Question Booklet Sl. No.

322947

No. of Printed Pages : 72
Total No. of Questions : 510
Questions to be answered : 150

OSSTET 2025 PAPER – I

ସରୋଜ କୁମାର ବେହେରା

Secretary

SET : C

Time : 2 Hours 30 Minutes

Full Marks : 150

Roll No. (in figures) : ____________________

(in words) : ____________________

Date of Exam. : ____________________

Centre Name : ____________________

Centre Code : ____________________

PLEASE READ THE INSTRUCTION PRINTED ON THE BACK OF THIS BOOKLET

The candidates are required to answer all the Sections in the OMR Answer Sheet.

This Booklet is to be taken away by the candidates after examination is over and the OMR Answer Sheet to be handed over to the Invigilator(s) concerned.

THIS BOOKLET CONTAINS FOUR SECTIONS (SECTION – I TO IV)

SECTIONS	SUBJECTS	NO. OF QUESTIONS	FULL MARKS
A : Section – I	Odia (Compulsory for all Streams)	1 – 20 = 20	20
A : Section – II	English (Compulsory for all Streams)	21 – 40 = 20	20
B : Section – III	Optional (any one group/subject to be chosen)		
	Arts : Odia + English + History & Political Science + Geography & Economics	41 – 100 = 60	60
	Science (PCM) : Physics + Chemistry + Mathematics	41 – 100 = 60	60
	Science (CBZ) : Chemistry + Botany + Zoology	41 – 100 = 60	60
	Classical Sanskrit	41 – 100 = 60	60
	Urdu	41 – 100 = 60	60
	Telugu	41 – 100 = 60	60
	Hindi	41 – 100 = 60	60
C : Section – IV	**Compulsory for all streams :** Child Development, Pedagogy, School Management and Evaluation	101 – 150 = 50	50

SET – C

A – SECTION – I

ODIA (COMPULSORY FOR ALL STREAMS)

1. ଷତ୍ୱବିଧି ଆଧାରରେ ଗଠିତ ଶବ୍ଦଟି ଚିହ୍ନାଅ:

(A) ଆଷାଢ଼

(B) ଆନୁଷଙ୍ଗିକ

(C) ପାଷାଣ

(D) କଷଣ

2. ସେ ବୟସରେ ମୋ ଠାରୁ ବଡ଼।- ରେଖାଙ୍କିତ ପଦଟି କେଉଁ ବିଭକ୍ତି ?

(A) ପ୍ରଥମା

(B) ଦ୍ୱିତୀୟା

(C) ତୃତୀୟା

(D) ସପ୍ତମୀ

3. 'ଅ' କୃତ୍ ପ୍ରତ୍ୟୟ ଦ୍ୱାରା ଗଠିତ ଶବ୍ଦଟିକୁ ଚିହ୍ନାଅ।

(A) କ୍ରୋଧ

(B) କାରକ

(C) ମାନ

(D) ଗତ

4. 'ଗୋଡ଼ ତଳେ ନଲାଗିବା' ରୂଢ଼ିର ଅର୍ଥ କ'ଣ ?

(A) ଅତ୍ୟନ୍ତ ଆନନ୍ଦ ଅବସ୍ଥା

(B) ବ୍ୟତିବ୍ୟସ୍ତ ହେବା

(C) ଭୟଭୀତ ହେବା

(D) ଅତି ଅସ୍ଥିର ଭାବ

ପ୍ରଦତ୍ତ ଅନୁଚ୍ଛେଦଟି ପାଠ କରି ପ୍ରଶ୍ନ (**5** ରୁ **9**) ଗୁଡ଼ିକର ଉତ୍ତର ନିର୍ଣ୍ଣୟ କର:

ଯୋଗକୁ ହେଉ ବା ଦୁର୍ଯୋଗକୁ ହେଉ କୁରୁକୁଳର ଆଚାର୍ଯ୍ୟ ଦ୍ରୋଣ ଓ ପ୍ରତ୍ୟାଖ୍ୟାତ ଏକଲବ୍ୟଙ୍କ ମଧ୍ୟରେ ପୁଣି ଥରେ ସାକ୍ଷାତ ହୋଇଛି। ଗୁରୁଙ୍କୁ ଚକିତ କରି ଏକଲବ୍ୟ ତା'ର ବିଦ୍ୟାର ପରିଚୟ ଦେଇଛି। ଅବର୍ଣ୍ଣ ବା ଅପାଂକ୍ତେୟ ହେଲେ ମଧ୍ୟ ଜଣେ ବିଦ୍ୟାକାମୀ ଆପଣାର ଶ୍ରଦ୍ଧା ଏବଂ ବିଶ୍ୱାସ ବଳରେ କିପରି ପରମ୍ପରାଗତ ସକଳ ନିୟନ୍ତ୍ରଣକୁ ଲଂଘନ କରିଯାଇପାରେ, ଦ୍ରୋଣାଚାର୍ଯ୍ୟଙ୍କୁ ଏକଲବ୍ୟ ତାହାରି ପରିଚୟ ଦେଇଚି। ଯେ କୌଣସି ଆଚାର୍ଯ୍ୟଙ୍କର ଏଥିରେ ଗୌରବ ଅନୁଭବ କରିବାର କଥା। ଦ୍ରୋଣାଚାର୍ଯ୍ୟଙ୍କର ହୃଦୟ ଅସଲ ଆଚାର୍ଯ୍ୟର ହୃଦୟ ହୋଇଥିଲେ ଦ୍ରୋଣ ସେଦିନ ଏକଲବ୍ୟକୁ ଆହ୍ଲାଦରେ କୁଣ୍ଢାଇ ଧରିଥାନ୍ତେ। ଗୁରୁ ଛାତ୍ରଠାରୁ ଶିଖିଥାଆନ୍ତା, ପରମ୍ପରାର ନିର୍ମୋକ ଖସିପଡ଼ି ଥାଆନ୍ତା, ଦ୍ରୋଣାଚାର୍ଯ୍ୟଙ୍କ ଭିତରେ ଥିବା ଅସଲ ଗୁରୁ ସେଦିନ ନବଜନ୍ମ ଲାଭ କରିଥାଆନ୍ତା। କିନ୍ତୁ ମହାଭାରତକାର ବ୍ୟାସଦେବଙ୍କର କାବ୍ୟଦୃଷ୍ଟିରେ ହୁଏତ ଏତକ ସାହସ ନ ଥିଲା। ସାମାଜିକ ଶ୍ରେୟ ଉପରେ ମାନବିକ (ଆଧ୍ୟାତ୍ମିକ?) ଶ୍ରେୟର ବିପୁଳତରତାକୁ ଚିହ୍ନିନେବା ଲାଗି ସାହିତ୍ୟ ଦୃଷ୍ଟିରେ ଯେଉଁ ସାହସ ରହିଥିବା ଦରକାର, ବ୍ୟାସଦେବଙ୍କର ହୁଏତ ସେହି ସାହସ ନଥିଲା। ତେଣୁ ଏକଲବ୍ୟର ସାହସ ତାଙ୍କୁ ପ୍ରଧାନତଃ ଦୁଃସାହସ ବୋଲି ହିଁ ମନେହେଲା ଓ ସେ ଏହି ଦୁଃସାହସର ଶାସ୍ତି ଦେବାକୁ ଏକ ସାହିତ୍ୟିକ ନ୍ୟାୟ ବୋଲି ବିଚାର କଲେ। ଏହି ଶାସ୍ତିକୁ ଏକ ଆବଶ୍ୟକତା ବୋଲି ଦେଖାଇବା ଉଦ୍ଦେଶ୍ୟରେ ତାଙ୍କୁ (ଦ୍ରୋଣାଚାର୍ଯ୍ୟଙ୍କୁ) ଆଚାର୍ଯ୍ୟର ଆସନରୁ ତଳକୁ ଓହ୍ଲାଇ ଆଣିବାକୁ ପଡ଼ିଲା। ତେବେ ଯାଇ ଏକଲବ୍ୟ କଥା ସମ୍ପୂର୍ଣ୍ଣ ହେଲା। କୌଳିକତା ଜିତିଲା, କୁଳୀନତା ଜିତିଲା; କିନ୍ତୁ ଆଚାର୍ଯ୍ୟ-ପଦର ଅପମାନ କରାଗଲା।

