1,3-diene is
(1) $CH_2=CH(CH_2)_2CH_3$
(2) $CH_2=CHCH(CH_3)CH_2CH_3$
(3) $CH_3CH=C(CH_3)CH=CH_2$
(4) $CH_3=CH=CH(CH_3)_2$

56. What is the IUPAC name of the following compound?

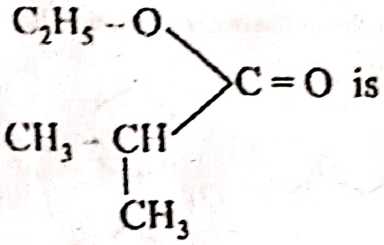


(1) 5-bromo-2-heptyne
(2) 5-bromo-5-methyl-2-hexyne
(3) 5-bromo-5, 5-dimethyl hexyne
(4) 2-bromo-2-methyl-4-hexyne

57. **The label of a bromobutanoic acid bottle has been washed away. Someone is trying to relabel it with correct IUPAC name. Which of the following cannot be a name?**
(1) 2-bromobutanoic acid
(2) 3-bromobutanoic acid
(3) 4-bromobutanoic acid
(4) 1-bromo-3-butanoic acid

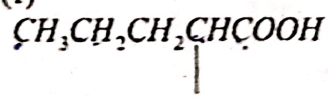
58. **Which is the wrong IUPAC name of chlorocyclohexane-dione?**
(1) 3-chloro-1,4-cyclohexanedione
(2) 2-chloro-1,3-cyclohexanedione
(3) 4-chloro-1,3-cyclohexanedione
(4) 5-chloro-1,3-cyclohexanedione

59. **The IUPAC name of**

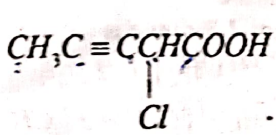


(1) ethoxy methanone
(2) ethyl-2-methyl propanoate
(3) ethoxypropanone
(4) 2-methyl ethoxy propanone

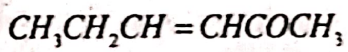
60. **Which of the following compound is wrongly named?**
(1)



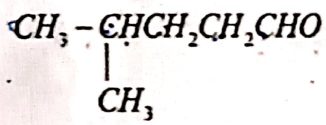
2 – *Chloro pen* tan *oic acid*
(2)



2 – *Methyl hex* – 3 – *enoic aicd*
(3)

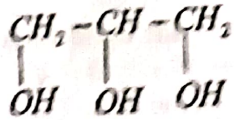


Hex – 3 – *en* – 2 – *one*
(4)



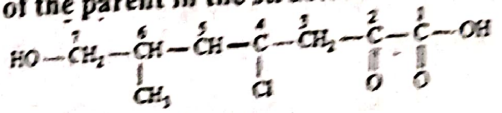
4 – *Methyl pen* tan *al*

61. **The IUPAC name of the compound**



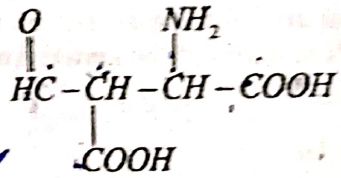
(1) 1,2,3-dihydroxy propane
(2) 3-hydroxy pentane-1,5-diol
(3) 1,2,3-hydroxy propane
(4) Propane-1,2,3-triol

62. **The suffix of the principal group, the prefixes for the other groups and the name of the parent in the structure**



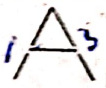
Are given by the set
(1) -oic acid, chloro, hydroxy, oxo, methyl, 4-heptene
(2) -oic acid, chloro, hydroxy, methyl, oxo, 4-heptene
(3) -one, carboxy, chloro, methyl, hydroxy, 4-heptene
(4) -one, carboxy, chloro, methyl, hydroxy, 4-heptene

63. **Correct IUPAC name of the following compound is**



(1) 2-Amino-3-Formyl butane-1,4-dioic acid
(2) 2-formyl-3-amino hatane-1,4-dioic acid
(3) 3-Amino-2-formyl betame-1,4-dioic acid
(4) 2-Amino-3-carbous oxo butanoic acid

64. **The JUPAC name of**



is
(1) Dimethyl cyclopropane
(2) 1,3-Dimethylcyclopropane
(3) 1,2-Dimethylcyclopropane
(4) None of these

65. **According to Huckel's rule compound is said to be aromatic contains**
(1) 4 n bonds (2) 4n atoms
(3) (4n+2) atoms (4) $(4n+2)\pi$ electron

66. **Which of the following is not a cyclic compound?**
(1) Anthracene (2) Pyrrole
(3) Phenol (4) Isobutylene

67. **Which of the following contains acetic acid?**
(1) Vinegar (2) Molasses
(3) Coal tar (4) Butter

68. **I.U.P.A.C name of ester is**
(1) Alkoxy alkane (2) Alkyl alkanoate
(3) Alkanoyl halide
(4) Alkanoic anhydride

69. **Which is an alicyclic compound**
(1) Benzene (2) cyclohexane
(3) pyridine (4) pyrrole

70. **Organic compounds can be formed by**
(1) Plants only (2) Animals only
(3) Plants and Animals
(4) Plants, animals and can be synthesized in laboratory

(NUMERICAL VALUE TYPE)

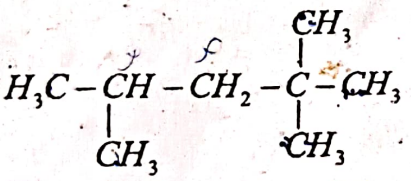
Section-II contains 5 Numerical Value Type questions.

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

71. **The number of π electrons present in phenanthrcene** 14

72. **The number quarternary of carbon atom present in neopentane are** 1.

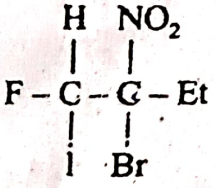
73. **In the structure,**

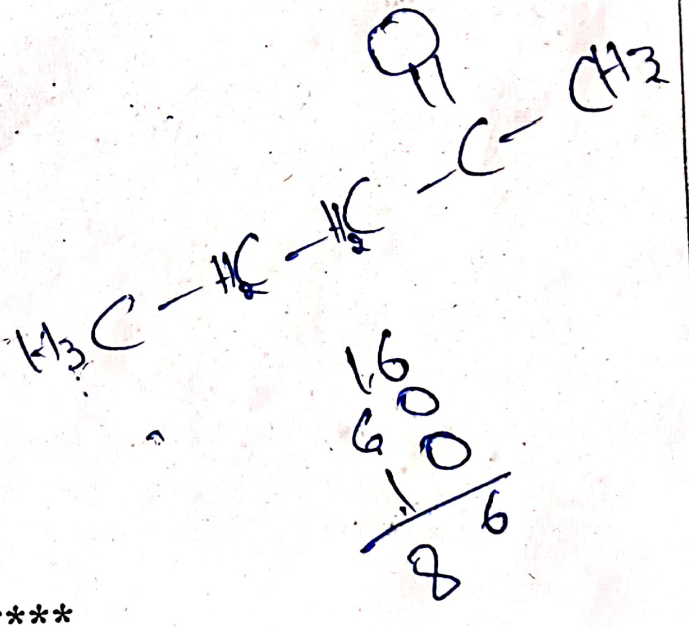


the number of primary carbons are: 5

74. **Molecular weight of 2-pentanone is** 86.

75. **The position of the NO_2 group in the following compound is:** 2





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BEST OF LUCK