SET – C

5. 'ପ୍ରତ୍ୟାଖ୍ୟାତ ଏକଲବ୍ୟ'- ଏଠାରେ 'ପ୍ରତ୍ୟାଖ୍ୟାତ'ର ଅର୍ଥ କ'ଣ ?
(A) ଘୃଣିତ
(B) ଅପାଂକ୍ତେୟ
(C) ଦୂରୀକୃତ
(D) ଅବର୍ଣ୍ଣ

6. ଜଣେ ବିଦ୍ୟାର୍ଥୀ କାହା ବଳରେ ପରମ୍ପରାଗତ ସମସ୍ତ ନିୟନ୍ତ୍ରଣକୁ ଲଙ୍ଘିଯାଇପାରେ ?
(A) ନିଜର ଶ୍ରମ ଓ ସାଧନା
(B) ନିଜର ଶ୍ରଦ୍ଧା ଓ ବିଶ୍ୱାସ
(C) ନିଜର ଜ୍ଞାନ ଓ ଗରିମା
(D) ନିଜର ବୁଦ୍ଧି ଓ ବିବେକ

7. ଏକଲବ୍ୟର ଦୁଃସାହସ ପାଇଁ ଶାସ୍ତିକୁ କ'ଣ ବୋଲି ବିଚାର କରାଯାଇଛି ?
(A) ସାମାଜିକ ନ୍ୟାୟ
(B) ଆଚାର୍ଯ୍ୟୀୟ ନ୍ୟାୟ
(C) ରାଜକୀୟ ନ୍ୟାୟ
(D) ସାହିତ୍ୟିକ ନ୍ୟାୟ

8. ଗୁରୁଦ୍ରୋଣ ସେଦିନ ଏକଲବ୍ୟକୁ କାହିଁକି ଖୁସିରେ କୁଣ୍ଢାଇ ଧରିଲେ ନାହିଁ ?
(A) ଏକଲବ୍ୟ ଶବର ହୋଇଥିବାରୁ
(B) ପାଖରେ ଅନ୍ୟ ଶିଷ୍ୟ ଥିବାରୁ
(C) ଅସଲ ଗୁରୁ ହୃଦୟ ନଥିବାରୁ
(D) ଏକଲବ୍ୟ ସ୍ପୃଶ୍ୟ ହୋଇନଥିବାରୁ

9. ବ୍ୟାସଦେବଙ୍କର କ'ଣ ଚିହ୍ନିବା ଲାଗି ସାହସ ନଥିଲା ବୋଲି କୁହାଯାଇଛି ?
(A) ନୈତିକ ସାହସର ବିପୁଳତା
(B) ମାନବିକ ଶ୍ରେୟର ବିପୁଳତା
(C) ଏକଲବ୍ୟର ଦୁଃସାହସ
(D) ଗୁରୁଦ୍ରୋଣଙ୍କ ଆଚାର୍ଯ୍ୟ ପଦ

10. ମଧୁ ତା'ର ମାମୁଘରକୁ ଯାଇଛି।– ରେଖାଙ୍କିତ ଅଂଶଟି କେଉଁ ପଦ ?
(A) ବିଶେଷ୍ୟ
(B) ବିଶେଷଣ
(C) ସର୍ବନାମ
(D) ଅବ୍ୟୟ

11. "ଆସନ ସକାଶେ ବୃଦ୍ଧେ ଏଡ଼େ ବାଇ
ବାଳକେ ଯେସନେ କ୍ରୀଡ଼ନକ ପାଇଁ।"-ଏଥିରେ କେଉଁ ଅଳଙ୍କାର ରହିଛି ?
(A) ରୂପକ
(B) ଉପମା
(C) ଅନୁପ୍ରାସ
(D) ଶ୍ଳେଷ

12. 'ତୁଷାର ଧବଳ'- ଏହା କେଉଁ ପ୍ରକାର ସମାସ ନିଷ୍ପନ୍ନ ପଦ ?
(A) ଉପମାନ କର୍ମଧାରୟ
(B) ଉପମିତ କର୍ମଧାରୟ
(C) ରୂପକ କର୍ମଧାରୟ
(D) ମଧ୍ୟ ପଦଲୋପୀ କର୍ମଧାରୟ

SET – C

13. 'ଆରଣ୍ୟ' ଶବ୍ଦଟି କେଉଁ ତଦ୍ଧିତ ପ୍ରତ୍ୟୟ ଦ୍ୱାରା ଗଠିତ ?

(A) ଅ

(B) ୟ

(C) ଈୟ

(D) ଏୟ

14. ଶୁଦ୍ଧ ଶବ୍ଦଟିକୁ ବାଛ :

(A) ମରୁଦ୍ୟାନ

(B) ବିରୁପାକ୍ଷ

(C) ବୃହସ୍ପତି

(D) ସର୍ବାଙ୍ଗୀଣ

15. କଳି ଉପଦ୍ରବେ ତ୍ୟଜି ଲୋକାଳୟ,
ଶାନ୍ତି କି ଏ ସ୍ଥଳେ ଭଜିଲେ ଆଶ୍ରୟ।-ଏଥରେ କେଉଁ ଅଳଙ୍କାର ରହିଛି ?

(A) ଉପମା

(B) ରୂପକ

(C) ଉତ୍‌ପ୍ରେକ୍ଷା

(D) ଅନୁପ୍ରାସ

16. 'ବିଶାଳ ଅକ୍ଷି ଯାହାର ସେ' - ସମସ୍ତ ପଦଟି କ'ଣ ହେବ ?

(A) ବିଶାଳାକ୍ଷ

(B) ବିଶାଳିକ୍ଷୀ

(C) ବିଶାଳାକ୍ଷି

(D) ବିଶଳାକ୍ଷୀ

17. ସାରଳା ଦାସ ଓଡ଼ିଶାର ବାଲ୍ମୀକି ଥିଲେ। - ରେଖାଙ୍କିତ ଅଂଶଟି କେଉଁ ପଦ ?

(A) ସର୍ବନାମ

(B) ବିଶେଷ୍ୟ

(C) ବିଶେଷଣ

(D) ଅବ୍ୟୟ

18. ରାମଚନ୍ଦ୍ର ରାବଣକୁ ମାରି ସୀତାଙ୍କୁ ଉଦ୍ଧାର କଲେ।-ଏହା କେଉଁ ପ୍ରକାର ବାକ୍ୟ ?

(A) ସରଳ

(B) ଜଟିଳ

(C) ଯୌଗିକ

(D) ମିଶ୍ର

19. ଶୁଦ୍ଧ ବାକ୍ୟଟିକୁ ଚିହ୍ନାଅ :

(A) ଆରତୀ ଓ ମିନତୀ ଦୁହେଁ ଜାଆଁଳା ଭଉଣୀ।

(B) ଗୋଲକ ବିହାରୀ ଧଳ ଜଣେ ଭାଷାତତ୍ତ୍ୱବିତ୍।

(C) ଏ ଦୁନିଆରେ ନୀରୋଗୀ କେହି ନାହାନ୍ତି।

(D) ନୂଆ ମନ୍ତ୍ରିମଣ୍ଡଳ କେବେ ହେବ ଜଣାନାହିଁ।

20. 'ଯତି ପଡ଼ିବା' ରୂଢ଼ିଟିର ଅର୍ଥ କ'ଣ ?

(A) ମାଳି ଜପିବା

(B) ମେଳ ଖାଇବା

(C) ନିଜର କରିବା

(D) ଅତି ଚତୁର

SET – C

A – SECTION – II

ENGLISH (COMPULSORY FOR ALL STREAMS)

21. It is two years _____ I saw Bibek.

(A) for
(B) since
(C) from
(D) after

22. The paper-setter made the questions difficult.

The correct passive form of the above sentence is _____.

(A) The questions has been made difficult by the paper-setter
(B) The paper-setter was made difficult questions
(C) The questions were made difficult by the paper-setter
(D) The questions had been made difficult by the paper-setter

23. The cute creation of the creator is bright and beautiful.

The word opposite in meaning of 'creation' is

(A) antique
(B) annihilation
(C) arbitration
(D) alteration

24. Which pair is differently pronounced ?

(A) practice – practise
(B) rite – right
(C) suit – suite
(D) sun – son

25. India scored 175 runs _____ 6 wickets.

(A) of
(B) for
(C) on
(D) in

26. Try to save some money for your future.

Replace the underlined word with an idiomatic phrase.

(A) put by
(B) put in
(C) put up
(D) put on

27. If I came into fortune, I _____ give up working.

(A) will
(B) shall
(C) may
(D) would

SET – C

28. There are black clouds in the sky. It _____ rain.
(A) will
(B) would
(C) might
(D) is going to

29. He said, "I have an answer to the question." Which is the correct indirect speech of the above sentence ?
(A) He said that he has an answer to the question.
(B) He said that he had been an answer to the question.
(C) He said that I had an answer to the question.
(D) He said that he had an answer to the question.

30. Which letter is silent in the word 'handsome'.
(A) d
(B) s
(C) h
(D) n

Read the following passage carefully and answer the questions (from Q. No. 31 to Q. No. 35) choosing the correct option :

The last half of my life was spent at one of those painful epochs of human history, during which the world seemed to be getting worse; where past victories which had seemed to be definitive have turned out to be only temporary. When I was young, Victorian optimism was taken for granted. It was thought that freedom and prosperity would spread gradually throughout the world through an ordinary process, and it was hoped that cruelty, tyranny and injustice would continually diminish. Hardly anyone was haunted by the fear of great wars. Hardly anyone thought of the nineteenth century as a brief interlude between past and future barbarism.

31. What was the belief of people during the Victorian age ?
(A) There would be battles in future.
(B) There would be unlimited freedom for the human society.
(C) Wars would be fought on a large scale.
(D) Peace would prevail and happiness would engulf the whole world.

32. The expression, 'a brief interlude between past and future barbarism' in the last sentence of the passage means _____.
(A) a short period of time between past and future acts of cruelty
(B) a short interlude between two great events
(C) an interval between cruel wars
(D) a dramatic performance during wars

33. The author felt sad about the latter part of his life because _____.
(A) he was nostalgic about his childhood
(B) the world had not become prosperous
(C) the author had not won any further victories
(D) the world was painfully disturbed during that period of time

34. The word, 'definitive' used in the passage means _____.
(A) defined
(B) final
(C) temporary
(D) incomplete

35. What was the author's view on the course for cruelty, tyranny and injustice ?
(A) They would gradually diminish.
(B) They would spread throughout the world.
(C) They would rapidly expand in the world.
(D) They would be temporary features.

Read the following poem carefully, and answer the questions (from Q. No. 36 to Q. No. 40) that follow, choosing the correct options.

'Hope' is the thing with feathers
That perches in the soul,
And sings the tune without the words,
And never stops at all.

And sweetest in the gale is heard;
And sore must be the storm
That could abash the little bird
That kept so many warm.

I've heard it in the chilliest land
And on the strangest sea;
Yet, never, in extremity,
It asked a crumb of me.

36. What is considered the sweetest song in the violent storm by the poet ?
(A) Hope
(B) The song of the bird
(C) Silence
(D) The sound of the chilliest land

37. 'It' in the last line of the poem refers to _____.
(A) the poet
(B) the land
(C) the hope
(D) the soul

38. Which of the following words means 'not easy' ?
(A) Gale
(B) Sore
(C) Abash
(D) Extremity

39. What according to the poet, does 'Hope' do without words ?
(A) perches on the soul
(B) flies away
(C) sings the tune
(D) stops suddenly

40. 'Hope' in the poem is compared to _____.
(A) a butterfly
(B) an insect
(C) a kite
(D) a bird

SET – C

B – SECTION – III
SCIENCE (PCM) PHYSICS

41. A point charge 'q' is placed at one vertex of a closed cubical box of side 'l'. Then the electric flux passing through each face of the cube will be

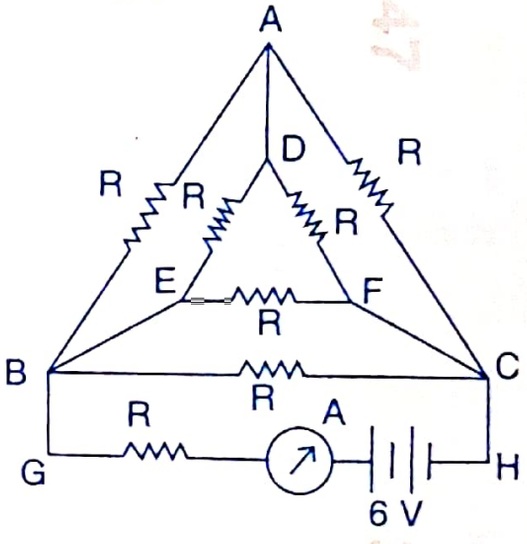
(A) Zero through each of the three surfaces touching the charge and $\frac{q}{3\epsilon_0}$ through each of the other three

(B) Zero through each of the three surfaces touching the charge and $\frac{q}{24\epsilon_0}$ through each of the other three

(C) $\frac{q/^2}{\epsilon_0}$ through each of the three surfaces touching the charge and zero through each of the other three

(D) Zero through each of the three surfaces touching the charge and $\frac{\epsilon_0}{24q/^2}$ through each of the other three

42. In the circuit given below what should be the value of R in ohms so that the ammeter (A) in the circuit will give a reading of 1 amp when the battery is of negligible internal resistance



(A) 1.5 Ω (B) 6 Ω
(C) 4.5 Ω (D) 4.8 Ω

43. A motorist travels the first one-quarter of his journey at a speed of 15 km/h. For each subsequent one-quarter of the distance he doubles his speed from the previous quarter. What is his average speed for the entire journey ?

(A) 24 km/h
(B) 28 km/h
(C) 32 km/h
(D) 36 km/h

44. A particle is moving in a uniform circular motion with angular momentum L. Its kinetic energy is made half and the angular frequency is doubled. What will be the new angular momentum ?

(A) 4L (B) $L/4$

(C) 2L (D) $L/2$

45. A converging lens is placed between an object and a screen that are at a fixed distance 'D' apart. The lens forms real images of the object on the screen in two positions separated by a distance 'd'. If the sizes of the two images formed are h_1 and h_2 respectively, the ratio $\frac{h_1}{h_2}$ of their sizes will be

(A) $\frac{D+d}{D-d}$ (B) $\frac{D-d}{D+d}$

(C) $\left(\frac{D+d}{D-d}\right)^2$ (D) $\left(\frac{D-d}{D+d}\right)^2$

46. A parallel-plate capacitor with plate area 'A' and separation 'd' is filled with air, giving it an initial capacitance $C_0 = \frac{\epsilon_0 A}{d}$. The capacitor is then modified to have the space between the plates filled side-by-side with two dielectrics, each occupying half the area with dielectric constants K_1 and K_2 respectively. The ratio of the new equivalent capacitance C to that of C_0 will be

(A) $\frac{2}{K_1+K_2}$ (B) $\frac{K_1K_2}{K_1+K_2}$

(C) $\frac{K_1+K_2}{2}$ (D) $\sqrt{K_1K_2}$

47. Two long parallel wires are separated by a distance 'r'. Each carries a current I in the same direction. What is the force per unit length acting on each wire ?

(A) $\frac{\mu_0 I^2}{4\pi r}$ (B) $\frac{\mu_0 I^2}{2\pi r}$

(C) $\frac{\mu_0 I^2}{\pi r}$ (D) $\frac{2\mu_0 I^2}{\pi r}$

48. Two electrolytic cells, one containing Al^{3+} and the other containing Ag^+ are connected in series. If 27 g of Al is deposited, how much Ag will be deposited ?

[Atomic masses : Al = 27, Ag = 108]

(A) 108 g (B) 216 g

(C) 324 g (D) 432 g

49. A spherical water droplet evaporates completely and the entire energy required for its evaporation comes from the decrease in surface energy with the temperature remaining constant during the process. [Given surface tension of the liquid = T, density = d and L = Latent heat of vaporization]. What is the minimum initial radius r_{min} of the droplet for complete evaporation via loss of surface energy ?

(A) $r_{min} = \frac{T}{dL}$ (B) $r_{min} = \frac{2T}{dL}$

(C) $r_{min} = \frac{3T}{dL}$ (D) $r_{min} = \sqrt{\frac{3T}{dL}}$

50. A fluid flows through a pipe kept on a horizontal ground with a constriction. At a wide section, the speed is [illegible] m/s and pressure is 1.2×10^{5} pa. At the narrow section, the speed is [illegible] m/s. Assuming incompressible non-viscous flow, what is the pressure at the narrow section ? [Take ρ = 1000 kg/m^3]

(A) $1.[illegible]\times10^{5}$ Pa

(B) $1.[illegible]\times10^{5}$ Pa

(C) $1.[illegible]\times10^{5}$ Pa

(D) $1.[illegible]\times10^{5}$ Pa

51. A spring has a mass suspended from it and its period for vertical oscillations is T_1. The spring is now cut into two equal halves and the same mass is suspended from one of the halves. The period of vertical oscillations is now T_2. What will be the value of $\frac{T_1}{T_2}$?

(A) [illegible]

(B) $\sqrt{2}$

(C) 2

(D) $\frac{1}{\sqrt{2}}$

52. The escape velocity of a body of mass m when projected from the center of the earth considering earth as a sphere of radius R and density ρ will be

(A) $\sqrt{[illegible]}$

(B) $\sqrt{[illegible]}$

(C) $\sqrt{[illegible]}$

(D) $\sqrt{[illegible]}$

53. A plane diffraction grating produces a second order maximum for yellow light of wavelength [illegible] nm at an angle of 30°. What is the spacing between adjacent grating lines ?

(A) $[illegible]\times10^{-[illegible]}$ m (B) $[illegible]\times10^{-[illegible]}$ m

(C) $[illegible]\times10^{-[illegible]}$ m (D) $[illegible]\times10^{-[illegible]}$ m

54. A cube of a transparent material of edge [illegible] cm contains a small air bubble. When you view through one face the bubble appears at a depth of 3 cm and when viewed through the opposite face it appears at a distance of [illegible] cm. What is the refractive index of the transparent material ?

(A) 1.4 (B) 1.5

(C) 1.6 (D) 1.8

55. A satellite is initially revolving around the earth in a circular orbit of radius 2R. It is suddenly brought to a new circular orbit of radius $\frac{5R}{4}$ where measurements are done from the center of the earth (assume mass of earth as M and radius R). Which of the following statement/s is/are correct regarding the satellite motion ?

i. The orbital velocity increases by a factor $\sqrt{\frac{8}{5}}$

ii. The gravitational potential energy decreases in the new orbit.

iii. The satellite will take more time to complete one revolution in the new orbit than the old one.

(A) Only (i) is correct

(B) Both (i) and (ii) are correct

(C) Both (ii) and (iii) are correct

(D) All the above statements are correct

56. An ideal gas undergoes a thermodynamic process in which the P ~ V graph is a straight line with a negative slope. Which of the following best describes the nature of the T ~ V graph for this process ?

(A) A straight line with positive slope

(B) A straight line with negative slope

(C) A parabola opening upwards

(D) A parabola opening downwards

57. In an ideal transformer, where both primary and secondary coils are wound identically on the same core (i.e. same dimensions, material and geometry). Which of the following statements are true about the voltage and inductance ratios ?

[(V_1, L_1, N_1) and (V_2, L_2, N_2) refer to ac voltages, inductances and number of turns of the primary and secondary respectively]

i. $\frac{V_1}{V_2} = \frac{L_1}{L_2}$ ii. $\frac{V_1}{V_2} = \frac{N_1}{N_2}$

iii. $\frac{V_1}{V_2} = \left(\frac{L_1}{L_2}\right)^2$ iv. $\frac{V_1}{V_2} = \sqrt{\frac{L_1}{L_2}}$

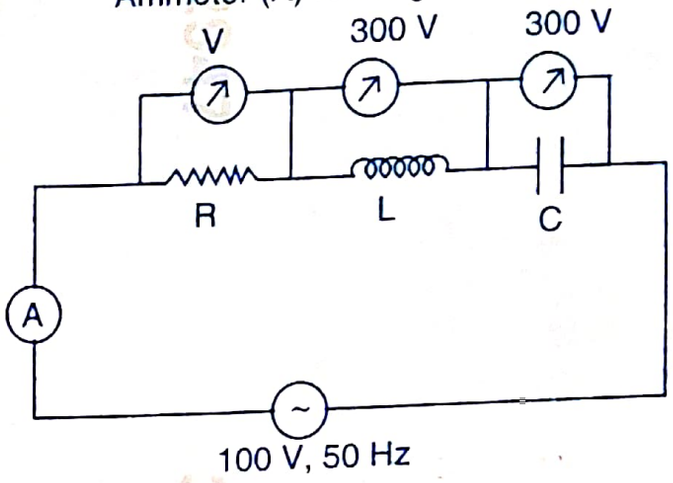
(A) Both (i) and (iv) are correct

(B) Both (iii) and (iv) are correct

(C) Both (ii) and (iv) are correct

(D) Both (ii) and (iii) are correct

58. In the series R ~ L ~ C circuit as given below, the voltmeter (V) and Ammeter (A) readings are



(A) V = 300 volt, I = 1 amp

(B) V = 100 volt, I = 1 amp

(C) V = 400 volt, I = 4 amp

(D) V = 1000 volt, I = 10 amp

59. The velocity of sound in air is 'V' and the root mean square velocity of the molecules is 'C'. If $\frac{C_P}{C_V} = \gamma$, then $\frac{V}{C}$ will be equal to

(A) $\sqrt{\gamma/3}$ (B) $\sqrt{\gamma/3}$

(C) $\frac{\gamma}{\sqrt{3}}$ (D) $\sqrt{\gamma/3}$

60. Beats are produced by two progressive waves. Maximum loudness at the waxing is 'x' times the loudness of each wave. The value of 'x' is

(A) 1

(B) $\sqrt{2}$

(C) 2

(D) 4

SET – C

B – SECTION – III
SCIENCE (PCM) CHEMISTRY

61. All India Radio, Cuttack broadcasts FM Rainbow at a frequency of 101.3 MHz (Megahertz). The wavelength of the electromagnetic radiation emitted by the transmitter is (velocity of light C = 3.0×10^8 ms^{-1})

(A) 219.2 m (B) 290 m

(C) 29 m (D) 2.90 m

62. If the uncertainty in position and momentum are equal, then what will be the uncertainty in velocity ?

(A) $\sqrt{\frac{h}{\pi}}$

(B) $\frac{1}{2m}\sqrt{\frac{h}{\pi}}$

(C) $\sqrt{\frac{h}{2\pi}}$

(D) $\frac{1}{m}\sqrt{\frac{h}{\pi}}$

63. An equilibrium mixture of the reaction $2H_2S_{(g)} \rightleftharpoons 2H_{2(g)} + S_{2(g)}$ there were 0.5 mole of H_2S, 0.1 mole of H_2 and 0.4 mole of S_2 in 1 litre vessel. What is the equilibrium constant (K_C) in $mol.litre^{-1}$?

(A) 0.004

(B) 0.008

(C) 0.016

(D) 0.160

64. Why pure NaCl is precipitated when HCl gas is passed in a saturated solution of NaCl ?

(A) Impurities dissolve in HCl

(B) The product of $[Na^+]$ and $[Cl^-]$ becomes smaller than K_{SP} of NaCl

(C) The product of $[Na^+]$ and $[Cl^-]$ becomes greater than K_{SP} of NaCl

(D) HCl dissolves more in NaCl solution than water

65. Which of the following is most stable ?

(A) $CH_3^{\ominus}$

(B) $(CH_3)_2CH^{\oplus}$

(C) $(CH_3)_3C^{\oplus}$

(D) $CH_3CH_2^{\oplus}$

66. Benzene reacts with chlorine in presence of sunlight to form

(A) Benzyl chloride

(B) BHC

(C) Benzoyl chloride

(D) None of these

67. Equivalent weight of $K_2Cr_2O_7$ in the following reaction is

$Cr_2O_7^{2-} + Fe^{2+} \rightarrow Fe^{3+} + Cr^{3+}$

(M = Molecular mass of $K_2Cr_2O_7$)

(A) $\frac{M}{3}$

(B) $\frac{M}{6}$

(C) $\frac{M}{5}$

(D) $\frac{M}{4}$

68. In the following reaction,

$3Br_2 + 6CO_3^{2-} + 3H_2O = 5Br^- + BrO_3^- + 6HCO_3^-$

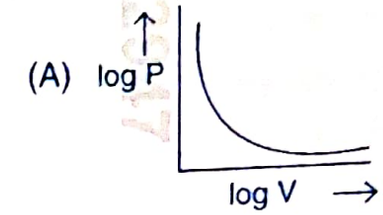
(A) Bromine is oxidised and carbonate is reduced

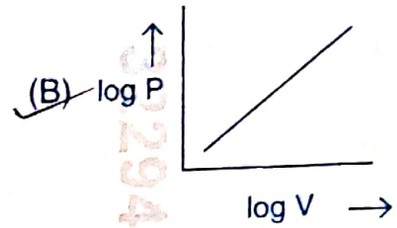
(B) Bromine is reduced and water is oxidised

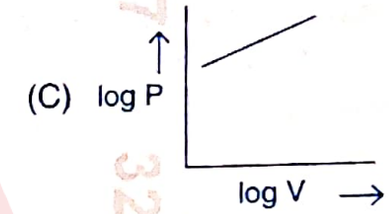
(C) Bromine is neither oxidised nor reduced

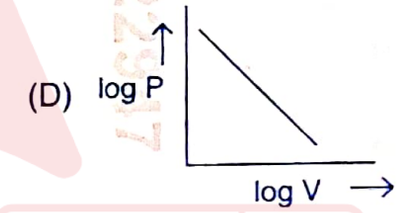
(D) Bromine is both oxidised and reduced

69. Which of the following graph correctly represents log P vs. log V variation as per Boyle's law ?

(A) 

(B) 

(C) 

(D) 

70. The vapour pressure of a given liquid will decrease if

(A) Surface area of liquid is decreased

(B) Volume of liquid in the container is decreased

(C) The volume of the vapour phase is increased

(D) The temperature is decreased

SET – C

71. The IUPAC name of $CH \equiv C - CH = CH_2$ is

(A) But-3-en-1-yne
(B) But-1-en-3-yne
(C) But-1-yn-3-ene
(D) Buty-1-ne-3-ne

72. Acetone and propen-2-ol are

(A) Position isomers
(B) Keto-enol tautomers
(C) Positional isomers
(D) Chain isomers

73. Which one of the following is an oxide ore ?

(A) Haematite
(B) Malachite
(C) Zinc blende
(D) Copper glance

74. Which of the following ores is best concentrated by froth flotation process ?

(A) Magnetite
(B) Chalcopyrite
(C) Siderite
(D) Malachite

75. Which of the following ions has the highest value of ionic radius ?

(A) O^{2-} (B) B^{3+}
(C) Li^{+} (D) F^{-}

76. Arrange the following elements in increasing order of first ionisation enthalpy.
Li, Be, B, C, N

(A) Li < Be < C < B < N
(B) Li < Be < N < B < C
(C) Li < B < Be < C < N
(D) Li < Be < B < C < N

77. Two elements A and B combine to form two compounds AB_2 and A_3B_2. If 0.1 mole of AB_2 weighs 10 g and 0.05 mole of A_3B_2 weighs 9 g, the atomic masses of A and B are

(A) 20, 30 (B) 40, 30
(C) 30, 20 (D) 60, 40

78. Which of the following contains largest number of atoms ?

(A) 4 g He (B) 46 g Na
(C) 0.4 g Ca (D) 12 g Mg

79. Which of the following molecules contains no π-bond ?

(A) SO_2 (B) NCl_3
(C) NO_2 (D) NO

80. The number of Sigma (σ) and Pi(π) bonds in Pent-1-en-4-yne is

(A) 13σ-bonds and No π-bonds
(B) 8σ-bonds and 3 π-bonds
(C) 10σ-bonds and 3 π-bonds
(D) 11σ-bonds and 2 π-bonds

B – SECTION – III
SCIENCE (PCM) MATHEMATICS

81. The function $f(x) = \frac{x}{1+x^2}$ is decreasing in the interval

(A) $[1, \infty)$

(B) $(-\infty, \infty)$

(C) $(-1, 1)$

(D) $[-1, 1]$

82. If $\alpha, \beta, \gamma, \delta$ be four angles of a cyclic quadrilateral, then
$\cos\alpha + \cos\beta + \cos\gamma + \cos\delta =$

(A) 1

(B) -1

(C) 0

(D) 2

83. If $\log 2$, $\log(2^x - 1)$ and $\log(2^x + 3)$ are in A.P., then $x =$

(A) $\frac{5}{2}$

(B) $\log_2 5$

(C) $\log_3 2$

(D) $\frac{3}{2}$

84. Let $f(x) = 2x + 1$. The number of real values of x for which the three unequal numbers $f(x)$, $f(2x)$ and $f(4x)$ are in GP is

(A) 0

(B) 1

(C) 2

(D) 3

85. If A and B are two sets, then $(A \cup B)' \cup (A' \cap B) =$

(A) A

(B) A'

(C) B

(D) B'

86. R be a relation on the set of real numbers defined by $(m, n) \in R$ iff $mn > 0$. Then R is

(A) only reflexive

(B) only symmetric

(C) only transitive

(D) an equivalence relation

SET – C

87. If $A = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$, then A^n is

(A) $2^n A^n$

(B) $2^{n-1} I$

(C) $2^n I$

(D) $2^{n-1} A$

88. The volume of a sphere is $\frac{792}{7}$ cm^3. What is its surface area ?

(A) 27πcm^2

(B) 36πcm^2

(C) 48πcm^2

(D) 64πcm^2

89. The number of divisors of 8064 is

(A) 12

(B) 24

(C) 48

(D) 64

90. The difference between a monoid and semigroup is

(A) Monoid is a semigroup which is not closed

(B) Monoid is a semigroup having no identity element

(C) Monoid is a semigroup having inverse element

(D) Monoid is a semigroup having identity element

91. Let $\sin\alpha = p$, the quadratic equation whose roots are $\tan\frac{\alpha}{2}$ and $\cot\frac{\alpha}{2}$ is

(A) $px^2 + 2x + p = 0$

(B) $px^2 - x + p = 0$

(C) $px^2 - 2x + p = 0$

(D) $x^2 - 2px + p = 0$

92. The sum of intercepts cut off by the plane $2x + y - z = 5$ is

(A) $\frac{2}{5}$ (B) $-\frac{5}{2}$

(C) $\frac{5}{2}$ (D) 0

93. The coordinates of points A, B, C in a plane are $(-2, 0)$, $(3, 0)$ and $(2, 5)$ respectively. The distance of the centroid of ΔABC from the side $\overline{AB}$ is

(A) $\frac{3}{5}$

(B) $\frac{5}{3}$

(C) $\frac{1}{3}$

(D) $\frac{2}{3}$

(Continued)

SET – C

94. If the probability that a student is not a Swimmer is $\frac{1}{5}$, then the probability that out of 5 students, four are Swimmers is

(A) ${}^5C_4\left(\frac{4}{5}\right)^4 \frac{1}{5}$

(B) $\left(\frac{4}{5}\right)^4 \frac{1}{5}$

(C) ${}^5C_1\frac{1}{5}\left(\frac{4}{5}\right)^4$

(D) $\left(\frac{1}{5}\right)^4 \frac{4}{5}$

95. Let $|X| = m$, $|Y| = n$, then total number of functions from $X \to Y$ is

(A) m^n

(B) n^m

(C) 2^{mn}

(D) 2^{m+n}

96. $\lim_{x \to \infty}\left(\frac{x}{2+x}\right)^{2x} =$

(A) e^6

(B) e^{-6}

(C) e^4

(D) e^{-4}

97. The number of values of x in $[0, 5\pi]$ so that $3\sin^2x - 7\sin x + 2 = 0$ is

(A) 0

(B) 1

(C) 4

(D) 5

98. The distance between focii of $3x^2 + 4y^2 + 6x + 8y - 5 = 0$ is

(A) 1

(B) 2

(C) 4

(D) 6

99. The ratio of the radii of two cones is 3 : 5 and the ratio of their heights is 1 : 3. Then the ratio of their volume is

(A) 3 : 5

(B) 3 : 10

(C) 9 : 25

(D) 3 : 25

100. Mean deviation of first 10 natural numbers is

(A) 0.5

(B) 2.5

(C) 3.5

(D) 4.5

SET – C

C – SECTION – IV

COMPULSORY FOR ALL STREAMS
CHILD DEVELOPMENT, PEDAGOGY, SCHOOL MANAGEMENT AND EVALUATION

101. The assessment that is typically done before teaching to determine a students' prior knowledge is called :
(A) Formative assessment
(B) Summative assessment
(C) Placement assessment
(D) Diagnostic assessment

102. Which of the following is not a typical objective of Continuous and Comprehensive Evaluation (CCE) ?
(A) Holistic assessment of students learning
(B) Reducing stress and anxiety associated with single terminal examinations
(C) Evaluating academic memorizations of the learners
(D) Providing regular feedback and diagnostic insights for teachers and learners

103. Which type of intelligence is not considered under Gardner's Multiple Intelligence Theory ?
(A) Bodily Kinesthetic
(B) Musical
(C) Intrapersonal
(D) Emotional

104. Negative transfer of learning means
(A) No transfer or less transfer
(B) Obstruction in learning
(C) Learning wrong skills
(D) Learning transfer to other people

105. Which is the key characteristics of portfolio assessment ?
(A) It provides immediate feedback through quiz programs
(B) It is conducted solely at the end of the learning process
(C) It is as focussed on academic subjects taught in the school
(D) It occurs over a longer period to redemonstrate understanding of students' achievement

106. A system where 90 – 100% is always an 'A' grade regardless the class performance is :
(A) Relative grading
(B) Criterion referenced grading
(C) Mastery grading
(D) Absolute grading

SET – C

107. Cyber-bullying among adolescents can be reduced by :
(A) encouraging students for massive use of social media
(B) ignoring online interaction
(C) banning all technological uses in school
(D) teaching digital citizenship and online safety

108. Who defined intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally and deal effectively with the environment" ?
(A) David Wechsler
(B) George D. Stoddard
(C) Robert Sternberg
(D) L. L. Thurstone

109. What method did Kohlberg primarily use to assess moral reasoning ?
(A) Survey
(B) Observation
(C) Interview
(D) Experiment

110. Which of the following is not a stage of moral development in Kohlberg's Theory ?
(A) Obedience and punishment orientation
(B) Good interpersonal relationship
(C) Self actualisation
(D) Social contract orientation

111. The SMART BOARD is the best example of :
(A) Projected TLM
(B) Non-projected TLM
(C) Audio TLM
(D) Interactive digital TLM

112. When adapting curriculum for dyscalculia, a teacher should :
(A) Give more complex numerical problems
(B) Use manipulative like blocks, counters, abacus
(C) Remove mathematics completely
(D) Use only textbook methods

113. Which assessment tool provides a systematic collection of students' work over time ?
(A) Rating scale
(B) Questionnaire
(C) Portfolio
(D) Interview schedule

114. Rubrics typically consist of :
(A) Numerical marks only
(B) Levels of performance with clear descriptors
(C) Anecdotal notes only
(D) Yes/No check boxes

SET – C

115. In 5-E instructional model, 'explain' implies :
(A) Providing opportunity for students to articulate their understanding
(B) Extending students understanding through new experience
(C) Allowing students to investigate and build their own understanding
(D) Capturing student's interest and curiosity

116. The core component of school board management involves :
(A) Autocratic leadership
(B) Empowering internal stakeholders
(C) Strict adherence to state mandates
(D) Eliminating performance accountability

117. Cooperative play is typically seen during which stage ?
(A) Infancy
(B) Early childhood
(C) Later childhood
(D) Adolescence

118. Which of the following steps should be taken by the teacher for behavioral changes of an adolescent ?
(A) Punish the student
(B) Ignore the behaviour
(C) Communicate privately and empathetically
(D) Contact parents immediately without talking to the student

119. Critical pedagogy was propounded by :
(A) B. F. Skinner
(B) Paulo Freire
(C) Sigmund Freud
(D) Jean Piaget

120. Which of the following is true about good TLMs ?
(A) They should be expensive
(B) They should be large and colourful
(C) They should be age-appropriate and contextual
(D) They must be digital

121. Students are asked to set goals, track progress and evaluate their strategies. This best represents :
(A) Assessment for learning
(B) Assessment as learning
(C) Assessment of learning
(D) Summative assessment

122. Teacher-made tests are generally characterized by :
(A) a high reliability and standard scoring procedures
(B) uniform administration and standard norms
(C) flexibility and alignment with classroom objectives
(D) being nationally norm-referenced

123. By using vocabularies and concept given by teacher, a student writes a poem on his/her own. Which of the following cognitive area is achieved as per Bloom's revised taxonomy ?

(A) Remembering
(B) Applying
(C) Creating
(D) Evaluating

124. Who believed that action and direct observation were the best ways to educate children ?

(A) Friedrich Froebel
(B) John Dewey
(C) Maria Montessori
(D) Lev Vygotsky

125. Which is the highest form of internal stakeholder's participations in School Based Management (SBM) ?

(A) Students are held accountable for their performance
(B) Students, teachers and parents understand their respective roles in school based management
(C) Students exercise their rights and fulfils their responsibility
(D) Students are made aware of their responsibilities and rights

126. What is the prime objective of School Development Plan (SDP) ?

(A) To create a healthy organisational climate in school
(B) To cater the needs of the disadvantaged group students
(C) To make provision for adequate financial resources
(D) To make community accountable for school development

127. Heredity influences development because it :

(A) is the sole determiner of human development
(B) provides the biological blue-print
(C) cannot be changed by external factors
(D) is not always more important than environment

128. The child first learns to control the head before the legs. This statement illustrates

(A) Differentiation principle
(B) Integration principle
(C) Proximodistal principle
(D) Cephalocaudal principle

129. The innate language theory by Noam Chomsky was devised on :

(A) Language acquisition device and universal grammar

(B) Language acquisition device and behavioural reinforcement

(C) Language acquisition device and parental language input

(D) Language acquisition device and cognition

130. In Erikson's stages of psychosocial development, what is the primary psychosocial conflict during adolescence ?

(A) Trust Vs Mistrust

(B) Autonomy Vs Shame and doubt

(C) Identity Vs Role confusion

(D) Intimacy Vs Isolation

131. "Scaffolding" in learning refers to :

(A) allowing students to learn independently without support of teacher

(B) allowing students to discover everything on their own

(C) giving students unlimited help throughout learning

(D) providing temporary support that is gradually withdrawn

132. Private speech in Vygotsky's theory refers to

(A) A speech used only in private spaces

(B) Talking oneself to guide thinking and behaviour

(C) Speech directed towards peers

(D) Conversations between teacher and student

133. Arranging items from easy to difficult is done to follow which principle ?

(A) Fairness

(B) Objectivity

(C) Balance

(D) Proper sequencing

134. Which of the following is not a recognition type test ?

(A) True-false test

(B) Matching test

(C) Multiple choice question

(D) Sentence completion test

135. A school that allows teachers to form committees to manage extra-curricular programmes, while the principal focuses on administrative policies, demonstrates :

(A) Autocratic management

(B) Centralized management

(C) Decentralized management

(D) Laissez-faire management

SET – C

136. The SCERT is primarily responsible for :
(A) conducting secondary board examination
(B) implementing teacher training programme and curriculum development at the state level
(C) organizing Teacher Eligibility Tests (TETs)
(D) allocating funds to schools

137. According to cognitive development theory of Jean Piaget, at which stage a child develops logical thinking of tangible objects ?
(A) Sensory motor stage
(B) Pre-operational stage
(C) Concrete operational stage
(D) Formal operational stage

138. The book "syntactic structures" published in 1957 is authored by
(A) Noam Chomsky
(B) B. F. Skinner
(C) Joan Bybee
(D) Lev Vygotsky

139. What is the full form of PARAKH described in NEP 2020 ?
(A) Performance assessment, review and analysis of knowledge for holistic development
(B) Performance accreditation, renewal and assessing knowledge for holistic development
(C) Primary assessment, resource and application of knowledge for holistic development
(D) Performance assessment, review and application of knowledge for holistic development

140. Which of the following is also known as curricular validity ?
(A) Content validity
(B) Predictive validity
(C) Construct validity
(D) Concurrent validity

141. A blue-print is developed in order to :
(A) ensure content validity of the test
(B) determining scoring procedures
(C) decide the time limit
(D) provide distractors for MCQs

142. The principle of validity in test construction ensures that the test :
(A) gives consistent results on repeated use
(B) measures what it intends to measure
(C) is easy for the majority of students
(D) is easy for administration

143. According to Erikson, the basic strength developed during the stage of industry vs inferiority is :
(A) Hope (B) Purpose
(C) Will (D) Competence

144. Which of the following best represents stage 6 (six) reasoning in Lawrence Kohlberg's Moral Development Theory ?
(A) "I follow the rule because everyone must follow it"
(B) "I help because I will get a reward"
(C) "I act according to my internal justice principles"
(D) "I obey so others will praise me"

145. On what approach is critical pedagogy based on
(A) Problem solving approach
(B) Teacher centric pedagogical approach
(C) Trait approach
(D) Constructivist approach

146. NEP 2020 recommends '10 days period' as bag less day for students of which classes ?
(A) 1 to 5 (B) 1 to 8
(C) 6 to 8 (D) 1 to 10

147. A good teacher is one who :
(A) Dictates good notes to students
(B) Maintains strict discipline and avoids students interacting outside the class
(C) Encourage curiosity, critical thinking and active learning
(D) Avoid classroom interaction

148. School Based Management (SBM) is primarily based on which management principle ?
(A) Division of labour
(B) Centralization
(C) Participatory governance
(D) Autocratic control

149. Which of the following is not an example of intrinsic motivation ?
(A) Curiosity about a new topic
(B) Love for reading novels
(C) Writing homework for praise from the teacher
(D) Interests in solving puzzles

150. Which of the following methods is most associated with teacher-centric learning ?
(A) Lecture method
(B) Role play
(C) Project method
(D) Problem solving method